

Mental Health Analysis

Alex Miles, Jeremy Miles

Looking at Mental, Trust, Optimism and Age

From doc: We can test for a significant difference in the strength of the relationship between mh and trust/optimism across age groups.

```
Attaching package: 'dplyr'
```

```
The following objects are masked from 'package:stats':
```

```
  filter, lag
```

```
The following objects are masked from 'package:base':
```

```
  intersect, setdiff, setequal, union
```

```
Warning: package 'foreign' was built under R version 4.3.3
```

```
Warning: package 'ggplot2' was built under R version 4.3.3
```

```
Warning: package 'ggrepel' was built under R version 4.3.3
```

```
Warning: package 'haven' was built under R version 4.3.2
```

```
Warning: package 'knitr' was built under R version 4.3.3
```

```
Warning: package 'locfit' was built under R version 4.3.3
```

```
locfit 1.5-9.10      2024-06-24
```

```
Warning in rm(data_haven): object 'data_haven' not found
```

```

# rename the trust variables

d <- orig_dat %>%
  # ggplot uses alphabetical order, so a number at the
  # front keeps the order
  dplyr::rename(
    `1. national_tv_media_info` = a1_1,
    `2. local_tv_media_info` = a1_2,
    `3. trust_media_national_radio_media_info` = a1_3,
    `4. local_radio_media_info` = a1_4,
    `5. international_tv_media_info` = a1_5,
    `6. international_radio_media_info` = a1_6,
    `7. national_print_media_info` = a1_7,
    `8. local_print_media_info` = a1_8,
    `9. word_of_mouth_media_info` = a1_9,
    `10. govt_comms_media_info` = a1_10,
    `11. social_media_media_info` = a1_11,
    `12. internet_media_info` = a1_12,
    `13. messaging_media_info` = a1_13,
    # people
    `1. family_people_info` = a2_1,
    `2. religious_people_info` = a2_2,
    `3. community_leaders_people_info` = a2_3,
    `4. friends_people_info` = a2_4,
    `5. social_medial_people_info` = a2_5,
    `6. local_politician_people_info` = a2_6,
    `7. govt_pol_leaders_people_info` = a2_7,
    `8. journalists_people_info` = a2_8,
    `9. ngos_people_info` = a2_9,
    `10. int_authority_people_info` = a2_10,
    `11. employer_colleague_people_info` = a2_11,
    `12. family_doc_people_info` = a2_12,
    `13. scientist_people_info` = a2_13,
    # who would you trust to act in your interests?
    `1. government_trust` = b1_1,
    `2. health_authorities_trust` = b1_2,
    `3. int_orgs_trust` = b1_3,
    #
    `1. neighbors_interest` = b2_1,
    `2. scientists_interest` = b2_2,
    `3. celebs_interest` = b2_3,
  )

```

```

    ` 4. religious_interest`      = b2_4,
    ` 5. community_leaders_interest` = b2_5,
    ` 6. politic_leaders_interest` = b2_6,
    ` 7. ngos_interest`          = b2_7,
    ` 8. employer_interest`      = b2_8,
    ` 9. family_docs_interest`   = b2_9,
    `10. family_interest`        = b2_10
  ) %>%
  dplyr::mutate(
    mh_problems = ifelse(c1_6 == "Yes", TRUE, ifelse(
      c1_6 == "No", FALSE, NA)),
    lonely = ifelse(c1_1 == "Yes", TRUE, ifelse(
      c1_1 == "No", FALSE, NA))
  ) %>%
  dplyr::mutate_at(
    vars(ends_with("info")), as.numeric
  ) %>%
  dplyr::mutate_at(
    vars(ends_with("trust")), as.numeric
  ) %>%
  dplyr::mutate_at(
    vars(ends_with("interest")), as.numeric
  ) %>%
  # Optimism
  dplyr::mutate(
    financial_optimism =
      ifelse(as.numeric(d1_1) < 5, as.numeric(d1_1), NA
      ),
    economy_optimism =
      ifelse(as.numeric(d1_2) < 5, as.numeric(d1_2), NA
      ),
    health_optimism =
      ifelse(as.numeric(d1_1) < 5, as.numeric(d1_1), NA
      ),
  )

d <- d %>% dplyr::mutate(
  global_region = as.character(global_region),
  gender = as.character(gender),

```

```

gender = ifelse(gender %in% c("Male", "Female"), gender, NA),
youth = age_group == "18-24 years old",
youth = ifelse(youth, "Age 18-24", "Age25+"),
Region = as.character(region),
country = as.character(country),
age_group = as.character(age_group),
age_group =
  ifelse(age_group == "Don't know/ Prefer not to say", NA, age_group))

#| results: asis
RunModels <- function(ending, predictor) {

  vars <- d %>%
    select(ends_with(ending)) %>%
    names()

  d$predictor <- d[[predictor]]

  for (outcome_var in vars) {

    cat("\n =====Current outcome variable: ", outcome_var, "=====\\n")
    cat("\n =====Predictor variable: ", predictor, "=====\\n")

    d$outcome_var <- d[[outcome_var]]

    fit_1 <- lme4::lmer(outcome_var ~ (1|country), data = d, REML = FALSE)
    fit_2 <- lme4::lmer(outcome_var ~ age_group + (1|country), data = d,
                        REML = FALSE)

    cat("\n\\n\\n===== Fit 2: Age Group =====\\n")
    cat("\n =====Predictor variable: ", predictor, "=====\\n")
    summary(fit_2) %>% print()

    fit_3 <- lme4::lmer(
      outcome_var ~ predictor + age_group + (1|country), data = d, REML = FALSE
    )

    cat("\n\\n\\n===== Fit 3: Add Predictor =====\\n")
  }
}

```

```

    \n")
summary(fit_3) %>% print()

fit_3a <- lme4::lmer(
  outcome_var ~ predictor + age_group + (age_group|country), data = d,
  REML = FALSE
)

cat("\n\n\n===== Fit 3a: Add Random Slope for Predictor =====\n\n")
summary(fit_3a) %>% print()

anova(fit_3, fit_3a, test = "LRT")

fit_4 <- lme4::lmer(
  outcome_var ~ predictor * age_group + (1|country), data = d,
  REML = FALSE
)
cat("\n\n\n===== Fit 4: Add Interaction =====\n\n")
summary(fit_4) %>% print()

cat("\n\n\n===== Fit 4: LRT to Get P-Value for Interaction =====\n\n")
anova(fit_3, fit_4, test = "LRT") %>% print()

fit_4a <- lme4::lmer(
  outcome_var ~ predictor * age_group + (age_group|country), data = d,
  REML = FALSE
)
summary(fit_4a) %>% print()
anova(fit_3a, fit_4a, test = "LRT") %>% print()

d_grouped <- d%>%
  dplyr::filter(!is.na(predictor), !is.na(age_group)) %>%
  dplyr::group_by(country) %>%
  dplyr::mutate(outcome_var_mean = mean(outcome_var, na.rm = TRUE)) %>%
  dplyr::mutate(outcome_var_centered = outcome_var - outcome_var_mean) %>%
  dplyr::group_by(age_group, predictor) %>%

```

```

    dplyr::summarise(outcome_var = mean(outcome_var_centered))

p <- d_grouped %>%
  ggplot2::ggplot(
    aes(x = age_group, y = outcome_var, group = predictor, color = predictor)
  ) +
  geom_line() +
  ggtitle(outcome_var)

print(p)
cat("\n =====Predictor variable: ", predictor, "=====\n")
d_grouped %>%
  tidyr::pivot_wider(
    names_from = predictor,
    values_from = outcome_var
  ) %>% knitr::kable() %>% print()
}
}

```

Results for Trust in Media Information and Mental Health Problems.

Question: Who would you trust to give you accurate information about an emerging crisis?

Note: Higher score = LESS LIKELY to trust.

Generally: Mental health problems are associated with HIGHER trust; loneliness is associated with HIGHER trust.

Country Level Summary

```

d %>% dplyr::select(
  country, ends_with("media_info")
) %>%
  dplyr::group_by(country) %>%
  dplyr::summarise_all(
    mean, na.rm = TRUE
  ) %>% knitr::kable(digits = 2)

```

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
country	national	local	technical	infocultural	international	inter-national	national	local	information	social	scientific	inter-	mes-
	cat	cat	infocultural	infocultural	international	inter-national	national	local	information	social	scientific	inter-	mes-
Argentina	2.18	2.19	2.29	2.26	2.32	2.48	2.37	2.42	2.68	2.40	2.40	2.18	2.55
Australia	2.04	2.12	2.17	2.14	2.54	2.52	2.44	2.45	2.63	2.02	2.84	2.42	2.99
Austria	2.20	2.14	2.20	2.17	2.51	2.58	2.36	2.52	2.94	2.56	3.04	2.58	2.94
Belgium	2.02	2.30	2.15	2.41	2.58	2.67	2.27	2.47	3.00	2.19	3.14	2.71	3.13
Brazil	1.85	1.84	2.04	2.07	2.06	2.26	2.09	2.15	2.62	2.14	2.26	1.88	2.31
Bulgaria	1.92	2.25	2.11	2.38	2.25	2.44	2.42	2.53	2.57	2.26	2.33	2.02	2.65
Cameroon	2.24	2.30	2.32	2.39	2.30	2.35	2.45	2.54	2.97	2.51	2.80	2.52	2.66
Canada	2.14	2.10	2.30	2.20	2.37	2.53	2.35	2.35	2.79	2.23	2.99	2.56	3.10
Chile	2.24	2.29	2.10	2.11	2.22	2.37	2.35	2.43	2.76	2.24	2.43	2.16	2.44
Colombia	2.00	2.03	2.00	2.03	2.06	2.13	2.14	2.17	2.63	2.09	2.30	2.08	2.39
Croatia	2.36	2.46	2.48	2.41	2.47	2.50	2.58	2.59	3.09	2.49	2.99	2.60	2.90
DRC	2.20	2.43	2.20	2.39	2.31	2.29	2.64	2.73	2.99	2.48	2.99	2.72	2.90
Denmark	2.02	2.18	2.06	2.33	2.45	2.47	2.32	2.47	2.85	2.10	3.08	2.74	3.04
Egypt	2.00	1.93	2.29	2.28	2.44	2.57	2.22	2.20	2.16	2.02	1.99	1.97	2.06
Estonia	1.78	2.51	2.02	2.54	2.84	2.94	2.27	2.36	2.87	2.14	3.08	2.50	3.14
Ethiopia	2.14	2.17	2.16	2.19	2.89	2.89	2.61	2.67	2.28	2.55	3.23	3.11	3.19
Finland	1.79	2.03	1.82	1.98	2.42	2.41	1.97	2.07	2.80	1.95	3.03	2.62	2.98
France	2.22	2.34	2.42	2.47	2.90	2.94	2.53	2.53	2.88	2.66	2.92	2.54	3.09
Germany	2.27	2.17	2.33	2.20	2.73	2.80	2.51	2.56	2.92	2.65	2.90	2.41	2.81
Ghana	1.75	1.81	1.82	1.93	1.85	1.95	2.11	2.08	2.44	1.99	2.38	2.18	2.39
Greece	2.27	2.32	2.25	2.28	2.13	2.22	2.33	2.38	2.59	2.37	2.44	2.05	2.55
Hong Kong	2.24	1.83	2.23	1.95	2.14	2.21	2.32	2.30	2.46	1.96	2.13	2.00	2.17
Hungary	2.68	2.66	2.63	2.62	2.30	2.39	2.79	2.77	3.04	2.78	2.87	2.39	2.94
India	2.00	1.99	2.54	2.63	2.45	2.67	2.09	2.14	2.27	2.26	2.64	2.38	2.54
Indonesia	1.66	1.75	1.87	1.96	1.79	1.95	1.86	2.00	2.42	1.82	2.01	1.84	2.13
Iraq	2.54	2.46	3.03	3.00	2.77	3.04	2.99	3.04	2.71	2.61	2.45	2.45	2.55
Ireland	2.03	2.21	2.01	2.08	2.31	2.27	2.25	2.31	2.70	2.14	2.90	2.55	2.88
Israel	2.19	2.38	2.27	2.38	2.44	2.55	2.37	2.47	2.90	2.35	2.64	2.16	2.74
Italy	2.10	2.19	2.19	2.30	2.32	2.44	2.18	2.25	2.54	2.16	2.53	2.24	2.52
Ivory Coast	1.99	2.14	2.14	2.26	2.03	2.12	2.33	2.47	2.89	2.15	2.66	2.50	2.67
Japan	2.15	2.41	2.63	2.76	3.11	3.22	2.53	2.72	3.16	2.58	3.07	2.52	3.19
KSA	1.66	1.74	1.80	1.90	1.82	1.96	1.85	1.88	2.30	1.60	1.98	1.78	2.07
Kenya	1.87	2.01	1.90	1.99	2.03	2.00	2.16	2.31	2.37	2.05	2.47	2.34	2.42
Latvia	2.10	2.19	2.11	2.15	2.48	2.56	2.48	2.45	2.48	2.15	2.45	2.26	2.50
Liberia	2.05	2.18	1.85	2.02	1.90	1.80	2.04	2.14	2.42	2.10	2.16	2.00	2.15

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
country	national	local	technical	infocultural	international	international	national	local	information	software	software	inter-	mes-
	cat	cat	inf	inf	inf	inf	inf	inf	inf	inf	inf	inf	inf
Lithuania	1.87	2.12	1.92	2.20	2.28	2.37	2.25	2.41	2.37	2.16	2.59	2.27	2.77
Malaysia	1.62	1.62	1.72	1.70	1.84	1.98	1.86	1.84	2.46	1.68	1.99	1.84	2.19
Mali	1.84	2.13	1.96	2.19	2.31	2.33	2.47	2.48	2.34	2.13	2.70	2.58	2.58
Mexico	1.88	1.95	1.91	1.98	1.86	2.03	2.05	2.08	2.58	1.97	2.17	1.90	2.28
Netherlands	1.86	2.15	2.07	2.24	2.48	2.55	2.30	2.39	2.80	2.03	2.98	2.50	2.88
New Zealand	1.91	2.01	2.00	2.01	2.38	2.33	2.24	2.23	2.68	1.94	2.89	2.52	2.97
Nigeria	2.32	2.55	2.13	2.26	2.61	2.30	2.63	2.63	2.39	2.19	2.92	2.93	2.80
Nigeria	1.89	1.94	1.86	1.87	1.88	1.96	2.18	2.27	2.32	2.32	2.31	2.31	2.30
Norway	1.83	2.18	1.97	2.18	2.44	2.51	2.19	2.26	2.75	2.29	3.01	2.64	3.07
Pakistan	2.42	2.48	2.96	3.06	2.82	2.91	2.80	2.77	2.56	2.85	2.76	2.68	2.79
Philippines	1.76	1.90	1.90	1.86	1.94	2.03	2.02	2.06	2.15	1.90	2.11	1.94	2.20
Poland	2.33	2.37	2.24	2.25	2.36	2.39	2.55	2.54	2.74	2.37	2.72	2.43	2.78
Portugal	2.70	2.01	1.89	2.07	2.08	2.19	2.02	2.15	2.53	1.99	2.81	2.31	2.75
Qatar	1.68	1.76	1.86	1.99	1.93	2.08	1.82	1.93	2.35	1.67	2.10	1.93	2.13
Romania	2.11	2.28	2.17	2.34	2.21	2.26	2.45	2.53	2.46	2.28	2.65	2.24	2.52
Russia	2.46	2.58	2.70	2.82	3.23	3.30	2.70	2.81	2.93	2.56	2.76	2.52	2.70
Senegal	2.20	2.53	2.45	2.52	2.85	2.94	3.08	3.13	2.70	2.62	3.01	2.98	2.95
Sierra Leone	2.00	2.24	1.78	1.94	1.86	1.72	2.21	2.30	2.58	2.10	2.48	2.26	2.35
Slovakia	2.22	2.40	2.27	2.42	2.63	2.72	2.48	2.58	2.82	2.50	2.84	2.47	2.92
Slovenia	2.36	2.47	2.38	2.40	2.62	2.70	2.50	2.56	2.83	2.50	2.95	2.57	3.02
South Africa	1.69	1.82	1.77	1.81	1.86	1.90	1.93	1.93	2.20	1.91	2.15	1.98	2.05
South Korea	1.39	2.48	2.51	2.58	2.36	2.48	2.51	2.68	2.96	2.50	2.71	2.35	2.88
South Sudan	1.38	2.49	2.10	2.16	2.16	2.07	2.35	2.40	2.35	2.45	2.53	2.38	2.58
Spain	2.07	2.16	2.16	2.17	2.39	2.49	2.24	2.28	2.55	2.19	2.70	2.30	2.55
Sweden	1.95	2.08	2.02	1.98	2.47	2.46	2.27	2.29	2.57	1.96	3.13	2.69	3.21
Switzerland	2.01	2.13	2.15	2.21	2.56	2.65	2.24	2.39	2.88	2.24	3.05	2.59	2.90
Taiwan	2.12	2.18	2.18	2.31	2.16	2.31	2.25	2.36	2.76	2.21	2.38	2.22	2.66
Thailand	1.87	2.50	2.66	2.56	2.71	3.02	2.63	2.73	2.35	2.17	2.54	2.41	3.01
Turkey	2.08	2.10	2.16	2.25	2.06	2.18	2.13	2.22	2.59	2.22	2.18	1.91	2.17
UAE	1.71	1.74	1.93	2.04	1.92	2.13	1.97	2.03	2.26	1.64	1.97	1.90	2.04

	1.	2.	3.	4.	5. in- ter- na-	6. inter- na-	7. na-	8. lo-	9.	10.	11. so-	12. in- ter-	13. mes- sag-
country	national_tv	local_tv	national_radio	local_radio	national_tv	local_tv	national_radio	local_radio	national_tv	local_tv	national_radio	local_radio	national_tv
UK	2.08	2.18	2.27	2.31	2.55	2.38	2.57	2.59	2.83	2.26	2.89	2.56	2.92
US	1.99	1.97	2.25	2.12	2.33	2.54	2.30	2.28	2.42	2.31	2.39	2.18	2.65
Uganda	2.09	2.09	1.95	1.70	2.47	2.36	2.33	2.35	2.26	2.09	2.78	2.67	2.71
Ukraine	2.55	2.80	2.68	2.83	2.91	2.93	2.93	2.99	3.22	2.54	2.81	2.45	2.72
Vietnam	1.70	1.69	1.83	1.74	2.55	2.61	2.09	2.08	2.17	1.97	2.28	2.13	2.51

Lots of output below. I will try to summarise.

1. National TV

35-44 have lower trust than 18-25; 45-54 and 55+ have higher trust than 18-25. MH problems are associated with HIGHER trust (by 0.025 points on a 1-4 scale, so not very much).

The effect of MH problems on trust does not vary across age groups. Controlling for loneliness, age effect disappears. Barely statistically significant interaction effect of loneliness and age - loneliness not associated with trust in 55+.

2. local_tv_media

45-54 and 55+ have HIGHER trust than 18-25.

MH: There is a change in the relationship across age, which appears to be driven by 55+ with MH problems having higher trust than those without, which is the reverse of other age groups. Loneliness: Large difference in trust for lonely vs not at up to age 44; effect reduces and disappears at 55.

3. national_radio_media

35-44, 45-54 and 55+ have lower trust than youth. MH problems not associated with trust (controlling for age group) No variation in MH effect across age detected. Loneliness: consistent difference in trust up to age 55, then effect of loneliness disappears.

4. local_radio_media

All age groups have higher trust than youth.

MH problem effect does not vary across age. Loneliness effect varies slightly across age - oldest people have lowest effect.

5. International TV

35+ have less trust than youth. MH: Larger trust gap in youth than older. Loneliness: Slightly larger in youth, but not statistically significant.

6. International Radio

Similar to TV, 35+ have less trust (55+ much less difference). MH: Gap is larger in youth than older, but barely statistically significant. Loneliness: Age-Loneliness effect not (even close to) statistically significant.

7. National Print Media

All groups have lower trust than youth. MH: No statistically significant differences in the effect of MH on trust in different age groups. Loneliness: Larger trust gap in younger (<45) age groups.

8. Local Print Media

No statistically significant age effect. MH: Graph looks like something interesting is happening, but appears not significant (possible estimation error though). Loneliness: Trust gap in lonely vs not shrinks in older age groups.

9. Word of Mouth Media

All groups HIGHER trust than youth. Smallest difference with 55+. MH: Smaller effect of MH in youth than in other age groups. Loneliness: Also smaller effect of loneliness in younger people.

10. Govt Communications

35+ lower trust than youth. MH: No statistically significant effect of MH on the level of trust across age groups. Loneliness: Large effect for youth and up to age 44. Small or reversed effect for older.

11. Social Media

All age groups trust social media LESS than youth (25-34 only slightly, 55+ dramatically).

MH: Effect of MH is consistent across age groups. Loneliness: Marginally significant effect. Hard to see in the graph. Perhaps smaller difference for younger people.

12. Internet Media

All age groups have significantly lower trust than youth - trust decreases with age.

Effect of MH is consistent across age groups. Effect of loneliness is consistent across age.

13. Messaging Media

Trust lower in 35+ than youth. 55+ considerably so.

No difference in the effect of MH or loneliness across age groups.

(Sorry, the graphs are not positioned nicely, I can't work out how to make them appear in the right place.)

```
RunModels(ending = "media_info", predictor = "mh_problems")
```

```
=====Current outcome variable:  1. national_tv_media_info =====
```

```
=====Predictor variable:  mh_problems =====
```

```
===== Fit 2: Age Group =====
```

```
=====Predictor variable:  mh_problems =====
```

```
Linear mixed model fit by maximum likelihood ['lmerMod']
```

Formula: outcome_var ~ age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
203448.1	203512.3	-101717.0	203434.1	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.6965	-0.8086	-0.1111	0.3288	3.3846

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.05638	0.2374
	Residual	1.03693	1.0183

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.07063	0.03004	68.933
age_group25-34 years old	0.02331	0.01265	1.842
age_group35-44 years old	0.02674	0.01317	2.031
age_group45-54 years old	-0.03610	0.01401	-2.577
age_group55+ years	-0.08393	0.01281	-6.554

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.247			
ag_g35-44yo	-0.244	0.566		
ag_g45-54yo	-0.235	0.535	0.534	
ag_grp55+yr	-0.263	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
193647.9	193720.9	-96815.9	193631.9	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7190	-0.8164	-0.0917	0.3308	3.4588

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.05629	0.2373
Residual		0.99988	0.9999

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.052944	0.030224	67.924
predictorTRUE	-0.024831	0.008574	-2.896
age_group25-34 years old	0.023284	0.012693	1.834
age_group35-44 years old	0.026644	0.013224	2.015
age_group45-54 years old	-0.024295	0.014076	-1.726
age_group55+ years	-0.068625	0.012938	-5.304

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.110				
ag_g25-34yo	-0.249	0.013			
ag_g35-44yo	-0.248	0.034	0.568		
ag_g45-54yo	-0.241	0.051	0.537	0.537	
ag_grp55+yr	-0.275	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (age_group | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
193360.5	193561.3	-96658.2	193316.5	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-1.7190 -0.7921 -0.0966 0.3428 3.4751

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	6.184e-02	0.248681	
	age_group25-34 years old	5.576e-05	0.007467	1.00
	age_group35-44 years old	8.453e-03	0.091942	-0.03 -0.03
	age_group45-54 years old	1.976e-02	0.140558	-0.43 -0.43 0.60
	age_group55+ years	4.412e-02	0.210056	-0.33 -0.33 0.58 0.82
Residual		9.922e-01	0.996101	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.073024	0.031575	65.655
predictorTRUE	-0.036041	0.008608	-4.187
age_group25-34 years old	0.018921	0.012710	1.489
age_group35-44 years old	0.015082	0.017322	0.871
age_group45-54 years old	-0.032978	0.021984	-1.500
age_group55+ years	-0.053267	0.028496	-1.869

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.110				
ag_g25-34yo	-0.174	0.016			
ag_g35-44yo	-0.207	0.034	0.433		
ag_g45-54yo	-0.461	0.037	0.320	0.559	
ag_grp55+yr	-0.394	0.045	0.244	0.530	0.720

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
193653.9	193763.5	-96815.0	193629.9	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7234	-0.8148	-0.0890	0.3306	3.4614

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.05629	0.2372
Residual		0.99985	0.9999

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.0476490	0.0311085	65.823
predictorTRUE	-0.0120238	0.0198136	-0.607
age_group25-34 years old	0.0281828	0.0162852	1.731
age_group35-44 years old	0.0365804	0.0167365	2.186
age_group45-54 years old	-0.0142554	0.0175237	-0.813
age_group55+ years	-0.0657589	0.0157751	-4.169
predictorTRUE:age_group25-34 years old	-0.0119731	0.0258961	-0.462
predictorTRUE:age_group35-44 years old	-0.0264276	0.0270193	-0.978
predictorTRUE:age_group45-54 years old	-0.0282353	0.0289726	-0.975
predictorTRUE:age_group55+ years	-0.0008083	0.0267798	-0.030

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.260							
ag_g25-34yo	-0.314	0.485						
ag_g35-44yo	-0.313	0.478	0.585					
ag_g45-54yo	-0.305	0.462	0.563	0.566				
ag_grp55+yr	-0.345	0.518	0.630	0.638	0.632			
pTRUE:_25yo	0.196	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.191	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.179	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.195	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								

pTRUE:_55+y 0.507

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	193648	193721	-96816	193632			
fit_4	12	193654	193764	-96815	193630	1.9473	4	0.7455

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	193367.3	193604.7	-96657.7	193315.3	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-1.7206	-0.7942	-0.0976	0.3447	3.4740

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	6.172e-02	0.248433	
	age_group25-34 years old	5.925e-05	0.007697	1.00
	age_group35-44 years old	8.425e-03	0.091790	-0.03 -0.03
	age_group45-54 years old	1.975e-02	0.140531	-0.43 -0.43 0.60
	age_group55+ years	4.427e-02	0.210409	-0.33 -0.33 0.58 0.82
Residual		9.922e-01	0.996090	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.06757	0.03240	63.813
predictorTRUE	-0.02282	0.01988	-1.148
age_group25-34 years old	0.02124	0.01630	1.303

age_group35-44 years old	0.02159	0.02016	1.071
age_group45-54 years old	-0.02399	0.02436	-0.985
age_group55+ years	-0.04548	0.02999	-1.516
predictorTRUE:age_group25-34 years old	-0.00511	0.02584	-0.198
predictorTRUE:age_group35-44 years old	-0.01637	0.02727	-0.600
predictorTRUE:age_group45-54 years old	-0.02457	0.02925	-0.840
predictorTRUE:age_group55+ years	-0.02211	0.02703	-0.818

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.252							
ag_g25-34yo	-0.251	0.482						
ag_g35-44yo	-0.270	0.402	0.487					
ag_g45-54yo	-0.484	0.336	0.387	0.568				
ag_grp55+yr	-0.427	0.272	0.311	0.542	0.710			
pTRUE:_25yo	0.190	-0.749	-0.626	-0.305	-0.253	-0.205		
pTRUE:_35yo	0.184	-0.724	-0.353	-0.512	-0.246	-0.200	0.547	
pTRUE:_45yo	0.172	-0.679	-0.328	-0.275	-0.428	-0.190	0.509	0.496
pTRUE:_55+y	0.185	-0.736	-0.354	-0.296	-0.250	-0.302	0.551	0.534
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y								0.505

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

Data: d

Models:

fit_3a:	outcome_var	~	predictor	+	age_group	+	(age_group country)
fit_4a:	outcome_var	~	predictor	*	age_group	+	(age_group country)
	npar	AIC	BIC	logLik	deviance	Chisq	Df Pr(>Chisq)
fit_3a	22	193360	193561	-96658	193316		
fit_4a	26	193367	193605	-96658	193315	1.1856	4 0.8805

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	0.0080799	-0.0002356
25-34 years old	0.0390536	0.0161931
35-44 years old	0.0505455	0.0116270
45-54 years old	0.0034843	-0.0388776
55+ years	-0.0444364	-0.0599482

=====Current outcome variable: 2. local_tv_media_info =====

=====Predictor variable: mh_problems =====

===== Fit 2: Age Group =====

=====Predictor variable: mh_problems =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
203260.4	203324.5	-101623.2	203246.4	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7862	-0.7349	-0.1541	0.4856	3.3598

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06511	0.2552
Residual		1.03403	1.0169

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.20150	0.03204	68.704
age_group25-34 years old	-0.01634	0.01264	-1.293

age_group35-44 years old	-0.02030	0.01315	-1.544
age_group45-54 years old	-0.04425	0.01399	-3.163
age_group55+ years	-0.06365	0.01279	-4.977

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.231		
ag_g35-44yo	-0.228	0.566	
ag_g45-54yo	-0.220	0.535	0.534
ag_grp55+yr	-0.246	0.589	0.593 0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
193778.5	193851.6	-96881.3	193762.5	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8156	-0.7229	-0.1375	0.4635	3.4172

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.066	0.2569
Residual		1.002	1.0008

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.186795	0.032440	67.410
predictorTRUE	-0.025271	0.008582	-2.945
age_group25-34 years old	-0.013629	0.012705	-1.073
age_group35-44 years old	-0.022081	0.013237	-1.668
age_group45-54 years old	-0.034583	0.014089	-2.455
age_group55+ years	-0.051439	0.012952	-3.971

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
--------	--------	--------	--------	--------

```

predctrTRUE -0.103
ag_g25-34yo -0.232  0.013
ag_g35-44yo -0.231  0.034  0.568
ag_g45-54yo -0.225  0.051  0.537  0.537
ag_grp55+yr -0.256  0.108  0.589  0.596  0.589

```

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00491765 (tol = 0.002, component 1)

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
193527.8	193728.7	-96741.9	193483.8	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8503	-0.7291	-0.1476	0.4449	3.5023

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.059850	0.24464	
	age_group25-34 years old	0.005409	0.07355	0.15
	age_group35-44 years old	0.008915	0.09442	0.16 0.70
	age_group45-54 years old	0.012389	0.11131	-0.06 0.15 0.59
	age_group55+ years	0.039044	0.19759	-0.16 -0.12 0.60 0.76
Residual		0.994685	0.99734	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.194574	0.031198	70.344
predictorTRUE	-0.034328	0.008618	-3.983
age_group25-34 years old	-0.009506	0.015748	-0.604
age_group35-44 years old	-0.023624	0.017637	-1.339
age_group45-54 years old	-0.035454	0.019599	-1.809

age_group55+ years -0.031388 0.027292 -1.150

Correlation of Fixed Effects:

(Intr) prTRUE a_25yo a_35yo a_45yo

predctrTRUE -0.113

ag_g25-34yo -0.130 0.016

ag_g35-44yo -0.097 0.035 0.624

ag_g45-54yo -0.217 0.044 0.391 0.566

ag_grp55+yr -0.256 0.048 0.189 0.554 0.657

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.00491765 (tol = 0.002, component 1)

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
193773.7	193883.3	-96874.9	193749.7	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8232	-0.7301	-0.1329	0.4608	3.4318

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06594	0.2568
Residual		1.00145	1.0007

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.19020	0.03326	65.857
predictorTRUE	-0.03294	0.01983	-1.661
age_group25-34 years old	-0.00743	0.01630	-0.456
age_group35-44 years old	-0.01533	0.01675	-0.915
age_group45-54 years old	-0.04280	0.01754	-2.440
age_group55+ years	-0.06560	0.01579	-4.154
predictorTRUE:age_group25-34 years old	-0.01710	0.02592	-0.660

```

predictorTRUE:age_group35-44 years old -0.02166      0.02704  -0.801
predictorTRUE:age_group45-54 years old  0.02314      0.02900   0.798
predictorTRUE:age_group55+ years      0.05711      0.02680   2.131

```

Correlation of Fixed Effects:

```

      (Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.243
ag_g25-34yo -0.294  0.485
ag_g35-44yo -0.293  0.478  0.585
ag_g45-54yo -0.286  0.462  0.563  0.566
ag_grp55+yr -0.323  0.518  0.630  0.638  0.632
pTRUE:_25yo  0.184 -0.753 -0.626 -0.364 -0.351 -0.393
pTRUE:_35yo  0.178 -0.725 -0.358 -0.611 -0.342 -0.385  0.554
pTRUE:_45yo  0.168 -0.680 -0.335 -0.332 -0.591 -0.364  0.517      0.499
pTRUE:_55+y  0.183 -0.739 -0.362 -0.359 -0.350 -0.557  0.560      0.540
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.507

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

```

fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3     8 193779 193852 -96881   193763
fit_4    12 193774 193883 -96875   193750  12.8  4    0.01229 *
---

```

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
193539.5	193776.9	-96743.8	193487.5	68109

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8323	-0.7336	-0.1441	0.4467	3.5045

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0588785	0.24265	
	age_group25-34 years old	0.0004407	0.02099	1.00
	age_group35-44 years old	0.0046691	0.06833	0.37 0.37
	age_group45-54 years old	0.0123054	0.11093	-0.04 -0.04 0.55
	age_group55+ years	0.0410324	0.20256	-0.17 -0.17 0.78 0.79
Residual		0.9951460	0.99757	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.20227	0.03173	69.401
predictorTRUE	-0.04262	0.01984	-2.148
age_group25-34 years old	-0.01177	0.01646	-0.715
age_group35-44 years old	-0.02433	0.01868	-1.302
age_group45-54 years old	-0.04915	0.02205	-2.229
age_group55+ years	-0.04874	0.02909	-1.675
predictorTRUE:age_group25-34 years old	-0.01031	0.02586	-0.399
predictorTRUE:age_group35-44 years old	-0.01338	0.02709	-0.494
predictorTRUE:age_group45-54 years old	0.02689	0.02921	0.921
predictorTRUE:age_group55+ years	0.04015	0.02701	1.486

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.256							
ag_g25-34yo	-0.165	0.477						
ag_g35-44yo	-0.132	0.430	0.543					
ag_g45-54yo	-0.261	0.369	0.436	0.549				
ag_grp55+yr	-0.309	0.278	0.309	0.585	0.662			
pTRUE:_25yo	0.193	-0.750	-0.619	-0.327	-0.279	-0.209		
pTRUE:_35yo	0.188	-0.724	-0.352	-0.549	-0.271	-0.207	0.551	
pTRUE:_45yo	0.175	-0.677	-0.326	-0.294	-0.472	-0.195	0.511	0.493

```
pTRUE:_55+y 0.187 -0.735 -0.350 -0.315 -0.273 -0.308 0.550 0.537
pTRUE:_4yo
```

```
predctrTRUE
```

```
ag_g25-34yo
```

```
ag_g35-44yo
```

```
ag_g45-54yo
```

```
ag_grp55+yr
```

```
pTRUE:_25yo
```

```
pTRUE:_35yo
```

```
pTRUE:_45yo
```

```
pTRUE:_55+y 0.504
```

```
optimizer (nloptwrap) convergence code: 0 (OK)
```

```
boundary (singular) fit: see help('isSingular')
```

```
Data: d
```

```
Models:
```

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

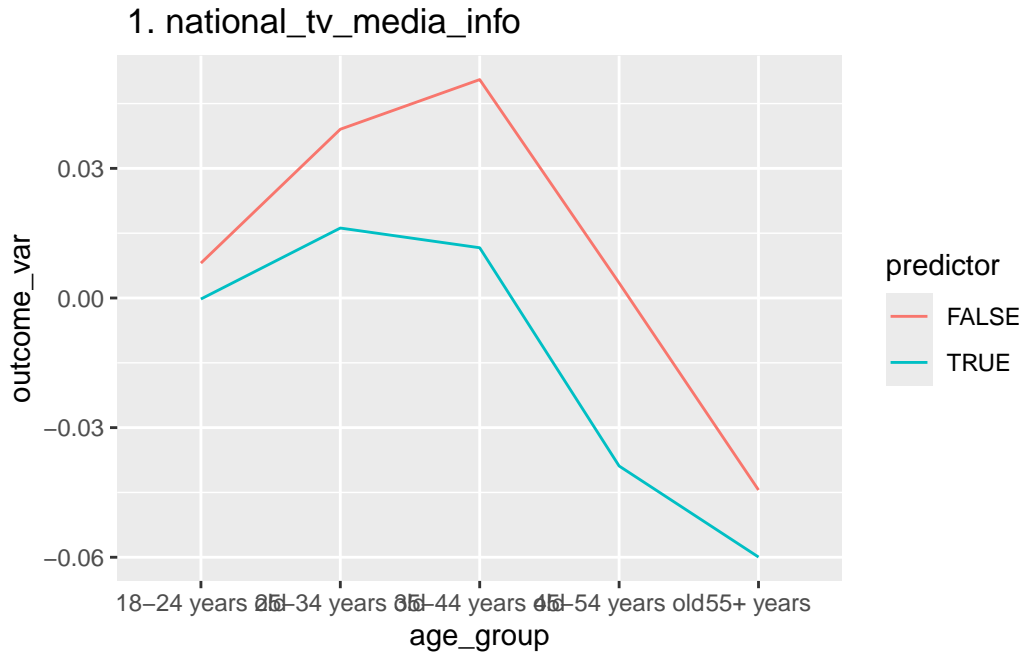
```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

```
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
```

```
fit_3a   22 193528 193729 -96742   193484
```

```
fit_4a   26 193540 193777 -96744   193488      0 4      1
```

```
`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.
```

=====
 =====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	0.0333866	0.0043014
25-34 years old	0.0280195	-0.0195642
35-44 years old	0.0221198	-0.0312563
45-54 years old	-0.0033496	-0.0133337
55+ years	-0.0245072	-0.0014015

=====
 =====Current outcome variable: 3. trust_media_national_radio_media_info =====

=====
 =====Predictor variable: mh_problems =====

=====
 ===== Fit 2: Age Group =====

=====
 =====Predictor variable: mh_problems =====
 Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
206602.2	206666.3	-103294.1	206588.2	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9760	-0.8141	-0.1353	0.3658	3.1980

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0782	0.2796
Residual		1.0839	1.0411

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.21617	0.03491	63.491
age_group25-34 years old	-0.02255	0.01294	-1.743
age_group35-44 years old	-0.03929	0.01346	-2.918
age_group45-54 years old	-0.08020	0.01433	-5.598
age_group55+ years	-0.10237	0.01310	-7.816

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.218			
ag_g35-44yo	-0.215	0.566		
ag_g45-54yo	-0.206	0.535	0.534	
ag_grp55+yr	-0.232	0.589	0.593	0.584

=====
===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
196987.1	197060.1	-98485.5	196971.1	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0121	-0.8202	-0.1225	0.3279	3.2637

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07843	0.280
Residual		1.04980	1.025

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.192767	0.035146	62.391
predictorTRUE	-0.015922	0.008787	-1.812
age_group25-34 years old	-0.016319	0.013007	-1.255
age_group35-44 years old	-0.034464	0.013552	-2.543
age_group45-54 years old	-0.067843	0.014425	-4.703
age_group55+ years	-0.079743	0.013261	-6.013

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.097				
ag_g25-34yo	-0.220	0.013			
ag_g35-44yo	-0.219	0.034	0.568		
ag_g45-54yo	-0.212	0.051	0.537	0.537	
ag_grp55+yr	-0.242	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (age_group | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
196561.5	196762.4	-98258.8	196517.5	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-2.2897 -0.8054 -0.1231 0.3244 3.2797

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	7.736e-02	0.278141	
	age_group25-34 years old	9.499e-05	0.009746	1.00
	age_group35-44 years old	7.280e-03	0.085322	-0.10 -0.10
	age_group45-54 years old	1.664e-02	0.128982	-0.26 -0.26 0.22
	age_group55+ years	5.389e-02	0.232151	-0.18 -0.18 0.23 0.86
Residual		1.040e+00	1.019572	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.205829	0.034978	63.063
predictorTRUE	-0.026085	0.008809	-2.961
age_group25-34 years old	-0.017931	0.013025	-1.377
age_group35-44 years old	-0.038361	0.017073	-2.247
age_group45-54 years old	-0.072315	0.021179	-3.414
age_group55+ years	-0.065195	0.031032	-2.101

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.101				
ag_g25-34yo	-0.136	0.016			
ag_g35-44yo	-0.234	0.033	0.445		
ag_g45-54yo	-0.328	0.039	0.347	0.393	
ag_grp55+yr	-0.252	0.041	0.234	0.321	0.733

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

=====
===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
196989.7	197099.2	-98482.8	196965.7	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0127	-0.8168	-0.1229	0.3270	3.2551

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07844	0.2801
Residual		1.04972	1.0246

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.191917	0.035951	60.970
predictorTRUE	-0.013523	0.020303	-0.666
age_group25-34 years old	-0.009304	0.016687	-0.558
age_group35-44 years old	-0.026749	0.017150	-1.560
age_group45-54 years old	-0.066938	0.017958	-3.727
age_group55+ years	-0.086228	0.016168	-5.333
predictorTRUE:age_group25-34 years old	-0.018443	0.026534	-0.695
predictorTRUE:age_group35-44 years old	-0.022296	0.027685	-0.805
predictorTRUE:age_group45-54 years old	-0.002706	0.029687	-0.091
predictorTRUE:age_group55+ years	0.031718	0.027441	1.156

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.230							
ag_g25-34yo	-0.278	0.485						
ag_g35-44yo	-0.278	0.478	0.585					
ag_g45-54yo	-0.271	0.462	0.563	0.566				
ag_grp55+yr	-0.306	0.518	0.630	0.638	0.632			
pTRUE:_25yo	0.174	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.169	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.159	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.173	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								

pTRUE:_55+y 0.507

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	196987	197060	-98486	196971			
fit_4	12	196990	197099	-98483	196966	5.3851	4	0.25

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	196568.9	196806.2	-98258.4	196516.9	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.2845	-0.8054	-0.1232	0.3214	3.2712

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0772752	0.277984	
	age_group25-34 years old	0.0000985	0.009924	1.00
	age_group35-44 years old	0.0073286	0.085607	-0.10 -0.10
	age_group45-54 years old	0.0166314	0.128963	-0.26 -0.26 0.23
	age_group55+ years	0.0536688	0.231665	-0.18 -0.18 0.23 0.86
Residual		1.0395164	1.019567	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.205402	0.035768	61.658
predictorTRUE	-0.025132	0.020330	-1.236
age_group25-34 years old	-0.013383	0.016690	-0.802

age_group35-44 years old	-0.037737	0.020104	-1.877
age_group45-54 years old	-0.072670	0.023747	-3.060
age_group55+ years	-0.067352	0.032399	-2.079
predictorTRUE:age_group25-34 years old	-0.011859	0.026444	-0.448
predictorTRUE:age_group35-44 years old	-0.001542	0.027936	-0.055
predictorTRUE:age_group45-54 years old	0.001528	0.029873	0.051
predictorTRUE:age_group55+ years	0.009219	0.027664	0.333

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.233							
ag_g25-34yo	-0.214	0.482						
ag_g35-44yo	-0.289	0.412	0.496					
ag_g45-54yo	-0.365	0.352	0.412	0.445				
ag_grp55+yr	-0.292	0.258	0.299	0.368	0.717			
pTRUE:_25yo	0.176	-0.749	-0.625	-0.313	-0.266	-0.194		
pTRUE:_35yo	0.170	-0.722	-0.352	-0.525	-0.257	-0.188	0.546	
pTRUE:_45yo	0.160	-0.679	-0.329	-0.282	-0.449	-0.182	0.511	0.492
pTRUE:_55+y	0.171	-0.735	-0.354	-0.303	-0.262	-0.287	0.550	0.532
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y								0.506

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

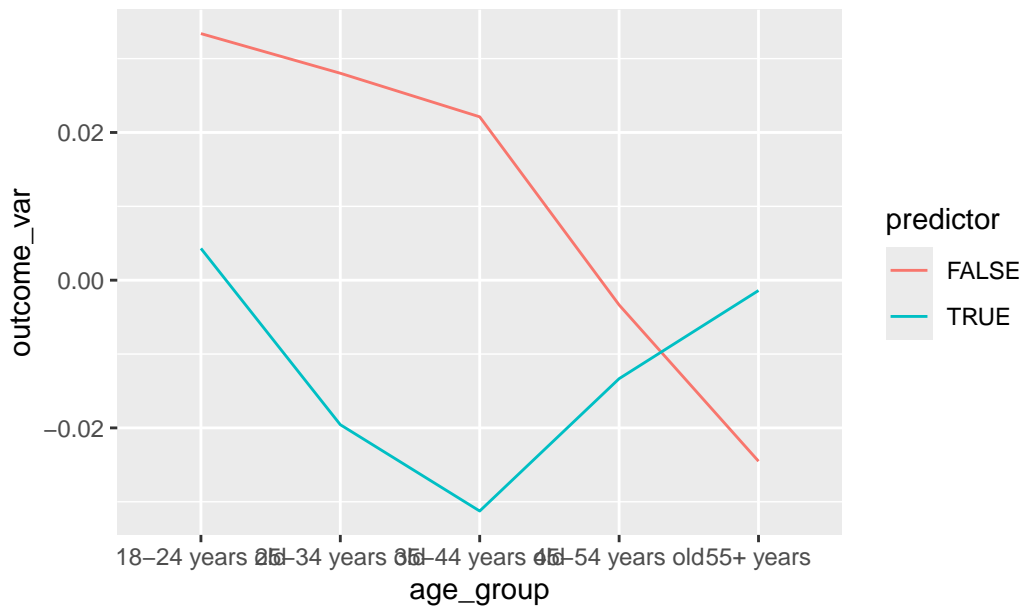
Data: d

Models:

fit_3a:	outcome_var	~	predictor	+	age_group	+	(age_group country)
fit_4a:	outcome_var	~	predictor	*	age_group	+	(age_group country)
	npar	AIC	BIC	logLik	deviance	Chisq	Df Pr(>Chisq)
fit_3a	22	196562	196762	-98259	196518		
fit_4a	26	196569	196806	-98258	196517	0.6964	4 0.9518

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

2. local_tv_media_info



=====
 =====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	0.0397358	0.0298943
25-34 years old	0.0335894	0.0025789
35-44 years old	0.0194528	-0.0171636
45-54 years old	-0.0172366	-0.0358774
55+ years	-0.0333302	-0.0178608

=====
 =====Current outcome variable: 4. local_radio_media_info =====

=====
 =====Predictor variable: mh_problems =====

=====
 ===== Fit 2: Age Group =====

=====
 =====Predictor variable: mh_problems =====
 Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
203693.0	203757.2	-101839.5	203679.0	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0761	-0.7108	-0.1687	0.5452	3.2943

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08189	0.2862
Residual		1.04015	1.0199

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.31876	0.03560	65.143
age_group25-34 years old	-0.05902	0.01267	-4.657
age_group35-44 years old	-0.09376	0.01319	-7.108
age_group45-54 years old	-0.13655	0.01403	-9.729
age_group55+ years	-0.13018	0.01283	-10.146

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.209			
ag_g35-44yo	-0.206	0.566		
ag_g45-54yo	-0.198	0.535	0.534	
ag_grp55+yr	-0.222	0.589	0.593	0.584

=====
===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
194318	194391	-97151	194302	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1138	-0.7152	-0.1529	0.5056	3.3535

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08254	0.2873
Residual		1.00938	1.0047

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.301621	0.035910	64.095
predictorTRUE	-0.023262	0.008616	-2.700
age_group25-34 years old	-0.054038	0.012754	-4.237
age_group35-44 years old	-0.088928	0.013289	-6.692
age_group45-54 years old	-0.125859	0.014145	-8.898
age_group55+ years	-0.113645	0.013005	-8.739

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.093				
ag_g25-34yo	-0.211	0.013			
ag_g35-44yo	-0.210	0.034	0.568		
ag_g45-54yo	-0.204	0.051	0.537	0.537	
ag_grp55+yr	-0.232	0.108	0.589	0.596	0.589

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.0252044 (tol = 0.002, component 1)

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
194059.7	194260.5	-97007.8	194015.7	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2712	-0.7293	-0.1469	0.5286	3.3803

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.078959	0.28100	
	age_group25-34 years old	0.006137	0.07834	-0.09
	age_group35-44 years old	0.008381	0.09155	-0.02 0.97
	age_group45-54 years old	0.009583	0.09789	-0.13 0.53 0.55
	age_group55+ years	0.039755	0.19939	-0.10 0.30 0.44 0.81
Residual		1.002455	1.00123	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.30652	0.03534	65.261
predictorTRUE	-0.03061	0.00865	-3.539
age_group25-34 years old	-0.05348	0.01619	-3.303
age_group35-44 years old	-0.08699	0.01751	-4.969
age_group45-54 years old	-0.12641	0.01863	-6.786
age_group55+ years	-0.10779	0.02756	-3.911

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.100				
ag_g25-34yo	-0.235	0.019			
ag_g35-44yo	-0.187	0.035	0.730		
ag_g45-54yo	-0.249	0.048	0.549	0.555	
ag_grp55+yr	-0.198	0.048	0.390	0.466	0.663

optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.0252044 (tol = 0.002, component 1)

=====
Fit 4: Add Interaction
=====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
194318.8	194428.3	-97147.4	194294.8	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1132	-0.7107	-0.1501	0.5059	3.3642

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08253	0.2873
Residual		1.00927	1.0046

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.3004102	0.0366645	62.742
predictorTRUE	-0.0201659	0.0199080	-1.013
age_group25-34 years old	-0.0521045	0.0163624	-3.184
age_group35-44 years old	-0.0749677	0.0168169	-4.458
age_group45-54 years old	-0.1253108	0.0176092	-7.116
age_group55+ years	-0.1192556	0.0158550	-7.522
predictorTRUE:age_group25-34 years old	-0.0048894	0.0260182	-0.188
predictorTRUE:age_group35-44 years old	-0.0402321	0.0271469	-1.482
predictorTRUE:age_group45-54 years old	-0.0009857	0.0291097	-0.034
predictorTRUE:age_group55+ years	0.0288836	0.0269070	1.073

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.222							
ag_g25-34yo	-0.268	0.485						
ag_g35-44yo	-0.267	0.478	0.585					
ag_g45-54yo	-0.260	0.462	0.563	0.566				
ag_grp55+yr	-0.294	0.518	0.630	0.638	0.632			
pTRUE:_25yo	0.167	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.163	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.153	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.166	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								

```
pTRUE:_45yo
pTRUE:_55+y 0.507
```

```
===== Fit 4: LRT to Get P-Value for Interaction =====
```

```
Data: d
```

```
Models:
```

```
fit_3: outcome_var ~ predictor + age_group + (1 | country)
```

```
fit_4: outcome_var ~ predictor * age_group + (1 | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	194318	194391	-97151	194302			
fit_4	12	194319	194428	-97147	194295	7.1711	4	0.1271

```
Warning in checkConv(attr(opt, "derivs"), opt$par, ctrl = control$checkConv, :
Model failed to converge with max|grad| = 0.0546031 (tol = 0.002, component 1)
```

```
Linear mixed model fit by maximum likelihood ['lmerMod']
```

```
Formula: outcome_var ~ predictor * age_group + (age_group | country)
```

```
Data: d
```

	AIC	BIC	logLik	deviance	df.resid
	194065.0	194302.3	-97006.5	194013.0	68109

```
Scaled residuals:
```

	Min	1Q	Median	3Q	Max
	-2.2644	-0.7339	-0.1473	0.5291	3.3930

```
Random effects:
```

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.079014	0.28109	
	age_group25-34 years old	0.006186	0.07865	-0.09
	age_group35-44 years old	0.008108	0.09004	-0.01 0.97
	age_group45-54 years old	0.009604	0.09800	-0.13 0.54 0.56
	age_group55+ years	0.039555	0.19888	-0.10 0.30 0.45 0.81
Residual		1.002426	1.00121	

```
Number of obs: 68135, groups: country, 70
```

```
Fixed effects:
```

	Estimate	Std. Error	t value
(Intercept)	2.306886	0.036172	63.775

predictorTRUE	-0.031610	0.020222	-1.563
age_group25-34 years old	-0.055868	0.019342	-2.888
age_group35-44 years old	-0.078570	0.020342	-3.862
age_group45-54 years old	-0.128934	0.021505	-5.995
age_group55+ years	-0.111710	0.029103	-3.838
predictorTRUE:age_group25-34 years old	0.006118	0.026369	0.232
predictorTRUE:age_group35-44 years old	-0.024953	0.027519	-0.907
predictorTRUE:age_group45-54 years old	0.007967	0.029435	0.271
predictorTRUE:age_group55+ years	0.015270	0.027351	0.558

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.233							
ag_g25-34yo	-0.292	0.429						
ag_g35-44yo	-0.251	0.412	0.701					
ag_g45-54yo	-0.299	0.392	0.569	0.575				
ag_grp55+yr	-0.246	0.290	0.433	0.499	0.658			
pTRUE:_25yo	0.177	-0.759	-0.545	-0.318	-0.300	-0.220		
pTRUE:_35yo	0.171	-0.731	-0.319	-0.517	-0.290	-0.214	0.567	
pTRUE:_45yo	0.161	-0.684	-0.297	-0.286	-0.495	-0.206	0.523	0.502
pTRUE:_55+y	0.172	-0.739	-0.317	-0.305	-0.294	-0.320	0.561	0.542
pTRUE:_4yo								

ag_g25-34yo

ag_g45-54yo

pTRUE: 25yo

pTRUE: 35yo

pTRUE: 45yo

pTRUE: _55+y 0.512

```
optimizer (nloptwrap) convergence code: 0 (OK)
```

Model failed to converge with $\max|\text{grad}| = 0.0546031$ (tol = 0.002, component 1)

Data: d

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

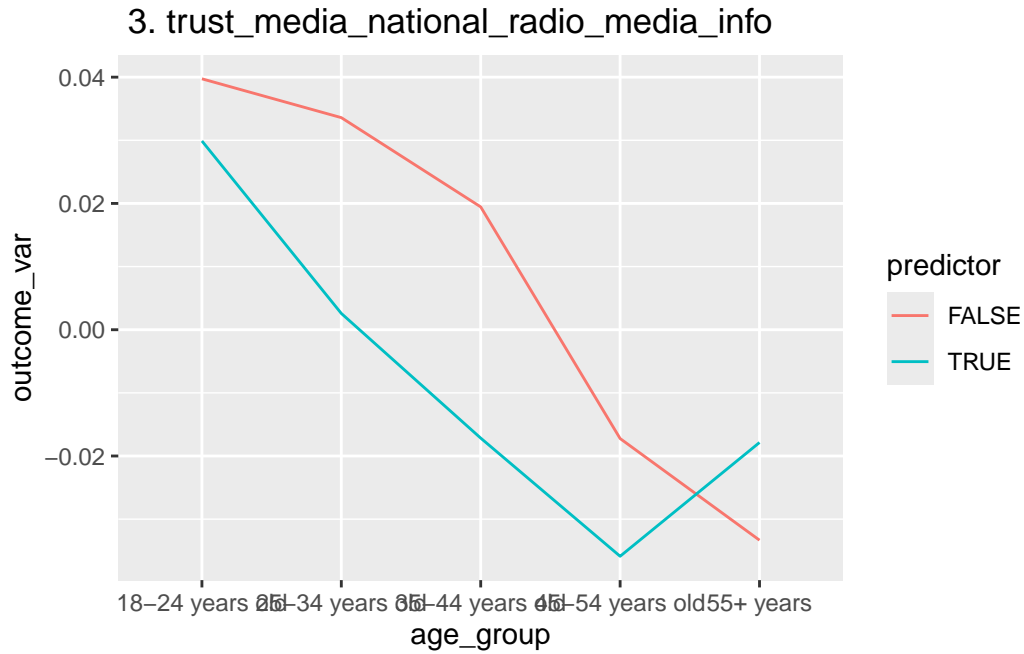
npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
------	-----	-----	--------	----------	-------	----	------------

fit_3a	22	194060	194261	-97008	194016
--------	----	--------	--------	--------	--------

fit 4a	26	194065	194302	-97006	194013	2.7175	4	0.6062
--------	----	--------	--------	--------	--------	--------	---	--------

``summarise()`` has grouped output by `'age_group'`. You can override using the

`.groups` argument.



=====
=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	0.0764253	0.0612174
25-34 years old	0.0287928	0.0053428
35-44 years old	0.0103662	-0.0505310
45-54 years old	-0.0358501	-0.0592932
55+ years	-0.0262775	-0.0202597

=====
=====Current outcome variable: 5. international_tv_media_info =====

=====
=====Predictor variable: mh_problems =====

=====
===== Fit 2: Age Group =====

```

=====Predictor variable:  mh_problems =====
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
218073.6	218137.8	-109029.8	218059.6	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0509	-0.7417	-0.2233	0.5459	2.9066

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0999	0.3161
Residual		1.2748	1.1291

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.26898	0.03932	57.701
age_group25-34 years old	0.01750	0.01403	1.247
age_group35-44 years old	0.05851	0.01460	4.007
age_group45-54 years old	0.08662	0.01554	5.575
age_group55+ years	0.19437	0.01420	13.684

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.209			
ag_g35-44yo	-0.207	0.566		
ag_g45-54yo	-0.199	0.535	0.534	
ag_grp55+yr	-0.223	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
-----	-----	--------	----------	----------


```

208682.6 208755.6 -104333.3 208666.6      68127

Scaled residuals:
    Min       1Q   Median       3Q      Max
-2.0904 -0.7462 -0.2021  0.5581  3.0255

Random effects:
   Groups   Name      Variance Std.Dev.
country (Intercept) 0.1009   0.3177
Residual              1.2463   1.1164
Number of obs: 68135, groups: country, 70

Fixed effects:
              Estimate Std. Error t value
(Intercept)      2.272530   0.039722  57.211
predictorTRUE     -0.072478   0.009574  -7.570
age_group25-34 years old 0.018878   0.014172   1.332
age_group35-44 years old 0.055343   0.014766   3.748
age_group45-54 years old 0.088744   0.015718   5.646
age_group55+ years    0.198543   0.014450  13.740

Correlation of Fixed Effects:
              (Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE  -0.094
ag_g25-34yo  -0.212  0.013
ag_g35-44yo  -0.211  0.034  0.568
ag_g45-54yo  -0.205  0.051  0.537  0.537
ag_grp55+yr  -0.234  0.108  0.589  0.596  0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

      AIC      BIC    logLik deviance df.resid
208320.9 208521.8 -104138.5 208276.9     68113

```

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3041	-0.7507	-0.2059	0.5688	2.9660

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.071160	0.26676	
	age_group25-34 years old	0.001692	0.04113	1.00
	age_group35-44 years old	0.012505	0.11183	0.53 0.53
	age_group45-54 years old	0.019199	0.13856	0.29 0.29 0.70
	age_group55+ years	0.059119	0.24314	0.18 0.18 0.51 0.88
Residual		1.235816	1.11167	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.272590	0.033992	66.857
predictorTRUE	-0.078527	0.009604	-8.177
age_group25-34 years old	0.023981	0.014954	1.604
age_group35-44 years old	0.060047	0.019991	3.004
age_group45-54 years old	0.093633	0.022843	4.099
age_group55+ years	0.209084	0.032722	6.390

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.114				
ag_g25-34yo	0.076	0.015			
ag_g35-44yo	0.149	0.031	0.511		
ag_g45-54yo	0.029	0.039	0.413	0.615	
ag_grp55+yr	0.034	0.042	0.293	0.495	0.744

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
208687.7	208797.2	-104331.8	208663.7	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0908	-0.7455	-0.2021	0.5565	3.0210

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1009	0.3177
Residual		1.2462	1.1164

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.269198	0.040567	55.937
predictorTRUE	-0.064152	0.022122	-2.900
age_group25-34 years old	0.030616	0.018182	1.684
age_group35-44 years old	0.050574	0.018687	2.706
age_group45-54 years old	0.093548	0.019567	4.781
age_group55+ years	0.202019	0.017618	11.467
predictorTRUE:age_group25-34 years old	-0.030513	0.028912	-1.055
predictorTRUE:age_group35-44 years old	0.015344	0.030166	0.509
predictorTRUE:age_group45-54 years old	-0.013145	0.032347	-0.406
predictorTRUE:age_group55+ years	-0.009029	0.029899	-0.302

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.223							
ag_g25-34yo	-0.269	0.485						
ag_g35-44yo	-0.268	0.478	0.585					
ag_g45-54yo	-0.261	0.462	0.563	0.566				
ag_grp55+yr	-0.296	0.518	0.630	0.638	0.632			
pTRUE:_25yo	0.168	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.163	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.154	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.167	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
								pTRUE:_4yo
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								

```
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.507
```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

```
fit_3: outcome_var ~ predictor + age_group + (1 | country)
```

```
fit_4: outcome_var ~ predictor * age_group + (1 | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	208683	208756	-104333	208667			
fit_4	12	208688	208797	-104332	208664	2.896	4	0.5754

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00373416 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	208315.6	208552.9	-104131.8	208263.6	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.3076	-0.7496	-0.2095	0.5715	2.9659

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.072207	0.2687	
	age_group25-34 years old	0.006497	0.0806	0.39
	age_group35-44 years old	0.019227	0.1387	0.33 0.80
	age_group45-54 years old	0.018918	0.1375	0.28 0.23 0.71
	age_group55+ years	0.059235	0.2434	0.17 0.17 0.50 0.88
Residual		1.235223	1.1114	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.26704	0.03532	64.192
predictorTRUE	-0.06713	0.02232	-3.007
age_group25-34 years old	0.03647	0.02087	1.747
age_group35-44 years old	0.05403	0.02527	2.138
age_group45-54 years old	0.10041	0.02582	3.889
age_group55+ years	0.21911	0.03448	6.355
predictorTRUE:age_group25-34 years old	-0.02815	0.02911	-0.967
predictorTRUE:age_group35-44 years old	0.02255	0.03064	0.736
predictorTRUE:age_group45-54 years old	-0.01519	0.03257	-0.466
predictorTRUE:age_group55+ years	-0.02917	0.03027	-0.964

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.262							
ag_g25-34yo	-0.118	0.432						
ag_g35-44yo	-0.046	0.366	0.641					
ag_g45-54yo	-0.077	0.359	0.461	0.634				
ag_grp55+yr	-0.046	0.268	0.356	0.525	0.727			
pTRUE:_25yo	0.198	-0.753	-0.554	-0.280	-0.271	-0.203		
pTRUE:_35yo	0.191	-0.729	-0.317	-0.459	-0.264	-0.196	0.558	
pTRUE:_45yo	0.181	-0.681	-0.298	-0.255	-0.455	-0.191	0.513	0.504
pTRUE:_55+y	0.193	-0.738	-0.318	-0.270	-0.269	-0.297	0.555	0.538
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y								0.510

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.00373416 (tol = 0.002, component 1)

Data: d

Models:

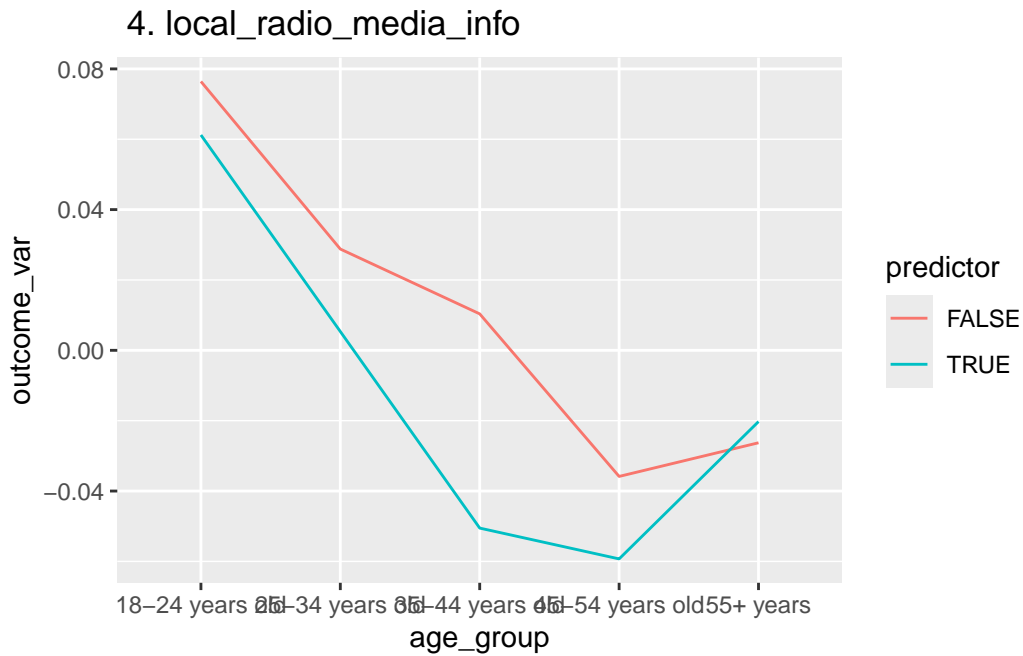
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	208321	208522	-104138	208277			
fit_4a	26	208316	208553	-104132	208264	13.371	4	0.009598 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



=====
=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.0444495	-0.1112115
25-34 years old	-0.0233513	-0.1121200
35-44 years old	-0.0130086	-0.0516445
45-54 years old	0.0202533	-0.0449323
55+ years	0.1178890	0.0562805

=====
=====Current outcome variable: 6. international_radio_media_info =====

=====
=====Predictor variable: mh_problems =====

===== Fit 2: Age Group =====

=====Predictor variable: mh_problems =====
 Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
219662.3	219726.5	-109824.2	219648.3	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0877	-0.7578	-0.2286	0.5869	2.8949

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1044	0.3231
Residual		1.3038	1.1418

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.344972	0.040165	58.383
age_group25-34 years old	0.006979	0.014189	0.492
age_group35-44 years old	0.064229	0.014767	4.349
age_group45-54 years old	0.073469	0.015713	4.676
age_group55+ years	0.187024	0.014365	13.019

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.207			
ag_g35-44yo	-0.205	0.566		
ag_g45-54yo	-0.197	0.535	0.534	
ag_grp55+yr	-0.221	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
210251.3	210324.3	-105117.7	210235.3	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1311	-0.7505	-0.2253	0.5879	2.9708

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1048	0.3238
Residual		1.2753	1.1293

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.344375	0.040460	57.944
predictorTRUE	-0.066061	0.009685	-6.821
age_group25-34 years old	0.006750	0.014336	0.471
age_group35-44 years old	0.064328	0.014937	4.307
age_group45-54 years old	0.079046	0.015900	4.972
age_group55+ years	0.196928	0.014618	13.472

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.093				
ag_g25-34yo	-0.210	0.013			
ag_g35-44yo	-0.209	0.034	0.568		
ag_g45-54yo	-0.203	0.051	0.537	0.537	
ag_grp55+yr	-0.232	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
209828.6	210029.5	-104892.3	209784.6	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3223	-0.7360	-0.2039	0.5861	2.9762

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0804618	0.28366	
	age_group25-34 years old	0.0005131	0.02265	1.00
	age_group35-44 years old	0.0124894	0.11176	0.32 0.32
	age_group45-54 years old	0.0234473	0.15313	0.15 0.15 0.45
	age_group55+ years	0.0634496	0.25189	0.14 0.14 0.32 0.92
Residual		1.2630911	1.12387	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.342354	0.035953	65.151
predictorTRUE	-0.069800	0.009711	-7.187
age_group25-34 years old	0.011792	0.014545	0.811
age_group35-44 years old	0.070149	0.020149	3.482
age_group45-54 years old	0.085278	0.024286	3.511
age_group55+ years	0.202969	0.033743	6.015

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.109				
ag_g25-34yo	-0.057	0.016			
ag_g35-44yo	0.019	0.031	0.452		
ag_g45-54yo	-0.047	0.037	0.364	0.487	
ag_grp55+yr	0.004	0.042	0.270	0.379	0.783

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

=====
===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
210255.1	210364.6	-105115.5	210231.1	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1303	-0.7502	-0.2241	0.5865	2.9760

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1048	0.3237
	Residual	1.2752	1.1293

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.333359	0.041297	56.502
predictorTRUE	-0.039037	0.022378	-1.744
age_group25-34 years old	0.025335	0.018392	1.377
age_group35-44 years old	0.081887	0.018903	4.332
age_group45-54 years old	0.083657	0.019794	4.226
age_group55+ years	0.207470	0.017822	11.641
predictorTRUE:age_group25-34 years old	-0.047220	0.029246	-1.615
predictorTRUE:age_group35-44 years old	-0.046185	0.030515	-1.514
predictorTRUE:age_group45-54 years old	-0.005892	0.032721	-0.180
predictorTRUE:age_group55+ years	-0.024264	0.030245	-0.802

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.221							
ag_g25-34yo	-0.267	0.485						
ag_g35-44yo	-0.266	0.478	0.585					
ag_g45-54yo	-0.260	0.462	0.563	0.566				
ag_grp55+yr	-0.294	0.517	0.630	0.638	0.632			
pTRUE:_25yo	0.167	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.162	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.153	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.166	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								

```

ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.507

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

```
fit_3: outcome_var ~ predictor + age_group + (1 | country)
```

```
fit_4: outcome_var ~ predictor * age_group + (1 | country)
```

	npars	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	210251	210324	-105118	210235			
fit_4	12	210255	210365	-105116	210231	4.2542	4	0.3727

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.0287625 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	209826.7	210064.1	-104887.4	209774.7	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.3242	-0.7361	-0.2036	0.5869	2.9866

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.080667	0.28402	
	age_group25-34 years old	0.003135	0.05599	0.32
	age_group35-44 years old	0.020028	0.14152	0.15 0.94
	age_group45-54 years old	0.024411	0.15624	0.13 0.27 0.53
	age_group55+ years	0.063698	0.25239	0.13 0.14 0.36 0.91

Residual 1.262783 1.12374
 Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.331056	0.037044	62.926
predictorTRUE	-0.042436	0.022555	-1.881
age_group25-34 years old	0.029369	0.019724	1.489
age_group35-44 years old	0.084852	0.025656	3.307
age_group45-54 years old	0.090068	0.027418	3.285
age_group55+ years	0.216377	0.035492	6.096
predictorTRUE:age_group25-34 years old	-0.045633	0.029277	-1.559
predictorTRUE:age_group35-44 years old	-0.036324	0.031037	-1.170
predictorTRUE:age_group45-54 years old	-0.005575	0.032986	-0.169
predictorTRUE:age_group55+ years	-0.035964	0.030576	-1.176

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.252							
ag_g25-34yo	-0.188	0.458						
ag_g35-44yo	-0.139	0.364	0.630					
ag_g45-54yo	-0.138	0.341	0.455	0.556				
ag_grp55+yr	-0.066	0.263	0.344	0.445	0.765			
pTRUE:_25yo	0.191	-0.753	-0.589	-0.279	-0.258	-0.199		
pTRUE:_35yo	0.183	-0.728	-0.335	-0.457	-0.250	-0.192	0.557	
pTRUE:_45yo	0.173	-0.682	-0.314	-0.251	-0.432	-0.188	0.514	0.500
pTRUE:_55+y	0.186	-0.738	-0.338	-0.269	-0.256	-0.291	0.555	0.537
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.511							

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.0287625 (tol = 0.002, component 1)

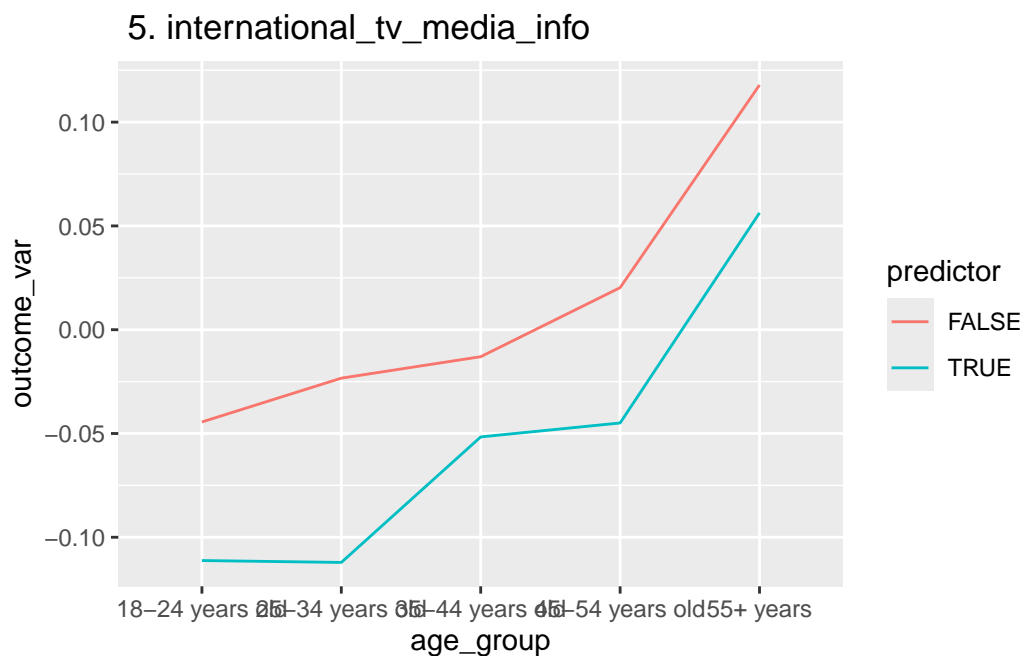
Data: d

Models:

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a   22 209829 210029 -104892   209785
fit_4a   26 209827 210064 -104887   209775 9.917  4    0.04185 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

`summarise()` has grouped output by 'age_group'. You can override using the `groups` argument.



====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.0507973	-0.0928920
25-34 years old	-0.0352134	-0.1158971
35-44 years old	0.0114502	-0.0637921
45-54 years old	0.0034462	-0.0295594
55+ years	0.1164634	0.0645865

```

=====Current outcome variable:  7. national_print_media_info =====

=====Predictor variable:  mh_problems =====


===== Fit 2: Age Group =====

=====Predictor variable:  mh_problems =====
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

      AIC      BIC    logLik deviance df.resid
210106.0 210170.2 -105046.0  210092.0     70676

Scaled residuals:
    Min       1Q   Median       3Q      Max
-1.9604 -0.5949 -0.2237  0.5830  3.0036

Random effects:
 Groups   Name      Variance Std.Dev.
country  (Intercept) 0.06905  0.2628
Residual                1.13923  1.0673
Number of obs: 70683, groups:  country, 70

Fixed effects:
              Estimate Std. Error t value
(Intercept)      2.28541    0.03306  69.131
age_group25-34 years old 0.04059    0.01326   3.061
age_group35-44 years old 0.05625    0.01380   4.075
age_group45-54 years old 0.05061    0.01469   3.446
age_group55+ years      0.06088    0.01342   4.535

Correlation of Fixed Effects:
      (Intr) a_25yo a_35yo a_45yo
ag_g25-34yo -0.235
ag_g35-44yo -0.232  0.566
ag_g45-54yo -0.223  0.535  0.534
ag_grp55+yr -0.251  0.589  0.593  0.584

```

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
200714.2	200787.2	-100349.1	200698.2	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0019	-0.6183	-0.2015	0.5744	3.0894

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06971	0.264
	Residual	1.10902	1.053

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.271802	0.033423	67.971
predictorTRUE	-0.038246	0.009031	-4.235
age_group25-34 years old	0.045416	0.013368	3.397
age_group35-44 years old	0.058050	0.013928	4.168
age_group45-54 years old	0.064668	0.014825	4.362
age_group55+ years	0.077505	0.013628	5.687

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.105				
ag_g25-34yo	-0.237	0.013			
ag_g35-44yo	-0.236	0.034	0.568		
ag_g45-54yo	-0.230	0.051	0.537	0.537	
ag_grp55+yr	-0.262	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
200381.7	200582.5	-100168.8	200337.7	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0773	-0.6687	-0.1860	0.5660	3.0994

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	6.794e-02	0.2606605	
	age_group25-34 years old	8.384e-08	0.0002895	-1.00
	age_group35-44 years old	9.585e-03	0.0979028	0.19 -0.19
	age_group45-54 years old	1.874e-02	0.1369049	-0.14 0.14 0.57
	age_group55+ years	5.372e-02	0.2317776	-0.20 0.20 0.48 0.90
Residual		1.100e+00	1.0487711	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.290789	0.033110	69.187
predictorTRUE	-0.049089	0.009063	-5.416
age_group25-34 years old	0.040552	0.013351	3.037
age_group35-44 years old	0.046462	0.018320	2.536
age_group45-54 years old	0.056300	0.022148	2.542
age_group55+ years	0.095810	0.031119	3.079

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.111				
ag_g25-34yo	-0.244	0.016			
ag_g35-44yo	-0.071	0.033	0.434		
ag_g45-54yo	-0.254	0.039	0.361	0.550	
ag_grp55+yr	-0.280	0.043	0.256	0.469	0.766

optimizer (nloptwrap) convergence code: 0 (OK)

boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
200705.6	200815.2	-100340.8	200681.6	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0106	-0.6205	-0.2038	0.5777	3.1069

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06957	0.2638
	Residual	1.10876	1.0530

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.284887	0.034284	66.645
predictorTRUE	-0.069511	0.020865	-3.331
age_group25-34 years old	0.037687	0.017149	2.198
age_group35-44 years old	0.054103	0.017625	3.070
age_group45-54 years old	0.052121	0.018454	2.824
age_group55+ years	0.050061	0.016614	3.013
predictorTRUE:age_group25-34 years old	0.018026	0.027270	0.661
predictorTRUE:age_group35-44 years old	0.005034	0.028453	0.177
predictorTRUE:age_group45-54 years old	0.028998	0.030510	0.950
predictorTRUE:age_group55+ years	0.096987	0.028201	3.439

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.248							
ag_g25-34yo	-0.300	0.485						
ag_g35-44yo	-0.299	0.478	0.585					
ag_g45-54yo	-0.292	0.462	0.563	0.566				
ag_grp55+yr	-0.330	0.518	0.630	0.638	0.632			
pTRUE:_25yo	0.188	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.182	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	

```

pTRUE:_45yo  0.172 -0.680 -0.335 -0.332 -0.591 -0.364  0.517      0.499
pTRUE:_55+y  0.186 -0.739 -0.362 -0.359 -0.350 -0.557  0.560      0.540
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.507

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3     8 200714 200787 -100349   200698
fit_4    12 200706 200815 -100341   200682 16.567  4   0.002345 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

boundary (singular) fit: see help('isSingular')

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

	AIC	BIC	logLik	deviance	df.resid
	200382.6	200620.0	-100165.3	200330.6	68109

```

Scaled residuals:
    Min       1Q   Median       3Q      Max
-2.0780 -0.6785 -0.1854  0.5595  3.1132

```

```

Random effects:
Groups   Name              Variance Std.Dev.  Corr

```

```

country (Intercept)          6.790e-02 0.2605836
age_group25-34 years old 8.418e-08 0.0002901 -1.00
age_group35-44 years old 9.715e-03 0.0985654 0.19 -0.19
age_group45-54 years old 1.891e-02 0.1375109 -0.14 0.14 0.58
age_group55+ years        5.265e-02 0.2294633 -0.20 0.20 0.48 0.90
Residual                   1.100e+00 1.0487217
Number of obs: 68135, groups: country, 70

```

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.30392	0.03400	67.753
predictorTRUE	-0.08110	0.02093	-3.875
age_group25-34 years old	0.02949	0.01713	1.721
age_group35-44 years old	0.03605	0.02136	1.688
age_group45-54 years old	0.04375	0.02480	1.765
age_group55+ years	0.07238	0.03236	2.237
predictorTRUE:age_group25-34 years old	0.02696	0.02720	0.991
predictorTRUE:age_group35-44 years old	0.02401	0.02873	0.836
predictorTRUE:age_group45-54 years old	0.02981	0.03072	0.970
predictorTRUE:age_group55+ years	0.07300	0.02845	2.566

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.253
ag_g25-34yo -0.307 0.483
ag_g35-44yo -0.160 0.400 0.486
ag_g45-54yo -0.306 0.347 0.420 0.566
ag_grp55+yr -0.325 0.265 0.320 0.494 0.747
pTRUE:_25yo 0.191 -0.750 -0.627 -0.303 -0.262 -0.200
pTRUE:_35yo 0.184 -0.723 -0.354 -0.509 -0.255 -0.194 0.547
pTRUE:_45yo 0.173 -0.680 -0.330 -0.275 -0.442 -0.188 0.511 0.496
pTRUE:_55+y 0.186 -0.736 -0.355 -0.294 -0.259 -0.294 0.551 0.533
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.508
optimizer (nloptwrap) convergence code: 0 (OK)

```

boundary (singular) fit: see help('isSingular')

Data: d

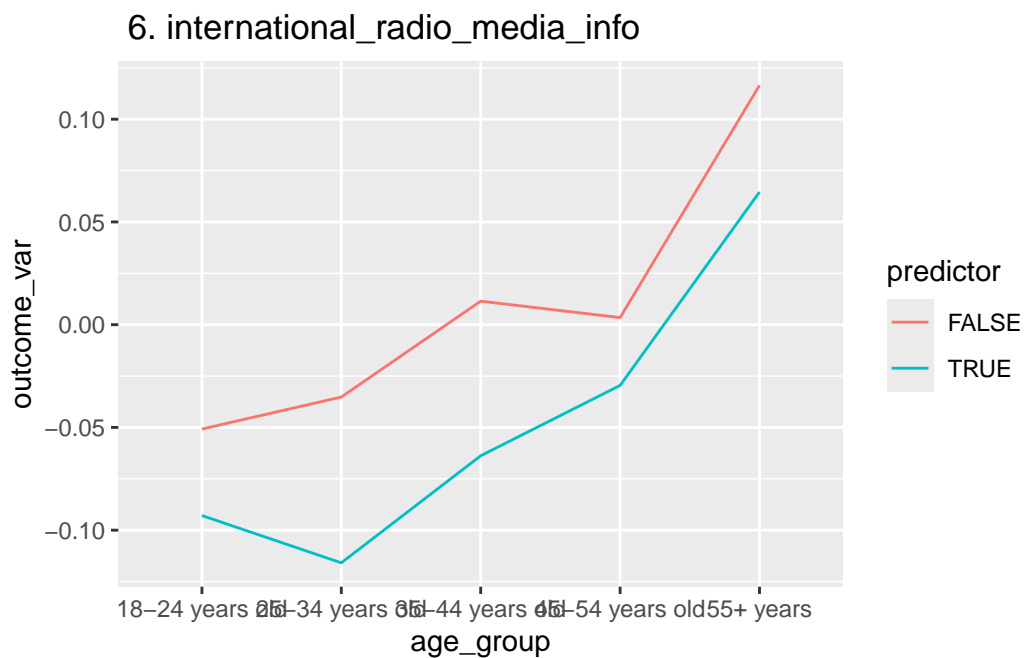
Models:

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	200382	200583	-100169	200338			
fit_4a	26	200383	200620	-100165	200331	7.0625	4	0.1326

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.0221396	-0.0901160
25-34 years old	0.0124408	-0.0350559
35-44 years old	0.0259961	-0.0336738

45-54 years old	0.0216080	-0.0145424
55+ years	0.0166828	0.0474569

=====Current outcome variable: 8. local_print_media_info =====

=====Predictor variable: mh_problems =====

===== Fit 2: Age Group =====

=====Predictor variable: mh_problems =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
209011.2	209075.3	-104498.6	208997.2	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0170	-0.5860	-0.2419	0.5516	2.9828

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06975	0.2641
	Residual	1.12169	1.0591

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.386e+00	3.319e-02	71.894
age_group25-34 years old	-1.922e-04	1.316e-02	-0.015
age_group35-44 years old	1.808e-02	1.370e-02	1.320
age_group45-54 years old	2.594e-05	1.457e-02	0.002
age_group55+ years	7.926e-03	1.332e-02	0.595

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.233			
ag_g35-44yo	-0.230	0.566		
ag_g45-54yo	-0.221	0.535	0.534	

ag_grp55+yr -0.248 0.589 0.593 0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
199721.5	199794.5	-99852.8	199705.5	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0451	-0.6029	-0.2303	0.5716	3.0861

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07043	0.2654
Residual		1.09296	1.0454

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.373943	0.033551	70.757
predictorTRUE	-0.037593	0.008965	-4.193
age_group25-34 years old	0.003903	0.013271	0.294
age_group35-44 years old	0.018216	0.013827	1.317
age_group45-54 years old	0.012408	0.014717	0.843
age_group55+ years	0.022215	0.013529	1.642

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.104				
ag_g25-34yo	-0.235	0.013			
ag_g35-44yo	-0.234	0.034	0.568		
ag_g45-54yo	-0.227	0.051	0.537	0.537	
ag_grp55+yr	-0.259	0.108	0.589	0.596	0.589

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
unable to evaluate scaled gradient

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge: degenerate Hessian with 1 negative eigenvalues

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
199473.4	199674.3	-99714.7	199429.4	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0994	-0.5888	-0.2138	0.5637	3.1211

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.073301	0.27074	
	age_group25-34 years old	0.004687	0.06846	-0.12
	age_group35-44 years old	0.018424	0.13573	-0.03 0.99
	age_group45-54 years old	0.013196	0.11487	-0.27 0.70 0.76
	age_group55+ years	0.044949	0.21201	-0.33 0.44 0.51 0.90
Residual		1.085611	1.04193	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.395275	0.034332	69.769
predictorTRUE	-0.045535	0.009006	-5.056
age_group25-34 years old	-0.008224	0.015852	-0.519
age_group35-44 years old	0.002477	0.021617	0.115
age_group45-54 years old	-0.002056	0.020365	-0.101
age_group55+ years	0.031436	0.029096	1.080

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.108				
ag_g25-34yo	-0.268	0.021			

```

ag_g35-44yo -0.185  0.032  0.716
ag_g45-54yo -0.347  0.047  0.595  0.656
ag_grp55+yr -0.394  0.048  0.442  0.522  0.740
optimizer (nloptwrap) convergence code: 0 (OK)
unable to evaluate scaled gradient
Model failed to converge: degenerate Hessian with 1 negative eigenvalues

```

===== Fit 4: Add Interaction =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
199718.7	199828.3	-99847.4	199694.7	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0443	-0.6063	-0.2285	0.5697	3.1053

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07035	0.2652
Residual		1.09278	1.0454

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.3882923	0.0344076	69.412
predictorTRUE	-0.0720419	0.0207145	-3.478
age_group25-34 years old	-0.0066540	0.0170254	-0.391
age_group35-44 years old	0.0075483	0.0174977	0.431
age_group45-54 years old	-0.0005115	0.0183213	-0.028
age_group55+ years	-0.0034217	0.0164943	-0.207
predictorTRUE:age_group25-34 years old	0.0252865	0.0270730	0.934
predictorTRUE:age_group35-44 years old	0.0241069	0.0282473	0.853
predictorTRUE:age_group45-54 years old	0.0292849	0.0302895	0.967
predictorTRUE:age_group55+ years	0.0857721	0.0279972	3.064

Correlation of Fixed Effects:


```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y prTRUE:_2yo prTRUE:_3yo
predctrTRUE -0.246
ag_g25-34yo -0.297 0.485
ag_g35-44yo -0.296 0.478 0.585
ag_g45-54yo -0.289 0.462 0.563 0.566
ag_grp55+yr -0.326 0.518 0.630 0.638 0.632
prTRUE:_25yo 0.186 -0.753 -0.626 -0.364 -0.351 -0.393
prTRUE:_35yo 0.180 -0.725 -0.358 -0.611 -0.342 -0.385 0.554
prTRUE:_45yo 0.170 -0.680 -0.335 -0.332 -0.591 -0.364 0.517 0.499
prTRUE:_55+y 0.184 -0.739 -0.362 -0.359 -0.350 -0.557 0.560 0.540
prTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
prTRUE:_25yo
prTRUE:_35yo
prTRUE:_45yo
prTRUE:_55+y 0.507

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npars	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	199722	199795	-99853	199706			
fit_4	12	199719	199828	-99847	199695	10.768	4	0.02929 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
--	-----	-----	--------	----------	----------

199492.0 199729.3 -99720.0 199440.0 68109

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1067	-0.5848	-0.2182	0.5652	3.0988

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	6.965e-02	0.263907	
	age_group25-34 years old	7.547e-05	0.008687	1.00
	age_group35-44 years old	9.912e-03	0.099560	0.19 0.19
	age_group45-54 years old	8.926e-03	0.094480	-0.18 -0.18 0.58
	age_group55+ years	3.845e-02	0.196081	-0.27 -0.27 0.39 0.91
	Residual	1.086e+00	1.042081	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.404417	0.034323	70.052
predictorTRUE	-0.080157	0.020776	-3.858
age_group25-34 years old	-0.012873	0.017046	-0.755
age_group35-44 years old	-0.008094	0.021318	-0.380
age_group45-54 years old	-0.010214	0.021587	-0.473
age_group55+ years	0.015420	0.028968	0.532
predictorTRUE:age_group25-34 years old	0.033262	0.027027	1.231
predictorTRUE:age_group35-44 years old	0.038661	0.028559	1.354
predictorTRUE:age_group45-54 years old	0.032078	0.030400	1.055
predictorTRUE:age_group55+ years	0.062572	0.028249	2.215

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.249							
ag_g25-34yo	-0.243	0.482						
ag_g35-44yo	-0.154	0.398	0.488					
ag_g45-54yo	-0.334	0.395	0.472	0.572				
ag_grp55+yr	-0.387	0.294	0.340	0.470	0.688			
pTRUE:_25yo	0.187	-0.749	-0.625	-0.301	-0.299	-0.221		
pTRUE:_35yo	0.181	-0.723	-0.352	-0.506	-0.290	-0.215	0.546	
pTRUE:_45yo	0.171	-0.681	-0.331	-0.275	-0.503	-0.209	0.513	0.498
pTRUE:_55+y	0.183	-0.736	-0.354	-0.292	-0.295	-0.326	0.551	0.533
								pTRUE:_4yo
predctrTRUE								
ag_g25-34yo								

```

ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.508
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

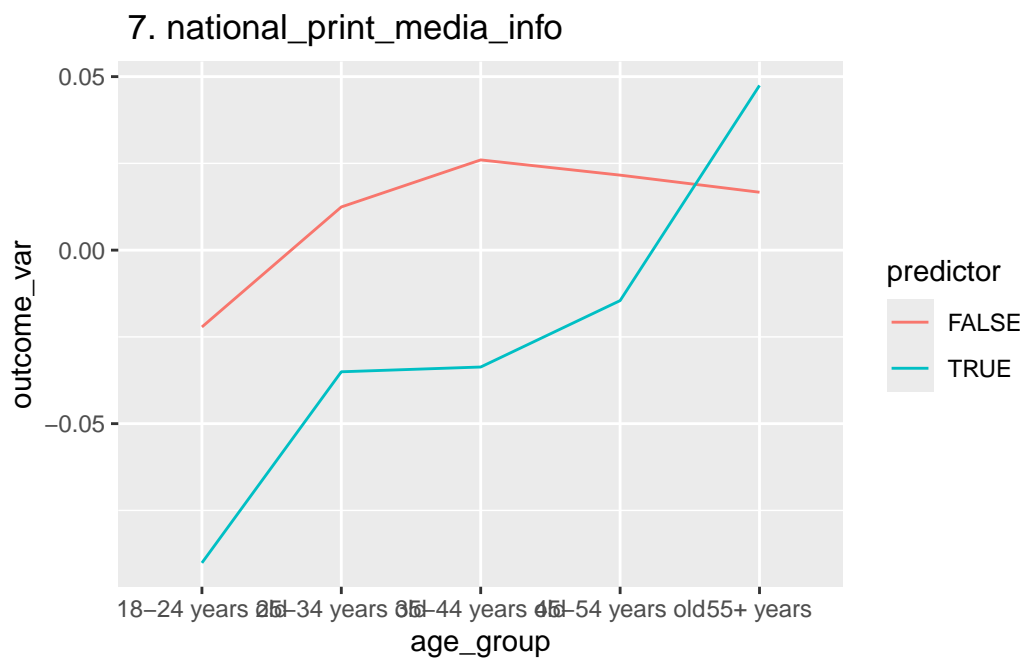
Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	199473	199674	-99715	199429			
fit_4a	26	199492	199729	-99720	199440	0	4	1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	0.0151803	-0.0541711
25-34 years old	0.0074951	-0.0355797
35-44 years old	0.0206632	-0.0235347
45-54 years old	0.0117369	-0.0280844
55+ years	0.0074617	0.0231706

=====Current outcome variable: 9. word_of_mouth_media_info =====

=====Predictor variable: mh_problems =====

===== Fit 2: Age Group =====

=====Predictor variable: mh_problems =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
207547.2	207611.3	-103766.6	207533.2	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1317	-0.7013	-0.1500	0.6202	2.7475

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06814	0.261
	Residual	1.09870	1.048

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.69700	0.03280	82.217
age_group25-34 years old	-0.08604	0.01302	-6.606
age_group35-44 years old	-0.10839	0.01356	-7.996

age_group45-54 years old	-0.11183	0.01442	-7.754
age_group55+ years	-0.05170	0.01318	-3.922

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.233			
ag_g35-44yo	-0.230	0.566		
ag_g45-54yo	-0.221	0.535	0.534	
ag_grp55+yr	-0.248	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
198437.8	198510.8	-99210.9	198421.8	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1762	-0.6964	-0.1600	0.6280	2.8156

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06541	0.2557
Residual		1.07261	1.0357

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.712760	0.032430	83.650
predictorTRUE	-0.084469	0.008881	-9.511
age_group25-34 years old	-0.088896	0.013147	-6.762
age_group35-44 years old	-0.113601	0.013697	-8.294
age_group45-54 years old	-0.108235	0.014579	-7.424
age_group55+ years	-0.055428	0.013402	-4.136

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.106				

```

ag_g25-34yo -0.240  0.013
ag_g35-44yo -0.240  0.034  0.568
ag_g45-54yo -0.233  0.051  0.537  0.537
ag_grp55+yr -0.265  0.108  0.589  0.596  0.589

```

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
198355.8	198556.7	-99155.9	198311.8	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2208	-0.6994	-0.1453	0.6292	2.8636

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.070058	0.26469	
	age_group25-34 years old	0.003441	0.05866	-0.19
	age_group35-44 years old	0.008857	0.09411	-0.17 0.96
	age_group45-54 years old	0.014257	0.11940	-0.21 0.55 0.68
	age_group55+ years	0.017750	0.13323	-0.31 0.23 0.40 0.93
Residual		1.068886	1.03387	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.714605	0.033591	80.813
predictorTRUE	-0.085188	0.008924	-9.546
age_group25-34 years old	-0.091036	0.015171	-6.001
age_group35-44 years old	-0.113055	0.018017	-6.275
age_group45-54 years old	-0.109636	0.020586	-5.326
age_group55+ years	-0.055087	0.021206	-2.598

Correlation of Fixed Effects:
 (Intr) prTRUE a_25yo a_35yo a_45yo
 predctrTRUE -0.108
 ag_g25-34yo -0.299 0.019
 ag_g35-44yo -0.291 0.035 0.683
 ag_g45-54yo -0.309 0.042 0.528 0.607
 ag_grp55+yr -0.394 0.069 0.431 0.495 0.767
 optimizer (nloptwrap) convergence code: 0 (OK)
 boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
198436.1	198545.6	-99206.0	198412.1	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1755	-0.6996	-0.1590	0.6240	2.8287

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0652	0.2553
Residual		1.0725	1.0356

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.69123	0.03327	80.886
predictorTRUE	-0.03221	0.02052	-1.570
age_group25-34 years old	-0.06148	0.01687	-3.645
age_group35-44 years old	-0.08895	0.01733	-5.132
age_group45-54 years old	-0.07727	0.01815	-4.257
age_group55+ years	-0.03462	0.01634	-2.119
predictorTRUE:age_group25-34 years old	-0.06861	0.02682	-2.558
predictorTRUE:age_group35-44 years old	-0.06166	0.02798	-2.203
predictorTRUE:age_group45-54 years old	-0.08271	0.03001	-2.756

predictorTRUE:age_group55+ years -0.04685 0.02774 -1.689

Correlation of Fixed Effects:

```
(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.252
ag_g25-34yo -0.304 0.485
ag_g35-44yo -0.303 0.478 0.585
ag_g45-54yo -0.296 0.462 0.563 0.566
ag_grp55+yr -0.334 0.518 0.630 0.638 0.632
pTRUE:_25yo 0.190 -0.753 -0.626 -0.364 -0.351 -0.393
pTRUE:_35yo 0.185 -0.725 -0.358 -0.611 -0.342 -0.385 0.554
pTRUE:_45yo 0.174 -0.680 -0.335 -0.332 -0.591 -0.364 0.517 0.499
pTRUE:_55+y 0.189 -0.739 -0.362 -0.359 -0.350 -0.557 0.560 0.540
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.507
```

==== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npars	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	198438	198511	-99211	198422			
fit_4	12	198436	198546	-99206	198412	9.6896	4	0.04599 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
198356.4	198593.8	-99152.2	198304.4	68109

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2205	-0.6990	-0.1432	0.6353	2.8775

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.069518	0.26366	
	age_group25-34 years old	0.002561	0.05061	-0.18
	age_group35-44 years old	0.008256	0.09086	-0.15 1.00
	age_group45-54 years old	0.014301	0.11959	-0.22 0.66 0.65
	age_group55+ years	0.018410	0.13568	-0.32 0.38 0.38 0.94
Residual		1.068847	1.03385	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.69381	0.03437	78.371
predictorTRUE	-0.03637	0.02080	-1.748
age_group25-34 years old	-0.06482	0.01821	-3.560
age_group35-44 years old	-0.09083	0.02081	-4.364
age_group45-54 years old	-0.07930	0.02332	-3.400
age_group55+ years	-0.03399	0.02346	-1.449
predictorTRUE:age_group25-34 years old	-0.06299	0.02700	-2.333
predictorTRUE:age_group35-44 years old	-0.05323	0.02842	-1.873
predictorTRUE:age_group45-54 years old	-0.07959	0.03038	-2.620
predictorTRUE:age_group55+ years	-0.04689	0.02807	-1.671

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.251							
ag_g25-34yo	-0.346	0.461						
ag_g35-44yo	-0.336	0.413	0.656					
ag_g45-54yo	-0.357	0.370	0.561	0.599				
ag_grp55+yr	-0.437	0.370	0.518	0.527	0.763			
pTRUE:_25yo	0.191	-0.756	-0.590	-0.318	-0.282	-0.281		
pTRUE:_35yo	0.184	-0.729	-0.341	-0.520	-0.274	-0.271	0.562	
pTRUE:_45yo	0.172	-0.685	-0.316	-0.285	-0.466	-0.265	0.520	0.505
pTRUE:_55+y	0.187	-0.741	-0.343	-0.308	-0.282	-0.402	0.561	0.540

```

pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.518
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

Models:

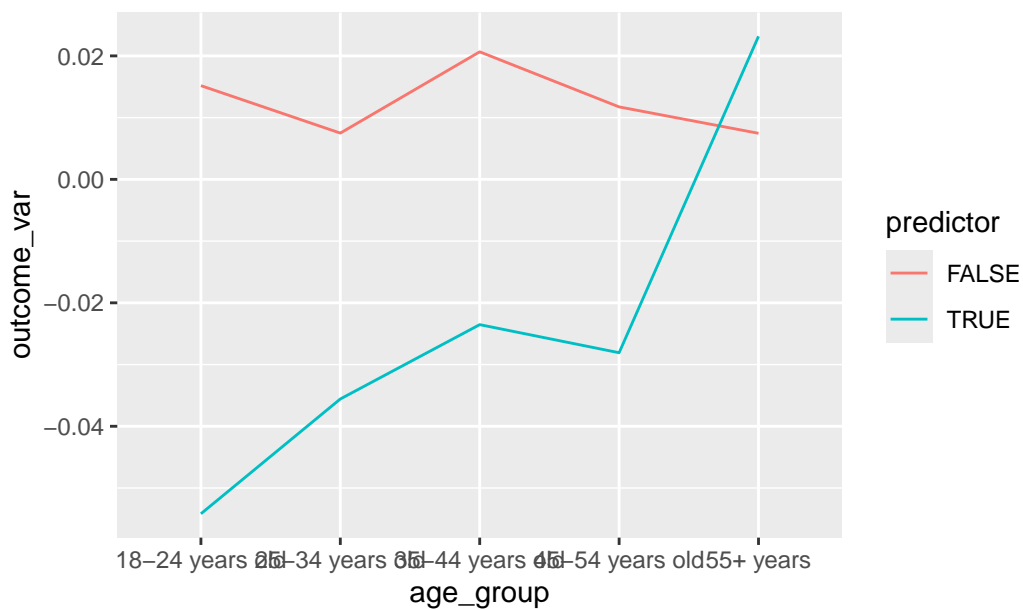
```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	198356	198557	-99156	198312			
fit_4a	26	198356	198594	-99152	198304	7.4125	4	0.1156

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.

8. local_print_media_info



=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	0.0775805	0.0505442
25-34 years old	0.0162988	-0.0781047
35-44 years old	-0.0110704	-0.0983108
45-54 years old	-0.0002790	-0.1093090
55+ years	0.0401027	-0.0341132

=====Current outcome variable: 10. govt_comms_media_info =====

=====Predictor variable: mh_problems =====

===== Fit 2: Age Group =====

=====Predictor variable: mh_problems =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
210951.1	211015.2	-105468.5	210937.1	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7656	-0.7761	-0.1637	0.5129	3.1884

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07072	0.2659
	Residual	1.15291	1.0737

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.17354	0.03344	65.006
age_group25-34 years old	0.02108	0.01334	1.580

age_group35-44 years old	0.04993	0.01389	3.595
age_group45-54 years old	0.05390	0.01477	3.648
age_group55+ years	0.08664	0.01351	6.415

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.234		
ag_g35-44yo	-0.231	0.566	
ag_g45-54yo	-0.222	0.535	0.534
ag_grp55+yr	-0.249	0.589	0.593 0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
201611.9	201685.0	-100798.0	201595.9	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8083	-0.7990	-0.1583	0.5059	3.2496

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07097	0.2664
Residual		1.12373	1.0601

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.15899	0.03372	64.036
predictorTRUE	-0.02940	0.00909	-3.234
age_group25-34 years old	0.02560	0.01346	1.902
age_group35-44 years old	0.04972	0.01402	3.546
age_group45-54 years old	0.06432	0.01492	4.310
age_group55+ years	0.09854	0.01372	7.183

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
--------	--------	--------	--------	--------

```

predctrTRUE -0.105
ag_g25-34yo -0.237  0.013
ag_g35-44yo -0.236  0.034  0.568
ag_g45-54yo -0.229  0.051  0.537  0.537
ag_grp55+yr -0.261  0.108  0.589  0.596  0.589

```

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
201324.6	201525.4	-100640.3	201280.6	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0619	-0.7909	-0.1573	0.5314	3.2949

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.062550	0.25010	
	age_group25-34 years old	0.002358	0.04856	0.11
	age_group35-44 years old	0.007912	0.08895	0.27 0.84
	age_group45-54 years old	0.018845	0.13728	-0.03 -0.01 0.50
	age_group55+ years	0.042718	0.20668	-0.01 -0.06 0.40 0.88
Residual		1.115543	1.05619	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.170493	0.031997	67.834
predictorTRUE	-0.039015	0.009125	-4.276
age_group25-34 years old	0.025332	0.014822	1.709
age_group35-44 years old	0.045605	0.017799	2.562
age_group45-54 years old	0.060859	0.022334	2.725
age_group55+ years	0.113203	0.028602	3.958

Correlation of Fixed Effects:
 (Intr) prTRUE a_25yo a_35yo a_45yo
 predctrTRUE -0.116
 ag_g25-34yo -0.198 0.017
 ag_g35-44yo -0.058 0.035 0.624
 ag_g45-54yo -0.190 0.040 0.339 0.519
 ag_grp55+yr -0.140 0.048 0.246 0.437 0.752
 optimizer (nloptwrap) convergence code: 0 (OK)
 boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
201611.1	201720.6	-100793.5	201587.1	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8165	-0.7920	-0.1565	0.5059	3.2605

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07092	0.2663
	Residual	1.12358	1.0600

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.166256	0.034598	62.613
predictorTRUE	-0.046556	0.021004	-2.216
age_group25-34 years old	0.025582	0.017264	1.482
age_group35-44 years old	0.048675	0.017743	2.743
age_group45-54 years old	0.055843	0.018578	3.006
age_group55+ years	0.080761	0.016725	4.829
predictorTRUE:age_group25-34 years old	-0.001332	0.027452	-0.049
predictorTRUE:age_group35-44 years old	-0.000691	0.028643	-0.024

```

predictorTRUE:age_group45-54 years old 0.020780 0.030713 0.677
predictorTRUE:age_group55+ years 0.065287 0.028389 2.300

```

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.248
ag_g25-34yo -0.299 0.485
ag_g35-44yo -0.298 0.478 0.585
ag_g45-54yo -0.291 0.462 0.563 0.566
ag_grp55+yr -0.329 0.518 0.630 0.638 0.632
pTRUE:_25yo 0.187 -0.753 -0.626 -0.364 -0.351 -0.393
pTRUE:_35yo 0.182 -0.725 -0.358 -0.611 -0.342 -0.385 0.554
pTRUE:_45yo 0.171 -0.680 -0.335 -0.332 -0.591 -0.364 0.517 0.499
pTRUE:_55+y 0.186 -0.739 -0.362 -0.359 -0.350 -0.557 0.560 0.540
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.507

```

=====
Fit 4: LRT to Get P-Value for Interaction
=====

Data: d

Models:

```
fit_3: outcome_var ~ predictor + age_group + (1 | country)
```

```
fit_4: outcome_var ~ predictor * age_group + (1 | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	201612	201685	-100798	201596			
fit_4	12	201611	201721	-100794	201587	8.8941	4	0.0638 .

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
201332.8	201570.2	-100640.4	201280.8	68109

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0563	-0.7983	-0.1583	0.5246	3.2886

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0626611	0.25032	
	age_group25-34 years old	0.0003244	0.01801	0.40
	age_group35-44 years old	0.0062717	0.07919	0.35 1.00
	age_group45-54 years old	0.0209498	0.14474	-0.06 0.53 0.54
	age_group55+ years	0.0450379	0.21222	-0.04 0.43 0.44 0.89
Residual		1.1156640	1.05625	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.179322	0.032933	66.175
predictorTRUE	-0.054406	0.021090	-2.580
age_group25-34 years old	0.019556	0.017423	1.122
age_group35-44 years old	0.038797	0.020270	1.914
age_group45-54 years old	0.051302	0.025474	2.014
age_group55+ years	0.096715	0.030708	3.150
predictorTRUE:age_group25-34 years old	0.004027	0.027411	0.147
predictorTRUE:age_group35-44 years old	0.010025	0.028860	0.347
predictorTRUE:age_group45-54 years old	0.016435	0.030992	0.530
predictorTRUE:age_group55+ years	0.043585	0.028651	1.521

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.263							
ag_g25-34yo	-0.272	0.481						
ag_g35-44yo	-0.136	0.424	0.573					
ag_g45-54yo	-0.264	0.341	0.454	0.540				
ag_grp55+yr	-0.214	0.282	0.383	0.474	0.751			
pTRUE:_25yo	0.199	-0.752	-0.622	-0.324	-0.258	-0.213		
pTRUE:_35yo	0.193	-0.725	-0.354	-0.540	-0.251	-0.207	0.553	
pTRUE:_45yo	0.180	-0.680	-0.328	-0.291	-0.433	-0.200	0.513	0.497


```
pTRUE:_55+y  0.194 -0.736 -0.354 -0.312 -0.255 -0.313  0.553      0.534
pTRUE:_4yo
```

```
predctrTRUE
```

```
ag_g25-34yo
```

```
ag_g35-44yo
```

```
ag_g45-54yo
```

```
ag_grp55+yr
```

```
pTRUE:_25yo
```

```
pTRUE:_35yo
```

```
pTRUE:_45yo
```

```
pTRUE:_55+y  0.509
```

```
optimizer (nloptwrap) convergence code: 0 (OK)
```

```
boundary (singular) fit: see help('isSingular')
```

```
Data: d
```

```
Models:
```

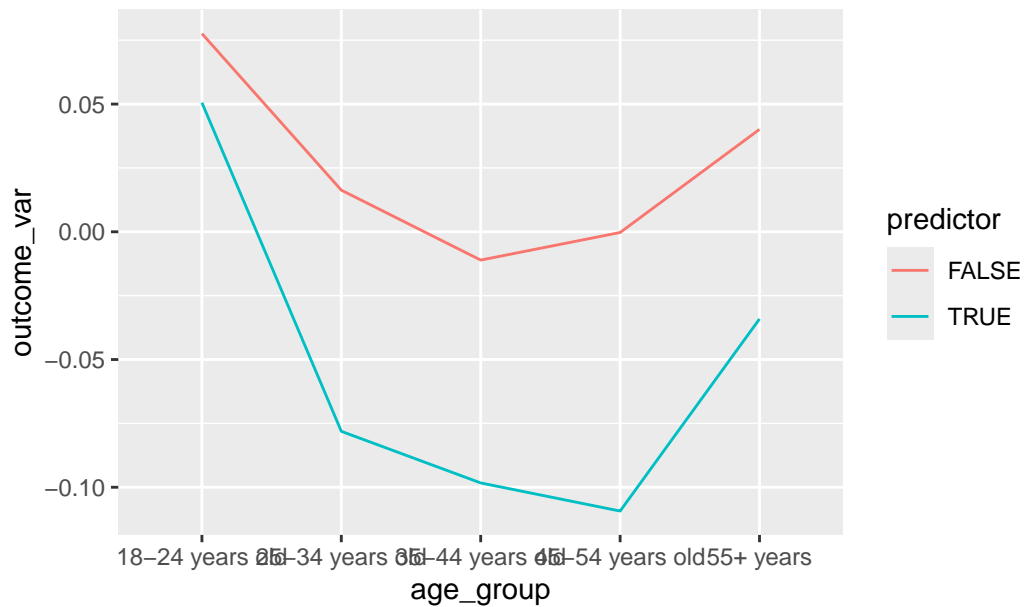
```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	201325	201525	-100640	201281			
fit_4a	26	201333	201570	-100640	201281	0	4	1

```
`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.
```

9. word_of_mouth_media_info



=====
 =====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.0277624	-0.0745243
25-34 years old	-0.0062944	-0.0507313
35-44 years old	0.0126712	-0.0295702
45-54 years old	0.0159158	-0.0045856
55+ years	0.0362872	0.0596710

=====
 =====Current outcome variable: 11. social_media_media_info =====

=====
 =====Predictor variable: mh_problems =====

=====
 ===== Fit 2: Age Group =====

=====
 =====Predictor variable: mh_problems =====
 Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
210951.5	211015.6	-105468.7	210937.5	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.22310	-0.76581	-0.08644	0.73179	2.95434

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1034	0.3215
Residual		1.1525	1.0735

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.43769	0.03980	61.243
age_group25-34 years old	0.03074	0.01334	2.305
age_group35-44 years old	0.13293	0.01388	9.574
age_group45-54 years old	0.23654	0.01477	16.010
age_group55+ years	0.42947	0.01351	31.796

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.197			
ag_g35-44yo	-0.194	0.566		
ag_g45-54yo	-0.187	0.535	0.534	
ag_grp55+yr	-0.209	0.589	0.593	0.584

=====
===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
202160.2	202233.2	-101072.1	202144.2	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2899	-0.7562	-0.0782	0.7388	3.0719

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1043	0.323
Residual		1.1324	1.064

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.463475	0.040180	61.311
predictorTRUE	-0.099716	0.009126	-10.926
age_group25-34 years old	0.028392	0.013509	2.102
age_group35-44 years old	0.124864	0.014075	8.871
age_group45-54 years old	0.232475	0.014983	15.516
age_group55+ years	0.421282	0.013775	30.582

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.088				
ag_g25-34yo	-0.199	0.013			
ag_g35-44yo	-0.199	0.034	0.568		
ag_g45-54yo	-0.193	0.051	0.537	0.537	
ag_grp55+yr	-0.220	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
201467.5	201668.3	-100711.7	201423.5	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-2.47011 -0.75943 -0.07379 0.69710 3.12238

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.076588	0.27674	
	age_group25-34 years old	0.007817	0.08841	0.43
	age_group35-44 years old	0.019157	0.13841	0.42 0.67
	age_group45-54 years old	0.025939	0.16106	0.31 0.68 0.67
	age_group55+ years	0.093756	0.30620	-0.02 0.48 0.42 0.93
Residual		1.116533	1.05666	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.463075	0.035020	70.333
predictorTRUE	-0.097081	0.009138	-10.624
age_group25-34 years old	0.028195	0.017409	1.620
age_group35-44 years old	0.123455	0.021919	5.632
age_group45-54 years old	0.234986	0.024520	9.583
age_group55+ years	0.428196	0.039341	10.884

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.107				
ag_g25-34yo	0.054	0.018			
ag_g35-44yo	0.143	0.031	0.608		
ag_g45-54yo	0.083	0.038	0.592	0.622	
ag_grp55+yr	-0.107	0.034	0.437	0.427	0.806

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

==== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
202162.4	202272.0	-101069.2	202138.4	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.29839	-0.75821	-0.07656	0.74046	3.05188

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1042	0.3228
Residual		1.1323	1.0641

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.44786	0.04091	59.829
predictorTRUE	-0.06215	0.02109	-2.948
age_group25-34 years old	0.04065	0.01733	2.346
age_group35-44 years old	0.14286	0.01781	8.020
age_group45-54 years old	0.25791	0.01865	13.827
age_group55+ years	0.43954	0.01679	26.171
predictorTRUE:age_group25-34 years old	-0.02953	0.02756	-1.071
predictorTRUE:age_group35-44 years old	-0.04484	0.02875	-1.560
predictorTRUE:age_group45-54 years old	-0.06926	0.03083	-2.246
predictorTRUE:age_group55+ years	-0.04802	0.02850	-1.685

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.210							
ag_g25-34yo	-0.254	0.485						
ag_g35-44yo	-0.253	0.477	0.585					
ag_g45-54yo	-0.247	0.462	0.563	0.567				
ag_grp55+yr	-0.279	0.517	0.630	0.638	0.632			
pTRUE:_25yo	0.159	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.154	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.145	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.158	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								

pTRUE:_55+y 0.507

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	202160	202233	-101072	202144			
fit_4	12	202162	202272	-101069	202138	5.7749	4	0.2166

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	201474.5	201711.9	-100711.2	201422.5	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.48207	-0.75428	-0.07334	0.69512	3.12376

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.073183	0.27052	
	age_group25-34 years old	0.002932	0.05415	1.00
	age_group35-44 years old	0.015804	0.12571	0.57 0.57
	age_group45-54 years old	0.020331	0.14259	0.47 0.47 0.59
	age_group55+ years	0.081332	0.28519	0.08 0.08 0.27 0.90
Residual		1.116862	1.05682	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.44475	0.03508	69.687
predictorTRUE	-0.05376	0.02100	-2.560
age_group25-34 years old	0.03898	0.01839	2.119

age_group35-44 years old	0.14281	0.02334	6.118
age_group45-54 years old	0.26515	0.02522	10.515
age_group55+ years	0.45427	0.03825	11.876
predictorTRUE:age_group25-34 years old	-0.02264	0.02740	-0.826
predictorTRUE:age_group35-44 years old	-0.04675	0.02895	-1.615
predictorTRUE:age_group45-54 years old	-0.08152	0.03075	-2.651
predictorTRUE:age_group55+ years	-0.07158	0.02863	-2.500

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.245							
ag_g25-34yo	0.050	0.451						
ag_g35-44yo	0.114	0.366	0.543					
ag_g45-54yo	0.079	0.341	0.495	0.574				
ag_grp55+yr	-0.072	0.224	0.277	0.360	0.747			
pTRUE:_25yo	0.184	-0.748	-0.586	-0.277	-0.258	-0.168		
pTRUE:_35yo	0.178	-0.721	-0.328	-0.467	-0.250	-0.162	0.544	
pTRUE:_45yo	0.168	-0.680	-0.310	-0.253	-0.435	-0.161	0.513	0.496
pTRUE:_55+y	0.179	-0.734	-0.330	-0.268	-0.255	-0.251	0.548	0.529
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.509							

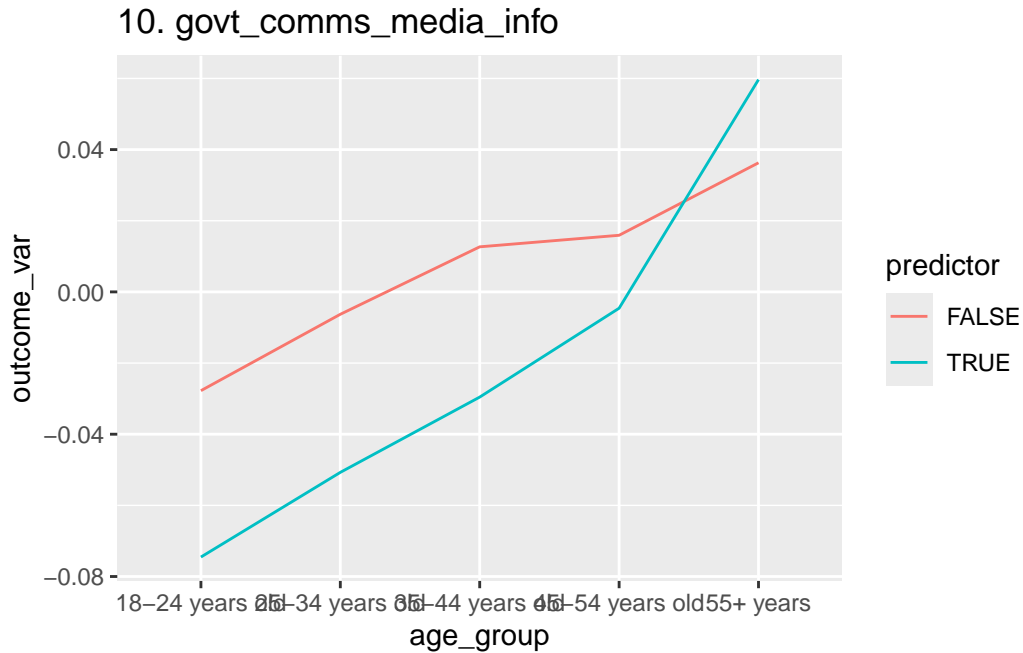
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

Data: d

Models:

fit_3a:	outcome_var	~	predictor	+	age_group	+	(age_group country)
fit_4a:	outcome_var	~	predictor	*	age_group	+	(age_group country)
	npar	AIC	BIC	logLik	deviance	Chisq	Df Pr(>Chisq)
fit_3a	22	201467	201668	-100712	201423		
fit_4a	26	201474	201712	-100711	201422	0.9649	4 0.9151

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.



=====
 =====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.1250889	-0.1962413
25-34 years old	-0.1042825	-0.1870106
35-44 years old	-0.0224953	-0.1110957
45-54 years old	0.0716080	-0.0362494
55+ years	0.2307869	0.1436456

=====
 =====Current outcome variable: 12. internet_media_info =====

=====
 =====Predictor variable: mh_problems =====

=====
 ===== Fit 2: Age Group =====

=====
 =====Predictor variable: mh_problems =====
 Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
210015.2	210079.4	-105000.6	210001.2	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2145	-0.6824	-0.1738	0.5377	3.0934

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08242	0.2871
Residual		1.13757	1.0666

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.20183	0.03583	61.452
age_group25-34 years old	0.02722	0.01325	2.054
age_group35-44 years old	0.13402	0.01379	9.716
age_group45-54 years old	0.17317	0.01468	11.799
age_group55+ years	0.32671	0.01342	24.350

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.217			
ag_g35-44yo	-0.214	0.566		
ag_g45-54yo	-0.206	0.535	0.534	
ag_grp55+yr	-0.231	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
201020.7	201093.7	-100502.3	201004.7	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2759	-0.6846	-0.1759	0.5449	3.2070

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08411	0.290
Residual		1.11382	1.055

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.207466	0.036379	60.680
predictorTRUE	-0.071863	0.009051	-7.940
age_group25-34 years old	0.030541	0.013397	2.280
age_group35-44 years old	0.135556	0.013959	9.711
age_group45-54 years old	0.182204	0.014858	12.263
age_group55+ years	0.331108	0.013660	24.239

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.097				
ag_g25-34yo	-0.218	0.013			
ag_g35-44yo	-0.218	0.034	0.568		
ag_g45-54yo	-0.211	0.051	0.537	0.537	
ag_grp55+yr	-0.241	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
200384.9	200585.7	-100170.4	200340.9	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-2.7220 -0.7434 -0.1621 0.5513 3.1320

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.061028	0.24704	
	age_group25-34 years old	0.004694	0.06851	0.07
	age_group35-44 years old	0.024562	0.15672	0.27 0.89
	age_group45-54 years old	0.030891	0.17576	0.29 0.67 0.85
	age_group55+ years	0.103699	0.32202	0.08 0.65 0.67 0.91
Residual		1.099256	1.04845	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.234535	0.031677	70.541
predictorTRUE	-0.082063	0.009067	-9.050
age_group25-34 years old	0.013341	0.015903	0.839
age_group35-44 years old	0.113429	0.023577	4.811
age_group45-54 years old	0.167223	0.025895	6.458
age_group55+ years	0.340836	0.041109	8.291

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.118				
ag_g25-34yo	-0.192	0.020			
ag_g35-44yo	0.039	0.029	0.670		
ag_g45-54yo	0.073	0.037	0.558	0.747	
ag_grp55+yr	-0.019	0.033	0.481	0.621	0.803

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

=====
===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
201024.5	201134.0	-100500.2	201000.5	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2725	-0.6810	-0.1755	0.5392	3.1995

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08412	0.290
Residual		1.11375	1.055

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.202096	0.037203	59.192
predictorTRUE	-0.058424	0.020913	-2.794
age_group25-34 years old	0.045314	0.017188	2.636
age_group35-44 years old	0.145345	0.017666	8.228
age_group45-54 years old	0.184500	0.018498	9.974
age_group55+ years	0.332019	0.016654	19.936
predictorTRUE:age_group25-34 years old	-0.038178	0.027332	-1.397
predictorTRUE:age_group35-44 years old	-0.026258	0.028517	-0.921
predictorTRUE:age_group45-54 years old	-0.003400	0.030579	-0.111
predictorTRUE:age_group55+ years	0.007428	0.028265	0.263

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.229							
ag_g25-34yo	-0.277	0.485						
ag_g35-44yo	-0.276	0.478	0.585					
ag_g45-54yo	-0.269	0.462	0.563	0.566				
ag_grp55+yr	-0.305	0.518	0.630	0.638	0.632			
pTRUE:_25yo	0.173	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.168	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.158	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.172	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								

pTRUE:_55+y 0.507

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	201021	201094	-100502	201005			
fit_4	12	201024	201134	-100500	201000	4.1837	4	0.3817

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
200405.8	200643.2	-100176.9	200353.8	68109

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.7170	-0.7359	-0.1624	0.5559	3.1425

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0563855	0.2375	
	age_group25-34 years old	0.0006605	0.0257	1.00
	age_group35-44 years old	0.0164271	0.1282	0.55 0.55
	age_group45-54 years old	0.0250167	0.1582	0.48 0.48 0.83
	age_group55+ years	0.0901207	0.3002	0.22 0.22 0.61 0.87
Residual		1.0996908	1.0487	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.22077	0.03145	70.605
predictorTRUE	-0.06343	0.02087	-3.039
age_group25-34 years old	0.03140	0.01738	1.807

age_group35-44 years old	0.12820	0.02345	5.468
age_group45-54 years old	0.17857	0.02645	6.752
age_group55+ years	0.35730	0.03985	8.967
predictorTRUE:age_group25-34 years old	-0.02351	0.02719	-0.864
predictorTRUE:age_group35-44 years old	-0.02200	0.02870	-0.767
predictorTRUE:age_group45-54 years old	-0.01088	0.03063	-0.355
predictorTRUE:age_group55+ years	-0.02738	0.02845	-0.962

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.272							
ag_g25-34yo	-0.162	0.475						
ag_g35-44yo	0.075	0.362	0.495					
ag_g45-54yo	0.085	0.324	0.444	0.689				
ag_grp55+yr	0.034	0.214	0.288	0.552	0.743			
pTRUE:_25yo	0.205	-0.749	-0.617	-0.275	-0.244	-0.161		
pTRUE:_35yo	0.198	-0.723	-0.347	-0.462	-0.238	-0.156	0.546	
pTRUE:_45yo	0.186	-0.679	-0.325	-0.250	-0.413	-0.151	0.512	0.499
pTRUE:_55+y	0.199	-0.734	-0.348	-0.265	-0.240	-0.240	0.549	0.531
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.505							

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

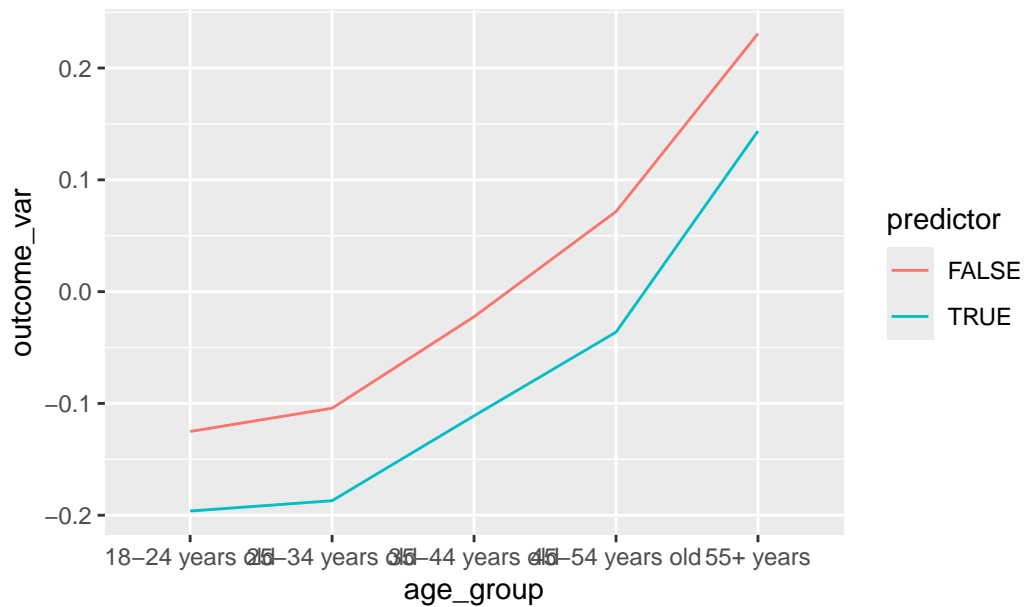
Data: d

Models:

fit_3a:	outcome_var	~	predictor	+	age_group	+	(age_group country)
fit_4a:	outcome_var	~	predictor	*	age_group	+	(age_group country)
	npar	AIC	BIC	logLik	deviance	Chisq	Df Pr(>Chisq)
fit_3a	22	200385	200586	-100170	200341		
fit_4a	26	200406	200643	-100177	200354	0	4 1

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

11. social_media_media_info



=====
 =====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.1042181	-0.1687791
25-34 years old	-0.0738034	-0.1633168
35-44 years old	0.0109917	-0.0598872
45-54 years old	0.0349584	-0.0096992
55+ years	0.1659526	0.1315756

=====
 =====Current outcome variable: 13. messaging_media_info =====

=====
 =====Predictor variable: mh_problems =====

=====
 ===== Fit 2: Age Group =====

=====
 =====Predictor variable: mh_problems =====
 Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
213587.3	213651.5	-106786.7	213573.3	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.13746	-0.76119	-0.08104	0.73333	2.75094

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09215	0.3036
Residual		1.19646	1.0938

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.551768	0.037792	67.522
age_group25-34 years old	-0.002498	0.013592	-0.184
age_group35-44 years old	0.054819	0.014146	3.875
age_group45-54 years old	0.123528	0.015053	8.206
age_group55+ years	0.286562	0.013761	20.824

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.211			
ag_g35-44yo	-0.208	0.566		
ag_g45-54yo	-0.200	0.535	0.534	
ag_grp55+yr	-0.225	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
204808.9	204881.9	-102396.4	204792.9	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.16045	-0.75280	-0.07874	0.72849	2.83134

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09191	0.3032
Residual		1.17746	1.0851

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.570389	0.037972	67.691
predictorTRUE	-0.082229	0.009306	-8.836
age_group25-34 years old	-0.004909	0.013775	-0.356
age_group35-44 years old	0.052723	0.014352	3.674
age_group45-54 years old	0.126399	0.015277	8.274
age_group55+ years	0.280498	0.014045	19.971

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.095				
ag_g25-34yo	-0.215	0.013			
ag_g35-44yo	-0.214	0.034	0.568		
ag_g45-54yo	-0.208	0.051	0.537	0.537	
ag_grp55+yr	-0.237	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
204084.2	204285.0	-102020.1	204040.2	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-2.32486 -0.74332 -0.08723 0.68207 2.89214

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.064554	0.2541	
	age_group25-34 years old	0.002852	0.0534	1.00
	age_group35-44 years old	0.016051	0.1267	0.38 0.38
	age_group45-54 years old	0.035517	0.1885	0.19 0.19 0.60
	age_group55+ years	0.092756	0.3046	0.05 0.05 0.45 0.87
Residual		1.160075	1.0771	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.575436	0.032448	79.372
predictorTRUE	-0.086280	0.009312	-9.265
age_group25-34 years old	-0.002168	0.015098	-0.144
age_group35-44 years old	0.048222	0.020921	2.305
age_group45-54 years old	0.130710	0.027230	4.800
age_group55+ years	0.288096	0.039261	7.338

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.116				
ag_g25-34yo	0.170	0.015			
ag_g35-44yo	0.084	0.030	0.466		
ag_g45-54yo	0.009	0.032	0.334	0.565	
ag_grp55+yr	-0.049	0.034	0.207	0.446	0.782

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

=====
===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
204815.7	204925.3	-102395.9	204791.7	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.16044	-0.75321	-0.07787	0.72809	2.82293

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09184	0.3031
Residual		1.17744	1.0851

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.563833	0.038792	66.092
predictorTRUE	-0.066425	0.021502	-3.089
age_group25-34 years old	0.001456	0.017673	0.082
age_group35-44 years old	0.059164	0.018164	3.257
age_group45-54 years old	0.138425	0.019019	7.278
age_group55+ years	0.287381	0.017124	16.782
predictorTRUE:age_group25-34 years old	-0.015626	0.028102	-0.556
predictorTRUE:age_group35-44 years old	-0.015600	0.029321	-0.532
predictorTRUE:age_group45-54 years old	-0.033549	0.031441	-1.067
predictorTRUE:age_group55+ years	-0.016565	0.029062	-0.570

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.226							
ag_g25-34yo	-0.273	0.485						
ag_g35-44yo	-0.272	0.478	0.585					
ag_g45-54yo	-0.266	0.462	0.563	0.566				
ag_grp55+yr	-0.300	0.518	0.630	0.638	0.632			
pTRUE:_25yo	0.171	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.166	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.156	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.170	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								

pTRUE:_55+y 0.507

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	204809	204882	-102396	204793			
fit_4	12	204816	204925	-102396	204792	1.1399	4	0.8879

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	204088.2	204325.5	-102018.1	204036.2	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.33427	-0.73557	-0.09031	0.68694	2.88915

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.064219	0.25341	
	age_group25-34 years old	0.002933	0.05415	1.00
	age_group35-44 years old	0.016053	0.12670	0.39 0.39
	age_group45-54 years old	0.035834	0.18930	0.19 0.19 0.60
	age_group55+ years	0.093408	0.30563	0.05 0.05 0.46 0.87
Residual		1.160015	1.07704	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.566174	0.033329	76.995
predictorTRUE	-0.063861	0.021425	-2.981
age_group25-34 years old	0.001282	0.018710	0.069

age_group35-44 years old	0.056077	0.023703	2.366
age_group45-54 years old	0.147195	0.029562	4.979
age_group55+ years	0.303390	0.040625	7.468
predictorTRUE:age_group25-34 years old	-0.007305	0.027937	-0.261
predictorTRUE:age_group35-44 years old	-0.018265	0.029525	-0.619
predictorTRUE:age_group45-54 years old	-0.045623	0.031598	-1.444
predictorTRUE:age_group55+ years	-0.045220	0.029201	-1.549

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.263							
ag_g25-34yo	0.019	0.452						
ag_g35-44yo	-0.019	0.368	0.502					
ag_g45-54yo	-0.067	0.297	0.384	0.572				
ag_grp55+yr	-0.101	0.216	0.258	0.463	0.768			
pTRUE:_25yo	0.198	-0.747	-0.588	-0.278	-0.223	-0.162		
pTRUE:_35yo	0.191	-0.722	-0.329	-0.469	-0.217	-0.157	0.544	
pTRUE:_45yo	0.179	-0.677	-0.307	-0.251	-0.380	-0.151	0.507	0.493
pTRUE:_55+y	0.193	-0.734	-0.331	-0.270	-0.221	-0.241	0.548	0.530
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.504							

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

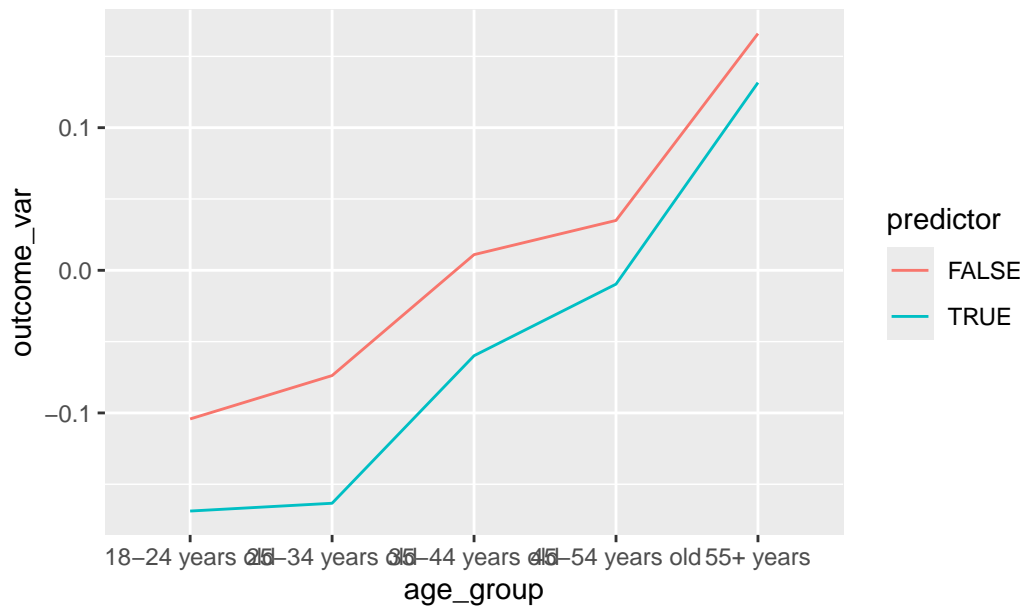
Data: d

Models:

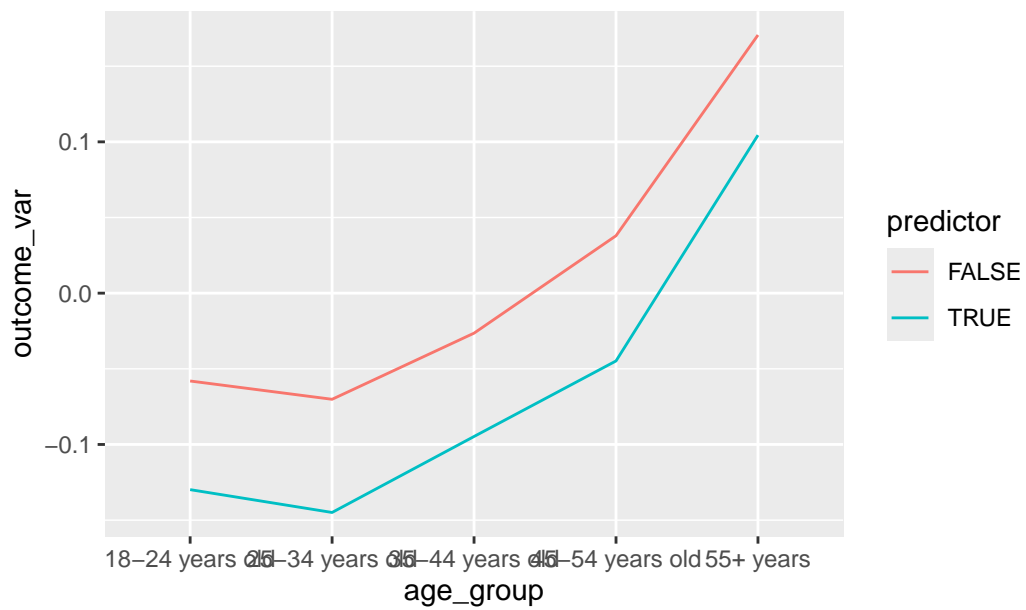
	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a: outcome_var ~ predictor + age_group + (age_group country)								
fit_4a: outcome_var ~ predictor * age_group + (age_group country)								
fit_3a	22	204084	204285	-102020	204040			
fit_4a	26	204088	204326	-102018	204036	4.0286	4	0.4021

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

12. internet_media_info



13. messaging_media_info



=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.0580434	-0.1298395
25-34 years old	-0.0701443	-0.1449288
35-44 years old	-0.0264402	-0.0947271
45-54 years old	0.0379542	-0.0447985
55+ years	0.1705924	0.1044161

```
RunModels(ending = "media_info", predictor = "lonely")
```

====Current outcome variable: 1. national_tv_media_info =====

====Predictor variable: lonely =====

==== Fit 2: Age Group =====

====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
203448.1	203512.3	-101717.0	203434.1	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.6965	-0.8086	-0.1111	0.3288	3.3846

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.05638	0.2374
	Residual	1.03693	1.0183

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.07063	0.03004	68.933
age_group25-34 years old	0.02331	0.01265	1.842
age_group35-44 years old	0.02674	0.01317	2.031
age_group45-54 years old	-0.03610	0.01401	-2.577
age_group55+ years	-0.08393	0.01281	-6.554

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.247			
ag_g35-44yo	-0.244	0.566		
ag_g45-54yo	-0.235	0.535	0.534	
ag_grp55+yr	-0.263	0.589	0.593	0.584

=====
 ===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (1 | country)
 Data: d

	AIC	BIC	logLik	deviance	df.resid
	194555.8	194628.8	-97269.9	194539.8	68432

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-1.7245	-0.8145	-0.0929	0.3358	3.4597

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.05623	0.2371
	Residual	1.00050	1.0002

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.071724	0.030289	68.400
predictorTRUE	-0.060879	0.008122	-7.496
age_group25-34 years old	0.027025	0.012655	2.135
age_group35-44 years old	0.030538	0.013188	2.316
age_group45-54 years old	-0.028863	0.014054	-2.054
age_group55+ years	-0.074269	0.012906	-5.754

Correlation of Fixed Effects:

```
(Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.135
ag_g25-34yo -0.249  0.018
ag_g35-44yo -0.249  0.044  0.568
ag_g45-54yo -0.243  0.070  0.536  0.536
ag_grp55+yr -0.276  0.114  0.589  0.595  0.589
```

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
194246.7	194447.6	-97101.3	194202.7	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7458	-0.7920	-0.1008	0.3425	3.4654

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.063552	0.2521	
	age_group25-34 years old	0.004915	0.0701	-0.12
	age_group35-44 years old	0.015120	0.1230	-0.13 0.78
	age_group45-54 years old	0.018812	0.1372	-0.43 0.03 0.61
	age_group55+ years	0.045845	0.2141	-0.34 0.10 0.58 0.84
Residual		0.992290	0.9961	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.089172	0.032122	65.039
predictorTRUE	-0.069699	0.008137	-8.566
age_group25-34 years old	0.025528	0.015437	1.654

age_group35-44 years old	0.022510	0.020011	1.125
age_group45-54 years old	-0.034304	0.021833	-1.571
age_group55+ years	-0.055292	0.029024	-1.905

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.132
ag_g25-34yo -0.269  0.020
ag_g35-44yo -0.259  0.037  0.644
ag_g45-54yo -0.463  0.052  0.322  0.583
ag_grp55+yr -0.405  0.050  0.276  0.560  0.733
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

=====
Fit 4: Add Interaction
=====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
194545.0	194654.6	-97260.5	194521.0	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7373	-0.8064	-0.0887	0.3403	3.4681

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.05625	0.2372
Residual		1.00022	1.0001

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.083808	0.031770	65.590
predictorTRUE	-0.083001	0.019321	-4.296
age_group25-34 years old	0.024334	0.018244	1.334
age_group35-44 years old	0.030709	0.018483	1.661
age_group45-54 years old	-0.039293	0.019050	-2.063

age_group55+ years	-0.103945	0.017264	-6.021
predictorTRUE:age_group25-34 years old	0.003481	0.025234	0.138
predictorTRUE:age_group35-44 years old	-0.005795	0.026168	-0.221
predictorTRUE:age_group45-54 years old	0.017728	0.027920	0.635
predictorTRUE:age_group55+ years	0.081826	0.025200	3.247

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo	
predctrTRUE	-0.327							
ag_g25-34yo	-0.349	0.564						
ag_g35-44yo	-0.350	0.557	0.603					
ag_g45-54yo	-0.344	0.543	0.588	0.594				
ag_grp55+yr	-0.385	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.251	-0.760	-0.720	-0.432	-0.421	-0.467		
pTRUE:_35yo	0.244	-0.733	-0.421	-0.698	-0.411	-0.457	0.563	
pTRUE:_45yo	0.229	-0.689	-0.395	-0.393	-0.667	-0.430	0.528	0.512
pTRUE:_55+y	0.254	-0.764	-0.437	-0.435	-0.426	-0.649	0.585	0.567
	pTRUE:_4yo							
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.533							

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npars	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	194556	194629	-97270	194540			
fit_4	12	194545	194655	-97260	194521	18.791	4	0.000864 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :

Model failed to converge with max|grad| = 0.0613467 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
194245.2	194482.7	-97096.6	194193.2	68414

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7557	-0.7892	-0.0964	0.3421	3.4790

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.063598	0.25219	
	age_group25-34 years old	0.004841	0.06958	-0.12
	age_group35-44 years old	0.015190	0.12325	-0.13 0.77
	age_group45-54 years old	0.018911	0.13752	-0.43 0.03 0.61
	age_group55+ years	0.044753	0.21155	-0.35 0.10 0.59 0.84
Residual		0.992173	0.99608	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.0958029	0.0335189	62.526
predictorTRUE	-0.0822670	0.0194219	-4.236
age_group25-34 years old	0.0246394	0.0202621	1.216
age_group35-44 years old	0.0258016	0.0238741	1.081
age_group45-54 years old	-0.0391872	0.0254150	-1.542
age_group55+ years	-0.0764509	0.0310393	-2.463
predictorTRUE:age_group25-34 years old	0.0003513	0.0253089	0.014
predictorTRUE:age_group35-44 years old	-0.0104139	0.0264756	-0.393
predictorTRUE:age_group45-54 years old	0.0077405	0.0281284	0.275
predictorTRUE:age_group55+ years	0.0559320	0.0255090	2.193

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.312							
ag_g25-34yo	-0.355	0.509						
ag_g35-44yo	-0.341	0.438	0.635					
ag_g45-54yo	-0.505	0.409	0.422	0.603				

```

ag_grp55+yr -0.461  0.336  0.370  0.586  0.724
pTRUE:_25yo  0.240 -0.759 -0.650 -0.342 -0.315 -0.259
pTRUE:_35yo  0.229 -0.734 -0.374 -0.541 -0.304 -0.249  0.566
pTRUE:_45yo  0.217 -0.688 -0.355 -0.307 -0.504 -0.240  0.521      0.511
pTRUE:_55+y  0.237 -0.761 -0.388 -0.334 -0.316 -0.371  0.577      0.562
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.530
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.0613467 (tol = 0.002, component 1)

```

Data: d

Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	194247	194448	-97101	194203			
fit_4a	26	194245	194483	-97097	194193	9.4901	4	0.04995 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

=====
=====Predictor variable: lonely=====

age_group	FALSE	TRUE
18-24 years old	0.0449975	-0.0350574
25-34 years old	0.0707863	-0.0071942
35-44 years old	0.0792789	-0.0088431
45-54 years old	0.0126913	-0.0530721
55+ years	-0.0485948	-0.0508822

```

=====Current outcome variable:  2. local_tv_media_info =====

=====Predictor variable:  lonely =====

===== Fit 2: Age Group =====

=====Predictor variable:  lonely =====
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

      AIC      BIC    logLik deviance df.resid
203260.4 203324.5 -101623.2  203246.4     70676

Scaled residuals:
      Min       1Q   Median       3Q      Max
-1.7862 -0.7349 -0.1541  0.4856  3.3598

Random effects:
Groups   Name             Variance Std.Dev.
country (Intercept)  0.06511  0.2552
Residual                1.03403  1.0169
Number of obs: 70683, groups:  country, 70

Fixed effects:
              Estimate Std. Error t value
(Intercept)      2.20150    0.03204  68.704
age_group25-34 years old -0.01634    0.01264  -1.293
age_group35-44 years old -0.02030    0.01315  -1.544
age_group45-54 years old -0.04425    0.01399  -3.163
age_group55+ years      -0.06365    0.01279  -4.977

Correlation of Fixed Effects:
      (Intr) a_25yo a_35yo a_45yo
ag_g25-34yo -0.231
ag_g35-44yo -0.228  0.566
ag_g45-54yo -0.220  0.535  0.534
ag_grp55+yr -0.246  0.589  0.593  0.584

```

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
194832.5	194905.5	-97408.2	194816.5	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8174	-0.7275	-0.1418	0.4672	3.4606

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06552	0.256
	Residual	1.00440	1.002

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.200045	0.032412	67.877
predictorTRUE	-0.052755	0.008138	-6.482
age_group25-34 years old	-0.011034	0.012680	-0.870
age_group35-44 years old	-0.017947	0.013215	-1.358
age_group45-54 years old	-0.035150	0.014082	-2.496
age_group55+ years	-0.050818	0.012934	-3.929

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.126				
ag_g25-34yo	-0.233	0.018			
ag_g35-44yo	-0.233	0.044	0.568		
ag_g45-54yo	-0.227	0.070	0.536	0.536	
ag_grp55+yr	-0.259	0.114	0.589	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
194590.5	194791.4	-97273.2	194546.5	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8465	-0.7325	-0.1502	0.4451	3.5027

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0588394	0.24257	
	age_group25-34 years old	0.0002695	0.01642	1.00
	age_group35-44 years old	0.0052733	0.07262	0.36 0.36
	age_group45-54 years old	0.0124232	0.11146	-0.02 -0.02 0.45
	age_group55+ years	0.0415930	0.20394	-0.18 -0.18 0.70 0.78
Residual		0.9978589	0.99893	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.212440	0.030943	71.501
predictorTRUE	-0.060683	0.008153	-7.443
age_group25-34 years old	-0.013542	0.012806	-1.057
age_group35-44 years old	-0.023932	0.015865	-1.508
age_group45-54 years old	-0.040464	0.019452	-2.080
age_group55+ years	-0.035537	0.027774	-1.280

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.136				
ag_g25-34yo	-0.098	0.021			
ag_g35-44yo	-0.023	0.043	0.497		
ag_g45-54yo	-0.188	0.055	0.380	0.494	
ag_grp55+yr	-0.265	0.049	0.242	0.558	0.662

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
194820.3	194929.9	-97398.1	194796.3	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8294	-0.7291	-0.1356	0.4692	3.4432

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06565	0.2562
Residual		1.00410	1.0020

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.2149940	0.0338291	65.476
predictorTRUE	-0.0800591	0.0193583	-4.136
age_group25-34 years old	-0.0135991	0.0182799	-0.744
age_group35-44 years old	-0.0207999	0.0185194	-1.123
age_group45-54 years old	-0.0541510	0.0190883	-2.837
age_group55+ years	-0.0832363	0.0172997	-4.811
predictorTRUE:age_group25-34 years old	0.0027231	0.0252833	0.108
predictorTRUE:age_group35-44 years old	-0.0001569	0.0262192	-0.006
predictorTRUE:age_group45-54 years old	0.0383122	0.0279739	1.370
predictorTRUE:age_group55+ years	0.0863428	0.0252487	3.420

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.308							
ag_g25-34yo	-0.329	0.564						
ag_g35-44yo	-0.329	0.557	0.603					
ag_g45-54yo	-0.324	0.543	0.588	0.594				
ag_grp55+yr	-0.362	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.237	-0.760	-0.720	-0.432	-0.421	-0.467		

```

pTRUE:_35yo  0.230 -0.733 -0.421 -0.698 -0.411 -0.457  0.563
pTRUE:_45yo  0.216 -0.689 -0.395 -0.393 -0.667 -0.430  0.528      0.512
pTRUE:_55+y  0.239 -0.764 -0.437 -0.435 -0.426 -0.649  0.585      0.567
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance  Chisq Df Pr(>Chisq)
fit_3     8 194832 194906 -97408   194816
fit_4    12 194820 194930 -97398   194796 20.201  4  0.0004559 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

boundary (singular) fit: see help('isSingular')

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

```

      AIC      BIC   logLik deviance df.resid
194573.7 194811.2 -97260.8 194521.7     68414

```

```

Scaled residuals:
      Min       1Q   Median       3Q      Max
-1.8605 -0.7336 -0.1505  0.4392  3.5307

```

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.060247	0.24545	
	age_group25-34 years old	0.005561	0.07457	0.07
	age_group35-44 years old	0.009133	0.09557	0.16 0.67
	age_group45-54 years old	0.011690	0.10812	-0.03 0.08 0.50
	age_group55+ years	0.037159	0.19277	-0.15 -0.17 0.57 0.74
	Residual	0.997175	0.99859	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.219218	0.032789	67.681
predictorTRUE	-0.081670	0.019445	-4.200
age_group25-34 years old	-0.009392	0.020580	-0.456
age_group35-44 years old	-0.020318	0.021964	-0.925
age_group45-54 years old	-0.051810	0.023296	-2.224
age_group55+ years	-0.056573	0.029237	-1.935
predictorTRUE:age_group25-34 years old	0.001486	0.025398	0.058
predictorTRUE:age_group35-44 years old	-0.002224	0.026409	-0.084
predictorTRUE:age_group45-54 years old	0.033478	0.028193	1.187
predictorTRUE:age_group55+ years	0.068826	0.025541	2.695

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.319							
ag_g25-34yo	-0.287	0.504						
ag_g35-44yo	-0.223	0.474	0.622					
ag_g45-54yo	-0.299	0.447	0.465	0.569				
ag_grp55+yr	-0.330	0.358	0.299	0.570	0.652			
pTRUE:_25yo	0.245	-0.760	-0.641	-0.370	-0.346	-0.273		
pTRUE:_35yo	0.236	-0.734	-0.373	-0.590	-0.332	-0.269	0.567	
pTRUE:_45yo	0.222	-0.687	-0.350	-0.331	-0.551	-0.255	0.525	0.507
pTRUE:_55+y	0.243	-0.761	-0.385	-0.363	-0.345	-0.394	0.576	0.564
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.529							

```
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')
```

Data: d

Models:

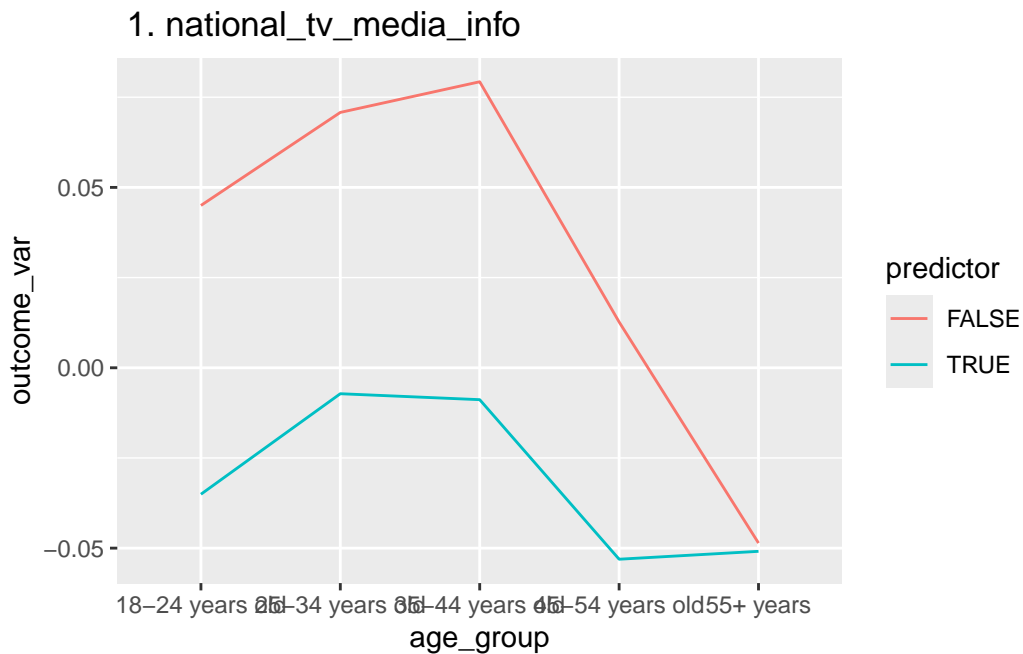
```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	194590	194791	-97273	194546			
fit_4a	26	194574	194811	-97261	194522	24.781	4	5.568e-05 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `groups` argument.



=====Predictor variable: lonely=====

age_group	FALSE	TRUE
:	:	:

18-24 years old	0.0598902	-0.0181371
25-34 years old	0.0466833	-0.0287361
35-44 years old	0.0399986	-0.0382720
45-54 years old	0.0078456	-0.0326640
55+ years	-0.0202788	-0.0133504

=====
Current outcome variable: 3. trust_media_national_radio_media_info ==

=====
Predictor variable: lonely =====

=====
Fit 2: Age Group =====

=====
Predictor variable: lonely =====
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
206602.2	206666.3	-103294.1	206588.2	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9760	-0.8141	-0.1353	0.3658	3.1980

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0782	0.2796
Residual		1.0839	1.0411

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.21617	0.03491	63.491
age_group25-34 years old	-0.02255	0.01294	-1.743
age_group35-44 years old	-0.03929	0.01346	-2.918
age_group45-54 years old	-0.08020	0.01433	-5.598
age_group55+ years	-0.10237	0.01310	-7.816

Correlation of Fixed Effects:

(Intr) a_25yo a_35yo a_45yo

```

ag_g25-34yo -0.218
ag_g35-44yo -0.215  0.566
ag_g45-54yo -0.206  0.535  0.534
ag_grp55+yr -0.232  0.589  0.593  0.584

```

===== Fit 3: Add Predictor =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (1 | country)
Data: d

```

```

      AIC      BIC   logLik deviance df.resid
197918.1 197991.2 -98951.0 197902.1     68432

```

Scaled residuals:

```

      Min      1Q  Median      3Q      Max
-2.0388 -0.8115 -0.1260  0.3318  3.3115

```

Random effects:

```

Groups   Name      Variance Std.Dev.
country (Intercept) 0.07836  0.2799
Residual              1.05058  1.0250
Number of obs: 68440, groups:  country, 70

```

Fixed effects:

```

              Estimate Std. Error t value
(Intercept)      2.216018   0.035203  62.949
predictorTRUE     -0.058371   0.008324  -7.013
age_group25-34 years old -0.016535   0.012969  -1.275
age_group35-44 years old -0.036404   0.013515  -2.693
age_group45-54 years old -0.073104   0.014403  -5.076
age_group55+ years      -0.090476   0.013229  -6.839

```

Correlation of Fixed Effects:

```

      (Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.119
ag_g25-34yo -0.219  0.018
ag_g35-44yo -0.219  0.044  0.568
ag_g45-54yo -0.214  0.070  0.536  0.537
ag_grp55+yr -0.243  0.113  0.589  0.595  0.589

```

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
197468.6	197669.6	-98712.3	197424.6	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2849	-0.8055	-0.1267	0.3382	3.3260

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.080730	0.28413	
	age_group25-34 years old	0.004317	0.06571	-0.10
	age_group35-44 years old	0.014116	0.11881	-0.22 0.98
	age_group45-54 years old	0.017774	0.13332	-0.31 0.22 0.43
	age_group55+ years	0.058152	0.24115	-0.23 0.18 0.36 0.89
Residual		1.039860	1.01974	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.230709	0.035820	62.276
predictorTRUE	-0.067062	0.008329	-8.051
age_group25-34 years old	-0.019750	0.015384	-1.284
age_group35-44 years old	-0.041374	0.019867	-2.083
age_group45-54 years old	-0.078767	0.021707	-3.629
age_group55+ years	-0.074220	0.032079	-2.314

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.121				
ag_g25-34yo	-0.246	0.023			
ag_g35-44yo	-0.309	0.038	0.709		


```

ag_g45-54yo -0.369  0.053  0.407  0.486
ag_grp55+yr -0.295  0.045  0.300  0.406  0.757
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

===== Fit 4: Add Interaction =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

```

```

      AIC      BIC   logLik deviance df.resid
197907.3 198016.9 -98941.6 197883.3    68428

```

Scaled residuals:

```

      Min       1Q   Median       3Q      Max
-2.0532 -0.8102 -0.1141  0.3437  3.2721

```

Random effects:

```

Groups   Name             Variance Std.Dev.
country  (Intercept)  0.07834   0.2799
Residual                  1.05029   1.0248
Number of obs: 68440, groups:  country, 70

```

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.230100	0.036540	61.032
predictorTRUE	-0.084004	0.019799	-4.243
age_group25-34 years old	-0.013266	0.018696	-0.710
age_group35-44 years old	-0.043745	0.018941	-2.310
age_group45-54 years old	-0.091377	0.019523	-4.680
age_group55+ years	-0.121529	0.017695	-6.868
predictorTRUE:age_group25-34 years old	-0.008977	0.025858	-0.347
predictorTRUE:age_group35-44 years old	0.010579	0.026816	0.395
predictorTRUE:age_group45-54 years old	0.036998	0.028610	1.293
predictorTRUE:age_group55+ years	0.082860	0.025823	3.209

Correlation of Fixed Effects:

```

      (Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.292

```

```

ag_g25-34yo -0.311 0.564
ag_g35-44yo -0.312 0.557 0.603
ag_g45-54yo -0.307 0.543 0.588 0.594
ag_grp55+yr -0.343 0.601 0.652 0.662 0.659
pTRUE:_25yo 0.224 -0.760 -0.720 -0.432 -0.421 -0.467
pTRUE:_35yo 0.217 -0.733 -0.421 -0.698 -0.411 -0.457 0.563
pTRUE:_45yo 0.204 -0.689 -0.395 -0.393 -0.667 -0.430 0.528 0.512
pTRUE:_55+y 0.226 -0.764 -0.437 -0.435 -0.426 -0.649 0.585 0.567
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	np	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	197918	197991	-98951	197902			
fit_4	12	197907	198017	-98942	197883	18.837	4	0.000846 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00395991 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	197461.8	197699.3	-98704.9	197409.8	68414


```

ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.532
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.00395991 (tol = 0.002, component 1)

```

Data: d

Models:

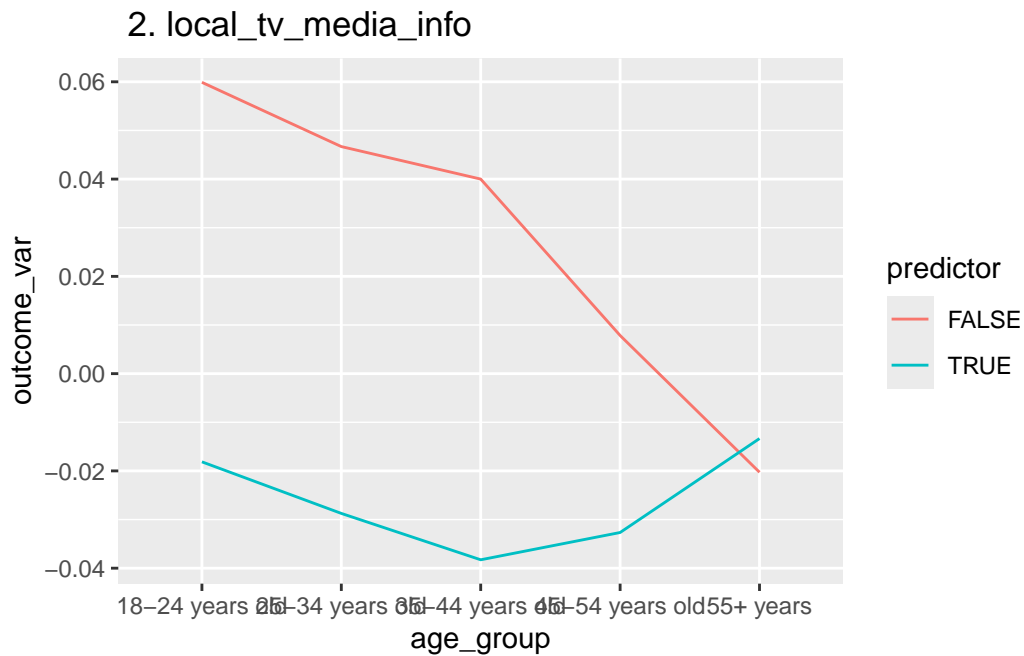
```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	197469	197670	-98712	197425			
fit_4a	26	197462	197699	-98705	197410	14.849	4	0.005025 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	0.0795658	-0.0016112
25-34 years old	0.0680962	-0.0235292
35-44 years old	0.0399210	-0.0330084
45-54 years old	-0.0046690	-0.0521938
55+ years	-0.0319392	-0.0339479

=====Current outcome variable: 4. local_radio_media_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
203693.0	203757.2	-101839.5	203679.0	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0761	-0.7108	-0.1687	0.5452	3.2943

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08189	0.2862
Residual		1.04015	1.0199

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.31876	0.03560	65.143
age_group25-34 years old	-0.05902	0.01267	-4.657

age_group35-44 years old	-0.09376	0.01319	-7.108
age_group45-54 years old	-0.13655	0.01403	-9.729
age_group55+ years	-0.13018	0.01283	-10.146

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.209		
ag_g35-44yo	-0.206	0.566	
ag_g45-54yo	-0.198	0.535	0.534
ag_grp55+yr	-0.222	0.589	0.593 0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
195167.3	195240.4	-97575.7	195151.3	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1315	-0.7128	-0.1507	0.5205	3.3679

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08124	0.285
	Residual	1.00911	1.005

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.319277	0.035715	64.938
predictorTRUE	-0.060561	0.008158	-7.424
age_group25-34 years old	-0.053060	0.012710	-4.175
age_group35-44 years old	-0.086755	0.013246	-6.549
age_group45-54 years old	-0.128534	0.014116	-9.105
age_group55+ years	-0.115182	0.012966	-8.883

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
--------	--------	--------	--------	--------

```

predctrTRUE -0.115
ag_g25-34yo -0.212  0.018
ag_g35-44yo -0.212  0.044  0.568
ag_g45-54yo -0.207  0.070  0.536  0.537
ag_grp55+yr -0.235  0.113  0.589  0.595  0.589

```

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

```

	AIC	BIC	logLik	deviance	df.resid
	194907.3	195108.3	-97431.7	194863.3	68418

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.2793	-0.7286	-0.1451	0.5259	3.3942

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.080477	0.28369	
	age_group25-34 years old	0.006671	0.08168	-0.19
	age_group35-44 years old	0.008944	0.09457	-0.08 0.99
	age_group45-54 years old	0.010142	0.10071	-0.18 0.59 0.57
	age_group55+ years	0.040422	0.20105	-0.13 0.41 0.40 0.81
Residual		1.002155	1.00108	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.325022	0.035720	65.091
predictorTRUE	-0.066465	0.008173	-8.133
age_group25-34 years old	-0.053831	0.016399	-3.283
age_group35-44 years old	-0.085536	0.017714	-4.829
age_group45-54 years old	-0.129817	0.018833	-6.893
age_group55+ years	-0.109870	0.027732	-3.962

Correlation of Fixed Effects:
 (Intr) prTRUE a_25yo a_35yo a_45yo
 predctrTRUE -0.119
 ag_g25-34yo -0.290 0.022
 ag_g35-44yo -0.226 0.041 0.746
 ag_g45-54yo -0.282 0.060 0.569 0.565
 ag_grp55+yr -0.224 0.052 0.442 0.442 0.667
 optimizer (nloptwrap) convergence code: 0 (OK)
 boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
195163.6	195273.2	-97569.8	195139.6	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1475	-0.7134	-0.1534	0.5122	3.3882

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08126	0.2851
	Residual	1.00894	1.0045

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.336313	0.036993	63.156
predictorTRUE	-0.091873	0.019405	-4.734
age_group25-34 years old	-0.074608	0.018324	-4.072
age_group35-44 years old	-0.088176	0.018565	-4.750
age_group45-54 years old	-0.150769	0.019135	-7.879
age_group55+ years	-0.142146	0.017344	-8.196
predictorTRUE:age_group25-34 years old	0.040817	0.025344	1.610
predictorTRUE:age_group35-44 years old	-0.004481	0.026283	-0.171


```

predictorTRUE:age_group45-54 years old 0.045385 0.028042 1.618
predictorTRUE:age_group55+ years 0.064799 0.025310 2.560

```

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.282
ag_g25-34yo -0.301 0.564
ag_g35-44yo -0.302 0.557 0.603
ag_g45-54yo -0.297 0.543 0.588 0.594
ag_grp55+yr -0.332 0.601 0.652 0.662 0.659
pTRUE:_25yo 0.217 -0.760 -0.720 -0.432 -0.421 -0.467
pTRUE:_35yo 0.211 -0.733 -0.421 -0.698 -0.411 -0.457 0.563
pTRUE:_45yo 0.198 -0.689 -0.395 -0.393 -0.667 -0.430 0.528 0.512
pTRUE:_55+y 0.219 -0.764 -0.437 -0.435 -0.426 -0.649 0.585 0.567
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.533

```

=====
Fit 4: LRT to Get P-Value for Interaction
=====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	195167	195240	-97576	195151			
fit_4	12	195164	195273	-97570	195140	11.756	4	0.01926 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00972593 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
194901.8	195139.3	-97424.9	194849.8	68414

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2618	-0.7242	-0.1443	0.5225	3.4173

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.080751	0.28417	
	age_group25-34 years old	0.007309	0.08549	-0.19
	age_group35-44 years old	0.008723	0.09339	-0.10 0.96
	age_group45-54 years old	0.010816	0.10400	-0.19 0.62 0.59
	age_group55+ years	0.040453	0.20113	-0.14 0.34 0.46 0.81
	Residual	1.001933	1.00097	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.345624	0.037046	63.316
predictorTRUE	-0.104769	0.019544	-5.361
age_group25-34 years old	-0.078541	0.021317	-3.684
age_group35-44 years old	-0.092622	0.021938	-4.222
age_group45-54 years old	-0.157379	0.023087	-6.817
age_group55+ years	-0.141115	0.030147	-4.681
predictorTRUE:age_group25-34 years old	0.046500	0.025506	1.823
predictorTRUE:age_group35-44 years old	0.006523	0.026494	0.246
predictorTRUE:age_group45-54 years old	0.055699	0.028226	1.973
predictorTRUE:age_group55+ years	0.072379	0.025668	2.820

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.284							
ag_g25-34yo	-0.360	0.490						
ag_g35-44yo	-0.314	0.476	0.702					
ag_g45-54yo	-0.352	0.454	0.602	0.598				
ag_grp55+yr	-0.297	0.348	0.469	0.518	0.673			
pTRUE:_25yo	0.218	-0.762	-0.621	-0.372	-0.351	-0.267		
pTRUE:_35yo	0.210	-0.734	-0.365	-0.593	-0.338	-0.260	0.571	
pTRUE:_45yo	0.198	-0.690	-0.342	-0.334	-0.557	-0.249	0.530	0.510

```

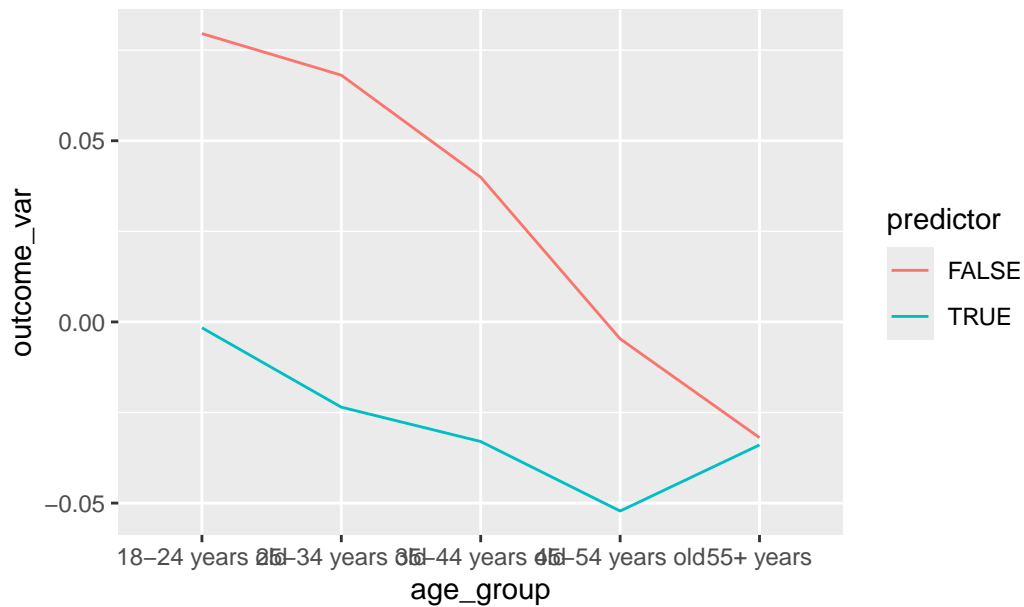
pTRUE:_55+y  0.216 -0.762 -0.373 -0.363 -0.350 -0.384  0.580      0.561
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.532
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.00972593 (tol = 0.002, component 1)

Data: d
Models:
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance  Chisq Df Pr(>Chisq)
fit_3a   22 194907 195108 -97432   194863
fit_4a   26 194902 195139 -97425   194850 13.489  4   0.009117 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

```

3. trust_media_national_radio_media_info



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	0.1155886	0.0259915
25-34 years old	0.0436144	-0.0065823
35-44 years old	0.0329313	-0.0633253
45-54 years old	-0.0265447	-0.0736312
55+ years	-0.0152735	-0.0429922

=====Current outcome variable: 5. international_tv_media_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====
 Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
218073.6	218137.8	-109029.8	218059.6	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0509	-0.7417	-0.2233	0.5459	2.9066

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0999	0.3161
Residual		1.2748	1.1291

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.26898	0.03932	57.701
age_group25-34 years old	0.01750	0.01403	1.247
age_group35-44 years old	0.05851	0.01460	4.007
age_group45-54 years old	0.08662	0.01554	5.575
age_group55+ years	0.19437	0.01420	13.684

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.209			
ag_g35-44yo	-0.207	0.566		
ag_g45-54yo	-0.199	0.535	0.534	
ag_grp55+yr	-0.223	0.589	0.593	0.584

=====
===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
209527.0	209600.1	-104755.5	209511.0	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0934	-0.7462	-0.2056	0.5546	3.0251

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0999	0.3161
Residual		1.2447	1.1157

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.28072	0.03961	57.576
predictorTRUE	-0.07591	0.00906	-8.379
age_group25-34 years old	0.01851	0.01412	1.311
age_group35-44 years old	0.05733	0.01471	3.897
age_group45-54 years old	0.08740	0.01568	5.575
age_group55+ years	0.20002	0.01440	13.890

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.115				
ag_g25-34yo	-0.212	0.018			
ag_g35-44yo	-0.212	0.044	0.568		
ag_g45-54yo	-0.207	0.070	0.536	0.537	
ag_grp55+yr	-0.236	0.113	0.589	0.595	0.589

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00710303 (tol = 0.002, component 1)

=====
===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
209159.7	209360.6	-104557.8	209115.7	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3154	-0.7476	-0.2087	0.5717	2.9704

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.070961	0.26638	
	age_group25-34 years old	0.005632	0.07504	0.40
	age_group35-44 years old	0.017855	0.13362	0.36 0.72
	age_group45-54 years old	0.017886	0.13374	0.28 0.13 0.71
	age_group55+ years	0.058151	0.24115	0.18 0.14 0.51 0.89
Residual		1.233874	1.11080	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.279035	0.034115	66.804
predictorTRUE	-0.080356	0.009073	-8.857
age_group25-34 years old	0.025421	0.016937	1.501
age_group35-44 years old	0.064029	0.021918	2.921
age_group45-54 years old	0.094383	0.022573	4.181
age_group55+ years	0.211524	0.032579	6.493

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.138				
ag_g25-34yo	-0.017	0.021			
ag_g35-44yo	0.071	0.037	0.613		
ag_g45-54yo	0.006	0.055	0.377	0.630	
ag_grp55+yr	0.031	0.048	0.287	0.510	0.742

optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.00710303 (tol = 0.002, component 1)

==== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
209529.9	209639.5	-104753.0	209505.9	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0855	-0.7478	-0.2036	0.5526	3.0250

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09998	0.3162
Residual		1.24460	1.1156

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.2804221	0.0410407	55.565
predictorTRUE	-0.0752259	0.0215526	-3.490
age_group25-34 years old	0.0332141	0.0203519	1.632
age_group35-44 years old	0.0583050	0.0206191	2.828
age_group45-54 years old	0.0875706	0.0212531	4.120
age_group55+ years	0.1918474	0.0192630	9.959
predictorTRUE:age_group25-34 years old	-0.0297096	0.0281489	-1.055
predictorTRUE:age_group35-44 years old	-0.0020360	0.0291911	-0.070
predictorTRUE:age_group45-54 years old	-0.0002961	0.0311447	-0.010
predictorTRUE:age_group55+ years	0.0280280	0.0281107	0.997

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.283							
ag_g25-34yo	-0.302	0.564						
ag_g35-44yo	-0.302	0.557	0.603					
ag_g45-54yo	-0.297	0.543	0.588	0.594				
ag_grp55+yr	-0.332	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.217	-0.760	-0.720	-0.432	-0.421	-0.467		
pTRUE:_35yo	0.211	-0.733	-0.421	-0.698	-0.411	-0.457	0.563	
pTRUE:_45yo	0.198	-0.689	-0.395	-0.393	-0.667	-0.430	0.528	0.512
pTRUE:_55+y	0.219	-0.764	-0.437	-0.435	-0.426	-0.649	0.585	0.567
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								

pTRUE:_45yo
pTRUE:_55+y 0.533

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	209527	209600	-104755	209511			
fit_4	12	209530	209640	-104753	209506	5.0803	4	0.2792

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	209161.2	209398.7	-104554.6	209109.2	68414

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.3102	-0.7506	-0.2056	0.5677	2.9775

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.070977	0.2664	
	age_group25-34 years old	0.005506	0.0742	0.40
	age_group35-44 years old	0.018054	0.1344	0.36 0.72
	age_group45-54 years old	0.018148	0.1347	0.27 0.13 0.71
	age_group55+ years	0.058448	0.2418	0.19 0.14 0.52 0.89
Residual		1.233750	1.1107	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.281102	0.035732	63.839
predictorTRUE	-0.084730	0.021592	-3.924
age_group25-34 years old	0.039833	0.022358	1.782
age_group35-44 years old	0.060057	0.026315	2.282
age_group45-54 years old	0.091522	0.026838	3.410
age_group55+ years	0.198770	0.035152	5.655

```

predictorTRUE:age_group25-34 years old -0.029522    0.028196   -1.047
predictorTRUE:age_group35-44 years old  0.008891    0.029473    0.302
predictorTRUE:age_group45-54 years old  0.006193    0.031236    0.198
predictorTRUE:age_group55+ years       0.036332    0.028406    1.279

```

Correlation of Fixed Effects:

```

      (Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.325
ag_g25-34yo -0.181  0.514
ag_g35-44yo -0.084  0.441  0.615
ag_g45-54yo -0.131  0.431  0.465  0.639
ag_grp55+yr -0.073  0.330  0.372  0.544  0.728
pTRUE:_25yo  0.250 -0.758 -0.655 -0.343 -0.331 -0.254
pTRUE:_35yo  0.238 -0.732 -0.378 -0.547 -0.321 -0.243  0.562
pTRUE:_45yo  0.227 -0.688 -0.359 -0.311 -0.530 -0.238  0.522      0.512
pTRUE:_55+y  0.247 -0.760 -0.390 -0.335 -0.333 -0.364  0.576      0.557
      pTRUE:_4yo

```

```

predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.531

```

Data: d

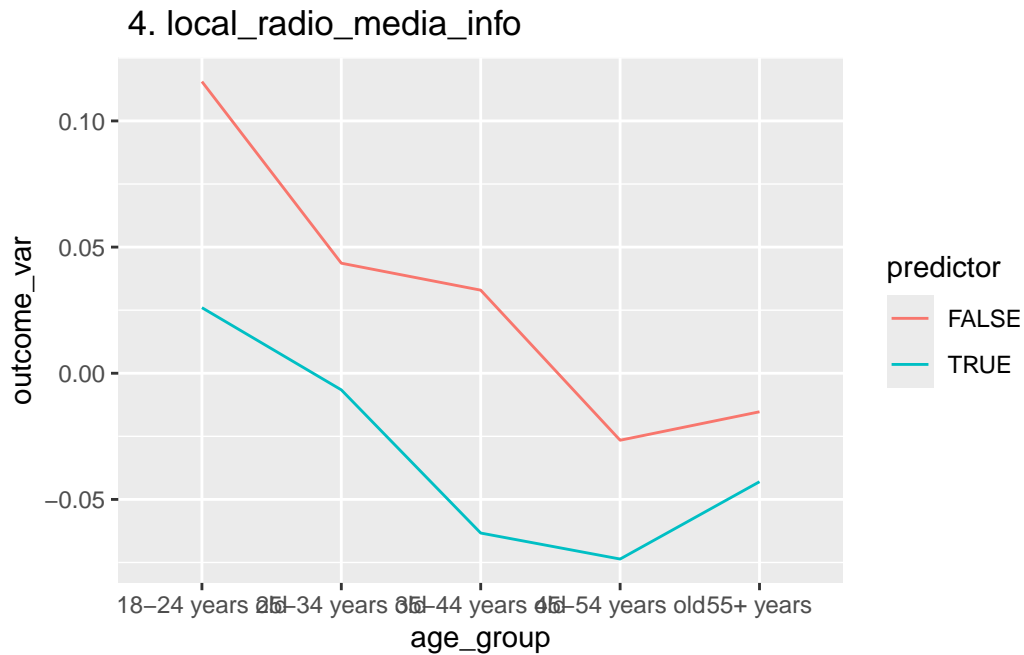
Models:

```

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a   22 209160 209361 -104558   209116
fit_4a   26 209161 209399 -104555   209109 6.4816  4      0.166

```

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.



=====
 =====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.0340196	-0.1063796
25-34 years old	-0.0114467	-0.1066798
35-44 years old	0.0025156	-0.0597597
45-54 years old	0.0226196	-0.0378016
55+ years	0.1159456	0.0826736

=====
 =====Current outcome variable: 6. international_radio_media_info =====

=====
 =====Predictor variable: lonely =====

=====
 ===== Fit 2: Age Group =====

=====
 =====Predictor variable: lonely =====
 Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
219662.3	219726.5	-109824.2	219648.3	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0877	-0.7578	-0.2286	0.5869	2.8949

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1044	0.3231
Residual		1.3038	1.1418

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.344972	0.040165	58.383
age_group25-34 years old	0.006979	0.014189	0.492
age_group35-44 years old	0.064229	0.014767	4.349
age_group45-54 years old	0.073469	0.015713	4.676
age_group55+ years	0.187024	0.014365	13.019

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.207			
ag_g35-44yo	-0.205	0.566		
ag_g45-54yo	-0.197	0.535	0.534	
ag_grp55+yr	-0.221	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
211206	211279	-105595	211190	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1233	-0.7460	-0.2118	0.5879	2.9576

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1033	0.3213
Residual		1.2756	1.1294

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.365810	0.040257	58.768
predictorTRUE	-0.094287	0.009172	-10.280
age_group25-34 years old	0.009568	0.014290	0.670
age_group35-44 years old	0.064305	0.014893	4.318
age_group45-54 years old	0.072796	0.015871	4.587
age_group55+ years	0.189745	0.014578	13.016

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.114				
ag_g25-34yo	-0.211	0.018			
ag_g35-44yo	-0.211	0.044	0.568		
ag_g45-54yo	-0.206	0.070	0.536	0.537	
ag_grp55+yr	-0.235	0.113	0.589	0.595	0.589

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00319816 (tol = 0.002, component 1)

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
210779.9	210980.9	-105368.0	210735.9	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3210	-0.7305	-0.2064	0.5763	2.9559

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.081286	0.2851	
	age_group25-34 years old	0.002314	0.0481	0.31
	age_group35-44 years old	0.018132	0.1347	0.13 0.88
	age_group45-54 years old	0.024708	0.1572	0.10 0.23 0.57
	age_group55+ years	0.064178	0.2533	0.11 0.15 0.37 0.91
Residual		1.263282	1.1240	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.365252	0.036263	65.225
predictorTRUE	-0.097282	0.009181	-10.596
age_group25-34 years old	0.013168	0.015506	0.849
age_group35-44 years old	0.068770	0.022139	3.106
age_group45-54 years old	0.078140	0.024738	3.159
age_group55+ years	0.195311	0.033958	5.752

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.132				
ag_g25-34yo	-0.117	0.022			
ag_g35-44yo	-0.080	0.037	0.603		
ag_g45-54yo	-0.086	0.050	0.392	0.558	
ag_grp55+yr	-0.024	0.047	0.288	0.420	0.787

optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.00319816 (tol = 0.002, component 1)

==== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
211212.5	211322.1	-105594.2	211188.5	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1187	-0.7463	-0.2166	0.5853	2.9611

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1033	0.3214
Residual		1.2756	1.1294

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.370980	0.041688	56.875
predictorTRUE	-0.103770	0.021819	-4.756
age_group25-34 years old	0.005326	0.020604	0.258
age_group35-44 years old	0.065199	0.020874	3.123
age_group45-54 years old	0.065215	0.021516	3.031
age_group55+ years	0.179929	0.019501	9.227
predictorTRUE:age_group25-34 years old	0.007743	0.028497	0.272
predictorTRUE:age_group35-44 years old	-0.004401	0.029552	-0.149
predictorTRUE:age_group45-54 years old	0.016019	0.031530	0.508
predictorTRUE:age_group55+ years	0.025191	0.028458	0.885

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.282							
ag_g25-34yo	-0.301	0.564						
ag_g35-44yo	-0.301	0.557	0.603					
ag_g45-54yo	-0.296	0.543	0.588	0.594				
ag_grp55+yr	-0.331	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.216	-0.760	-0.720	-0.432	-0.421	-0.467		
pTRUE:_35yo	0.210	-0.733	-0.421	-0.698	-0.411	-0.457	0.563	
pTRUE:_45yo	0.197	-0.689	-0.395	-0.393	-0.667	-0.430	0.528	0.512
pTRUE:_55+y	0.219	-0.764	-0.437	-0.435	-0.426	-0.649	0.585	0.567
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								

```
pTRUE:_45yo
pTRUE:_55+y 0.533
```

```
===== Fit 4: LRT to Get P-Value for Interaction =====
```

```
Data: d
```

```
Models:
```

```
fit_3: outcome_var ~ predictor + age_group + (1 | country)
```

```
fit_4: outcome_var ~ predictor * age_group + (1 | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	211206	211279	-105595	211190			
fit_4	12	211212	211322	-105594	211188	1.5041	4	0.8259

```
boundary (singular) fit: see help('isSingular')
```

```
Linear mixed model fit by maximum likelihood ['lmerMod']
```

```
Formula: outcome_var ~ predictor * age_group + (age_group | country)
```

```
Data: d
```

	AIC	BIC	logLik	deviance	df.resid
	210788.6	211026.1	-105368.3	210736.6	68414

```
Scaled residuals:
```

	Min	1Q	Median	3Q	Max
	-2.3169	-0.7402	-0.2043	0.5753	2.9568

```
Random effects:
```

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0804690	0.28367	
	age_group25-34 years old	0.0003748	0.01936	1.00
	age_group35-44 years old	0.0121864	0.11039	0.26 0.26
	age_group45-54 years old	0.0240133	0.15496	0.12 0.12 0.52
	age_group55+ years	0.0638205	0.25263	0.12 0.12 0.34 0.92
Residual		1.2634167	1.12402	

```
Number of obs: 68440, groups: country, 70
```

```
Fixed effects:
```

	Estimate	Std. Error	t value
(Intercept)	2.374525	0.037601	63.150
predictorTRUE	-0.115247	0.021784	-5.290

age_group25-34 years old	0.008501	0.020677	0.411
age_group35-44 years old	0.065790	0.024795	2.653
age_group45-54 years old	0.064040	0.028413	2.254
age_group55+ years	0.177359	0.036290	4.887
predictorTRUE:age_group25-34 years old	0.009316	0.028401	0.328
predictorTRUE:age_group35-44 years old	0.003013	0.029770	0.101
predictorTRUE:age_group45-54 years old	0.030031	0.031617	0.950
predictorTRUE:age_group55+ years	0.043427	0.028685	1.514

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.312							
ag_g25-34yo	-0.230	0.558						
ag_g35-44yo	-0.160	0.470	0.519					
ag_g45-54yo	-0.179	0.411	0.448	0.558				
ag_grp55+yr	-0.104	0.323	0.354	0.446	0.765			
pTRUE:_25yo	0.240	-0.756	-0.716	-0.365	-0.318	-0.249		
pTRUE:_35yo	0.229	-0.728	-0.411	-0.588	-0.307	-0.238	0.555	
pTRUE:_45yo	0.216	-0.688	-0.386	-0.327	-0.504	-0.231	0.522	0.507
pTRUE:_55+y	0.237	-0.759	-0.423	-0.357	-0.319	-0.356	0.574	0.553
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y								0.531

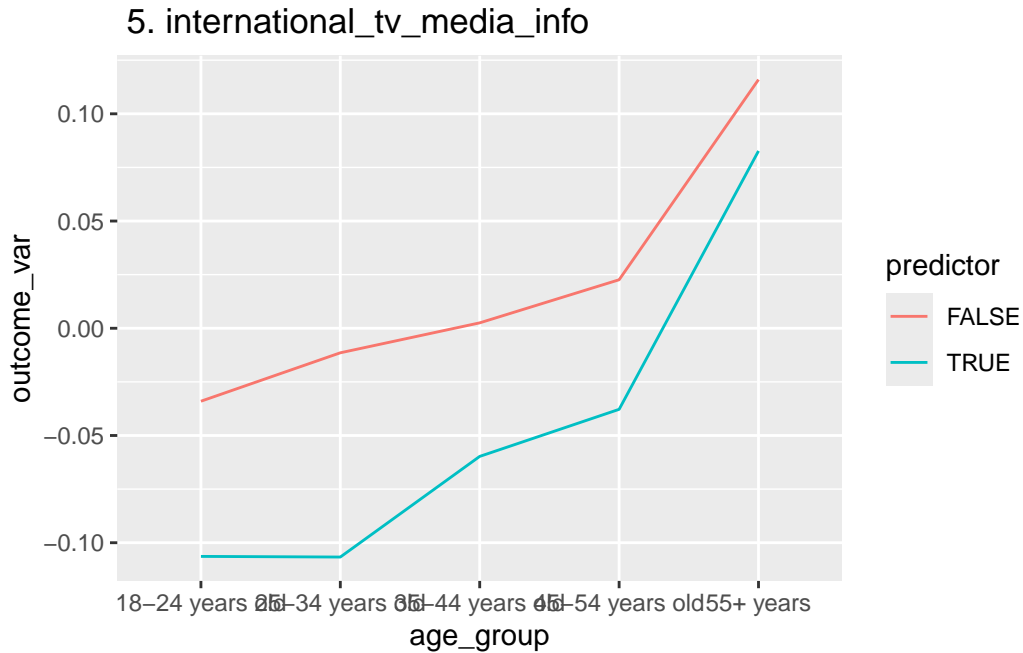
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

Data: d

Models:

fit_3a:	outcome_var	~	predictor	+	age_group	+	(age_group country)
fit_4a:	outcome_var	~	predictor	*	age_group	+	(age_group country)
	npar	AIC	BIC	logLik	deviance	Chisq	Df Pr(>Chisq)
fit_3a	22	210780	210981	-105368	210736		
fit_4a	26	210789	211026	-105368	210737	0	4 1

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.



====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.0152165	-0.1152943
25-34 years old	-0.0208827	-0.1062850
35-44 years old	0.0275945	-0.0644507
45-54 years old	0.0185724	-0.0531057
55+ years	0.1223769	0.0586171

====Current outcome variable: 7. national_print_media_info =====

====Predictor variable: lonely =====

==== Fit 2: Age Group =====

====Predictor variable: lonely =====
 Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
210106.0	210170.2	-105046.0	210092.0	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9604	-0.5949	-0.2237	0.5830	3.0036

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06905	0.2628
Residual		1.13923	1.0673

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.28541	0.03306	69.131
age_group25-34 years old	0.04059	0.01326	3.061
age_group35-44 years old	0.05625	0.01380	4.075
age_group45-54 years old	0.05061	0.01469	3.446
age_group55+ years	0.06088	0.01342	4.535

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.235			
ag_g35-44yo	-0.232	0.566		
ag_g45-54yo	-0.223	0.535	0.534	
ag_grp55+yr	-0.251	0.589	0.593	0.584

=====
===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
201624.8	201697.8	-100804.4	201608.8	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0301	-0.6188	-0.2011	0.5783	3.0960

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07018	0.2649
Residual		1.10923	1.0532

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.283441	0.033601	67.957
predictorTRUE	-0.053933	0.008552	-6.306
age_group25-34 years old	0.046521	0.013326	3.491
age_group35-44 years old	0.060597	0.013887	4.364
age_group45-54 years old	0.058951	0.014799	3.984
age_group55+ years	0.073851	0.013591	5.434

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.128				
ag_g25-34yo	-0.236	0.018			
ag_g35-44yo	-0.236	0.044	0.568		
ag_g45-54yo	-0.230	0.070	0.536	0.536	
ag_grp55+yr	-0.262	0.114	0.589	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
201277.2	201478.1	-100616.6	201233.2	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-2.1204 -0.6625 -0.1859 0.5609 3.1488

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.071613	0.26761	
	age_group25-34 years old	0.006859	0.08282	-0.25
	age_group35-44 years old	0.019184	0.13850	-0.04 0.87
	age_group45-54 years old	0.023592	0.15360	-0.22 0.62 0.71
	age_group55+ years	0.057281	0.23933	-0.23 0.29 0.55 0.89
Residual		1.099651	1.04864	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.305415	0.034103	67.601
predictorTRUE	-0.062365	0.008568	-7.279
age_group25-34 years old	0.035239	0.016947	2.079
age_group35-44 years old	0.046289	0.021925	2.111
age_group45-54 years old	0.047019	0.023801	1.975
age_group55+ years	0.089717	0.032084	2.796

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.132				
ag_g25-34yo	-0.340	0.022			
ag_g35-44yo	-0.195	0.037	0.697		
ag_g45-54yo	-0.317	0.051	0.565	0.645	
ag_grp55+yr	-0.312	0.048	0.369	0.542	0.783

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
201606.9	201716.5	-100791.5	201582.9	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0248	-0.6289	-0.2098	0.5779	3.1107

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07015	0.2649
Residual		1.10881	1.0530

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.30140	0.03507	65.616
predictorTRUE	-0.08662	0.02034	-4.258
age_group25-34 years old	0.05009	0.01921	2.608
age_group35-44 years old	0.04984	0.01946	2.561
age_group45-54 years old	0.03461	0.02006	1.726
age_group55+ years	0.03586	0.01818	1.973
predictorTRUE:age_group25-34 years old	-0.01025	0.02657	-0.386
predictorTRUE:age_group35-44 years old	0.01668	0.02755	0.605
predictorTRUE:age_group45-54 years old	0.04995	0.02940	1.699
predictorTRUE:age_group55+ years	0.10013	0.02653	3.774

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.312							
ag_g25-34yo	-0.333	0.564						
ag_g35-44yo	-0.334	0.557	0.603					
ag_g45-54yo	-0.328	0.543	0.588	0.594				
ag_grp55+yr	-0.367	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.240	-0.760	-0.720	-0.432	-0.421	-0.467		
pTRUE:_35yo	0.233	-0.733	-0.421	-0.698	-0.411	-0.457	0.563	
pTRUE:_45yo	0.219	-0.689	-0.395	-0.393	-0.667	-0.430	0.528	0.512
pTRUE:_55+y	0.242	-0.764	-0.437	-0.435	-0.426	-0.649	0.585	0.567
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								

pTRUE:_55+y 0.533

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	201625	201698	-100804	201609			
fit_4	12	201607	201717	-100791	201583	25.854	4	3.387e-05 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	201270.2	201507.7	-100609.1	201218.2	68414

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.0918	-0.6596	-0.1971	0.5638	3.1368

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.071626	0.26763	
	age_group25-34 years old	0.006741	0.08211	-0.25
	age_group35-44 years old	0.019248	0.13874	-0.04 0.87
	age_group45-54 years old	0.023551	0.15346	-0.23 0.64 0.71
	age_group55+ years	0.056127	0.23691	-0.24 0.31 0.55 0.89
Residual		1.099449	1.04855	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.320919	0.035557	65.273

predictorTRUE	-0.091479	0.020489	-4.465
age_group25-34 years old	0.036661	0.021859	1.677
age_group35-44 years old	0.033482	0.025868	1.294
age_group45-54 years old	0.024892	0.027388	0.909
age_group55+ years	0.057096	0.034132	1.673
predictorTRUE:age_group25-34 years old	-0.005939	0.026669	-0.223
predictorTRUE:age_group35-44 years old	0.023022	0.027906	0.825
predictorTRUE:age_group45-54 years old	0.046318	0.029609	1.564
predictorTRUE:age_group55+ years	0.079133	0.026879	2.944

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.310							
ag_g25-34yo	-0.407	0.499						
ag_g35-44yo	-0.288	0.425	0.673					
ag_g45-54yo	-0.384	0.402	0.588	0.648				
ag_grp55+yr	-0.378	0.323	0.438	0.568	0.766			
pTRUE:_25yo	0.239	-0.761	-0.634	-0.332	-0.313	-0.248		
pTRUE:_35yo	0.228	-0.733	-0.368	-0.527	-0.298	-0.239	0.567	
pTRUE:_45yo	0.215	-0.691	-0.346	-0.296	-0.490	-0.232	0.531	0.511
pTRUE:_55+y	0.236	-0.762	-0.381	-0.325	-0.312	-0.356	0.579	0.561
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y								0.535

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

Data: d

Models:

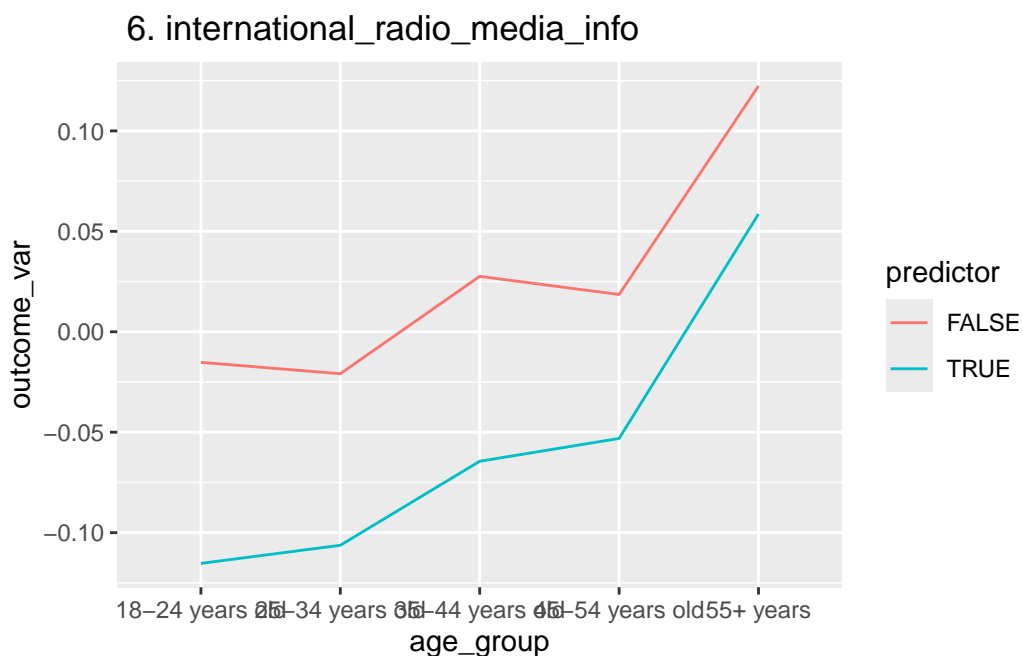
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	201277	201478	-100617	201233			
fit_4a	26	201270	201508	-100609	201218	14.928	4	0.004853 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.0052714	-0.0890314
25-34 years old	0.0406989	-0.0512494
35-44 years old	0.0365558	-0.0268655
45-54 years old	0.0188745	-0.0119615
55+ years	0.0171034	0.0353983

=====Current outcome variable: 8. local_print_media_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

```

=====Predictor variable:  lonely =====
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
209011.2	209075.3	-104498.6	208997.2	70676

```

Scaled residuals:
    Min       1Q   Median       3Q      Max
-2.0170 -0.5860 -0.2419  0.5516  2.9828

```

```

Random effects:
 Groups   Name      Variance Std.Dev.
country  (Intercept) 0.06975  0.2641
Residual                1.12169  1.0591
Number of obs: 70683, groups:  country, 70

```

```

Fixed effects:
              Estimate Std. Error t value
(Intercept)      2.386e+00  3.319e-02  71.894
age_group25-34 years old -1.922e-04  1.316e-02  -0.015
age_group35-44 years old  1.808e-02  1.370e-02   1.320
age_group45-54 years old  2.594e-05  1.457e-02   0.002
age_group55+ years      7.926e-03  1.332e-02   0.595

```

```

Correlation of Fixed Effects:
      (Intr) a_25yo a_35yo a_45yo
ag_g25-34yo -0.233
ag_g35-44yo -0.230  0.566
ag_g45-54yo -0.221  0.535  0.534
ag_grp55+yr -0.248  0.589  0.593  0.584

```

```

===== Fit 3: Add Predictor =====

```

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
200720.5	200793.6	-100352.3	200704.5	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0815	-0.5923	-0.2307	0.5722	3.0908

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07067	0.2658
Residual		1.09465	1.0463

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.391962	0.033681	71.018
predictorTRUE	-0.061202	0.008496	-7.204
age_group25-34 years old	0.001009	0.013238	0.076
age_group35-44 years old	0.020468	0.013795	1.484
age_group45-54 years old	0.002120	0.014701	0.144
age_group55+ years	0.016746	0.013502	1.240

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.127				
ag_g25-34yo	-0.234	0.018			
ag_g35-44yo	-0.234	0.044	0.568		
ag_g45-54yo	-0.228	0.070	0.536	0.536	
ag_grp55+yr	-0.260	0.114	0.589	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
-----	-----	--------	----------	----------

```

200502.4 200703.4 -100229.2 200458.4 68418

Scaled residuals:
    Min       1Q   Median       3Q      Max
-2.1543 -0.5990 -0.2134  0.5632  3.1064

Random effects:
   Groups   Name                Variance Std.Dev. Corr
country (Intercept)            0.0700957 0.264756
        age_group25-34 years old 0.0000435 0.006596  1.00
        age_group35-44 years old 0.0084224 0.091774  0.22  0.22
        age_group45-54 years old 0.0081680 0.090377 -0.19 -0.19  0.54
        age_group55+ years      0.0385346 0.196302 -0.27 -0.27  0.41  0.93
Residual                        1.0880818 1.043112
Number of obs: 68440, groups: country, 70

Fixed effects:
              Estimate Std. Error t value
(Intercept)      2.407843   0.033614  71.633
predictorTRUE     -0.068351   0.008513  -8.029
age_group25-34 years old -0.002431   0.013250  -0.183
age_group35-44 years old  0.010826   0.017744   0.610
age_group45-54 years old -0.006601   0.018299  -0.361
age_group55+ years      0.032786   0.027321   1.200

Correlation of Fixed Effects:
      (Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.130
ag_g25-34yo -0.179  0.020
ag_g35-44yo -0.061  0.040  0.450
ag_g45-54yo -0.294  0.061  0.424  0.541
ag_grp55+yr -0.343  0.053  0.273  0.443  0.704
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

```

===== Fit 4: Add Interaction =====

```

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
200720.5	200830.1	-100348.2	200696.5	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0906	-0.5907	-0.2242	0.5729	3.1019

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07069	0.2659
	Residual	1.09452	1.0462

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.405964	0.035142	68.465
predictorTRUE	-0.086845	0.020211	-4.297
age_group25-34 years old	-0.009262	0.019085	-0.485
age_group35-44 years old	0.015805	0.019335	0.817
age_group45-54 years old	-0.015245	0.019929	-0.765
age_group55+ years	-0.008218	0.018062	-0.455
predictorTRUE:age_group25-34 years old	0.018468	0.026397	0.700
predictorTRUE:age_group35-44 years old	0.004394	0.027374	0.160
predictorTRUE:age_group45-54 years old	0.034750	0.029206	1.190
predictorTRUE:age_group55+ years	0.062602	0.026361	2.375

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.310							
ag_g25-34yo	-0.331	0.564						
ag_g35-44yo	-0.331	0.557	0.603					
ag_g45-54yo	-0.326	0.543	0.588	0.594				
ag_grp55+yr	-0.364	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.238	-0.760	-0.720	-0.432	-0.421	-0.467		
pTRUE:_35yo	0.231	-0.733	-0.421	-0.698	-0.411	-0.457	0.563	
pTRUE:_45yo	0.217	-0.689	-0.395	-0.393	-0.667	-0.430	0.528	0.512
pTRUE:_55+y	0.240	-0.764	-0.437	-0.435	-0.426	-0.649	0.585	0.567
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								

```

ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3    8 200721 200794 -100352   200705
fit_4   12 200720 200830 -100348   200696 8.0607  4    0.08938 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

boundary (singular) fit: see help('isSingular')

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

	AIC	BIC	logLik	deviance	df.resid
	200493.7	200731.2	-100220.9	200441.7	68414

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.1480	-0.5942	-0.2131	0.5634	3.1237

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.073543	0.27119	
	age_group25-34 years old	0.004257	0.06524	-0.15
	age_group35-44 years old	0.016048	0.12668	0.00 0.99
	age_group45-54 years old	0.012367	0.11121	-0.28 0.75 0.72
	age_group55+ years	0.043743	0.20915	-0.33 0.54 0.50 0.92
Residual		1.087675	1.04292	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.4248777	0.0358689	67.604
predictorTRUE	-0.0897229	0.0203391	-4.411
age_group25-34 years old	-0.0231298	0.0208231	-1.111
age_group35-44 years old	0.0006822	0.0248313	0.027
age_group45-54 years old	-0.0285070	0.0241567	-1.180
age_group55+ years	0.0067371	0.0312484	0.216
predictorTRUE:age_group25-34 years old	0.0207115	0.0264516	0.783
predictorTRUE:age_group35-44 years old	0.0058534	0.0277254	0.211
predictorTRUE:age_group45-54 years old	0.0333126	0.0293159	1.136
predictorTRUE:age_group55+ years	0.0437421	0.0267130	1.637

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.305
ag_g25-34yo -0.360 0.519
ag_g35-44yo -0.268 0.440 0.677
ag_g45-54yo -0.414 0.451 0.617 0.640
ag_grp55+yr -0.448 0.350 0.516 0.547 0.728
pTRUE:_25yo 0.235 -0.761 -0.662 -0.344 -0.351 -0.270
pTRUE:_35yo 0.224 -0.733 -0.382 -0.546 -0.335 -0.258 0.567
pTRUE:_45yo 0.213 -0.691 -0.363 -0.310 -0.552 -0.252 0.530 0.513
pTRUE:_55+y 0.232 -0.762 -0.394 -0.335 -0.348 -0.384 0.580 0.560
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.534
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

Models:

```

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)

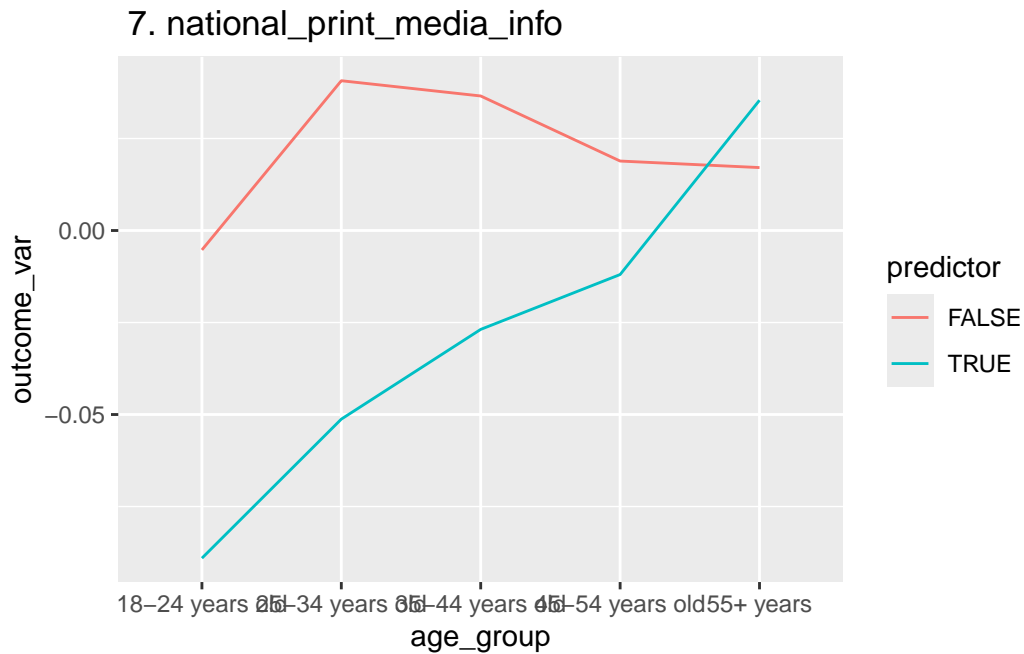
```

```

fit_3a    22 200502 200703 -100229    200458
fit_4a    26 200494 200731 -100221    200442  16.7  4    0.002211 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

`summarise()` has grouped output by 'age_group'. You can override using the `groups` argument.



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	0.0332525	-0.0509771
25-34 years old	0.0215397	-0.0428048
35-44 years old	0.0441433	-0.0329869
45-54 years old	0.0117609	-0.0355921
55+ years	0.0168317	-0.0033575

=====Current outcome variable: 9. word_of_mouth_media_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
207547.2	207611.3	-103766.6	207533.2	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1317	-0.7013	-0.1500	0.6202	2.7475

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06814	0.261
Residual		1.09870	1.048

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.69700	0.03280	82.217
age_group25-34 years old	-0.08604	0.01302	-6.606
age_group35-44 years old	-0.10839	0.01356	-7.996
age_group45-54 years old	-0.11183	0.01442	-7.754
age_group55+ years	-0.05170	0.01318	-3.922

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.233			
ag_g35-44yo	-0.230	0.566		
ag_g45-54yo	-0.221	0.535	0.534	
ag_grp55+yr	-0.248	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
199471.8	199544.8	-99727.9	199455.8	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1702	-0.6997	-0.1567	0.6288	2.8295

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06601	0.2569
	Residual	1.07491	1.0368

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.728195	0.032644	83.574
predictorTRUE	-0.090765	0.008419	-10.781
age_group25-34 years old	-0.087452	0.013118	-6.667
age_group35-44 years old	-0.113990	0.013670	-8.338
age_group45-54 years old	-0.117490	0.014568	-8.065
age_group55+ years	-0.058439	0.013379	-4.368

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.129				
ag_g25-34yo	-0.239	0.018			
ag_g35-44yo	-0.239	0.044	0.568		
ag_g45-54yo	-0.233	0.070	0.536	0.536	
ag_grp55+yr	-0.266	0.114	0.589	0.595	0.589

boundary (singular) fit: see help('isSingular')

=====
 Fit 3a: Add Random Slope for Predictor
 =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (age_group | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
199398.7	199599.6	-99677.3	199354.7	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2133	-0.6968	-0.1497	0.6369	2.8646

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	6.998e-02	0.264544	
	age_group25-34 years old	3.216e-05	0.005671	-1.00
	age_group35-44 years old	3.068e-03	0.055388	-0.05 0.05
	age_group45-54 years old	1.130e-02	0.106307	-0.18 0.18 0.59
	age_group55+ years	1.758e-02	0.132575	-0.31 0.31 0.38 0.97
	Residual	1.072e+00	1.035195	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.727985	0.033558	81.293
predictorTRUE	-0.091170	0.008441	-10.801
age_group25-34 years old	-0.088031	0.013148	-6.695
age_group35-44 years old	-0.112197	0.015306	-7.330
age_group45-54 years old	-0.117534	0.019393	-6.061
age_group55+ years	-0.055511	0.020901	-2.656

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.129				
ag_g25-34yo	-0.283	0.019			
ag_g35-44yo	-0.235	0.044	0.511		
ag_g45-54yo	-0.287	0.055	0.410	0.532	
ag_grp55+yr	-0.389	0.071	0.388	0.466	0.766

optimizer (nloptwrap) convergence code: 0 (OK)
 boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
199468.4	199578.0	-99722.2	199444.4	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1686	-0.7000	-0.1597	0.6190	2.8438

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06573	0.2564
Residual		1.07474	1.0367

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.70037	0.03406	79.286
predictorTRUE	-0.04000	0.02003	-1.997
age_group25-34 years old	-0.06224	0.01891	-3.291
age_group35-44 years old	-0.07099	0.01916	-3.705
age_group45-54 years old	-0.08151	0.01975	-4.127
age_group55+ years	-0.03091	0.01790	-1.727
predictorTRUE:age_group25-34 years old	-0.04619	0.02616	-1.766
predictorTRUE:age_group35-44 years old	-0.08626	0.02713	-3.180
predictorTRUE:age_group45-54 years old	-0.07260	0.02894	-2.509
predictorTRUE:age_group55+ years	-0.04843	0.02612	-1.854

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.317							
ag_g25-34yo	-0.338	0.564						
ag_g35-44yo	-0.339	0.557	0.603					
ag_g45-54yo	-0.333	0.543	0.588	0.594				
ag_grp55+yr	-0.372	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.243	-0.760	-0.720	-0.432	-0.421	-0.467		
pTRUE:_35yo	0.236	-0.733	-0.421	-0.698	-0.411	-0.457	0.563	
pTRUE:_45yo	0.222	-0.689	-0.395	-0.393	-0.667	-0.430	0.528	0.512
pTRUE:_55+y	0.246	-0.764	-0.437	-0.435	-0.426	-0.649	0.585	0.567

```

pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3     8 199472 199545 -99728   199456
fit_4    12 199468 199578 -99722   199444 11.361  4    0.02279 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

boundary (singular) fit: see help('isSingular')

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

	AIC	BIC	logLik	deviance	df.resid
	199388.3	199625.8	-99668.2	199336.3	68414

```

Scaled residuals:
      Min       1Q   Median       3Q      Max
-2.2147 -0.6991 -0.1527  0.6340  2.8980

```

```

Random effects:
Groups   Name                                Variance Std.Dev. Corr
country  (Intercept)                          0.071294 0.26701
         age_group25-34 years old 0.003057 0.05529 -0.25

```

age_group35-44 years old	0.007708	0.08779	-0.18	0.97		
age_group45-54 years old	0.014560	0.12067	-0.24	0.53	0.71	
age_group55+ years	0.018090	0.13450	-0.33	0.24	0.44	0.94
Residual	1.071122	1.03495				

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.70277	0.03534	76.475
predictorTRUE	-0.04135	0.02016	-2.051
age_group25-34 years old	-0.06390	0.02025	-3.156
age_group35-44 years old	-0.06997	0.02209	-3.167
age_group45-54 years old	-0.08436	0.02461	-3.427
age_group55+ years	-0.03246	0.02447	-1.327
predictorTRUE:age_group25-34 years old	-0.04821	0.02625	-1.837
predictorTRUE:age_group35-44 years old	-0.08814	0.02737	-3.220
predictorTRUE:age_group45-54 years old	-0.06956	0.02916	-2.385
predictorTRUE:age_group55+ years	-0.04391	0.02637	-1.665

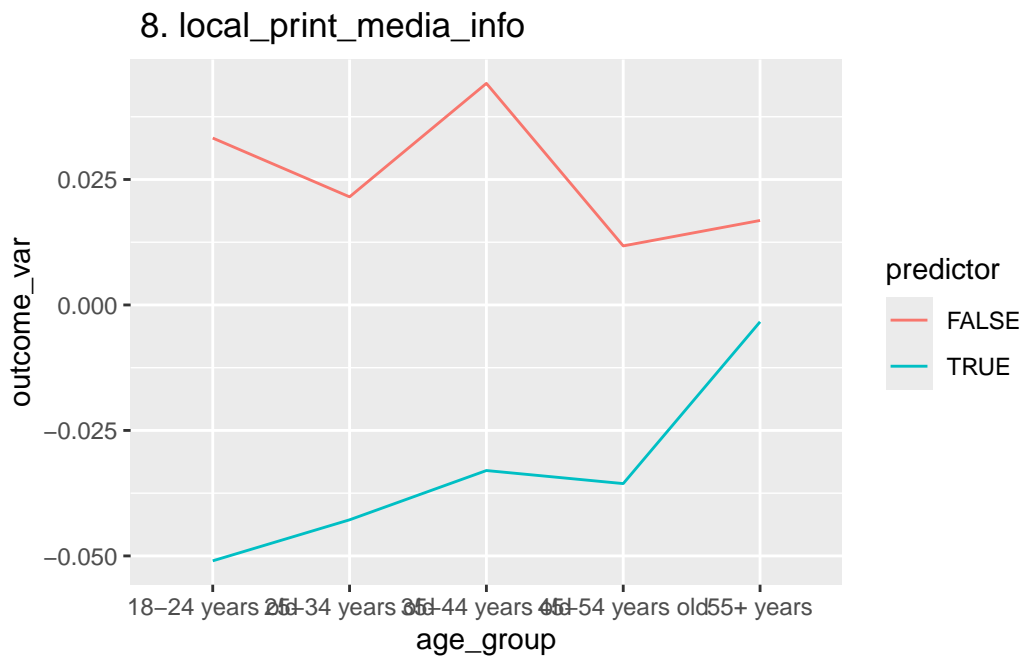
Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.307							
ag_g25-34yo	-0.390	0.529						
ag_g35-44yo	-0.370	0.489	0.659					
ag_g45-54yo	-0.391	0.440	0.556	0.624				
ag_grp55+yr	-0.464	0.443	0.515	0.568	0.766			
pTRUE:_25yo	0.236	-0.760	-0.675	-0.382	-0.341	-0.341		
pTRUE:_35yo	0.227	-0.734	-0.392	-0.608	-0.330	-0.329	0.567	
pTRUE:_45yo	0.212	-0.691	-0.366	-0.341	-0.536	-0.320	0.528	0.514
pTRUE:_55+y	0.236	-0.763	-0.407	-0.376	-0.346	-0.484	0.580	0.561
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.539							

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```
Data: d
Models:
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a   22 199399 199600 -99677   199355
fit_4a   26 199388 199626 -99668   199336 18.349  4   0.001055 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



====Predictor variable: lonely=====

age_group	FALSE	TRUE
:-----	-----	-----
18-24 years old	0.0871585	0.0490106
25-34 years old	0.0232971	-0.0587286
35-44 years old	0.0126765	-0.1073266

```
|45-54 years old | 0.0005859| -0.1055996|
|55+ years      | 0.0482435| -0.0340426|
```

```
=====Current outcome variable:  10. govt_comms_media_info =====
```

```
=====Predictor variable:  lonely =====
```

```
===== Fit 2: Age Group =====
```

```
=====Predictor variable:  lonely =====
```

```
Linear mixed model fit by maximum likelihood ['lmerMod']
```

```
Formula: outcome_var ~ age_group + (1 | country)
```

```
Data: d
```

AIC	BIC	logLik	deviance	df.resid
210951.1	211015.2	-105468.5	210937.1	70676

```
Scaled residuals:
```

Min	1Q	Median	3Q	Max
-1.7656	-0.7761	-0.1637	0.5129	3.1884

```
Random effects:
```

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07072	0.2659
	Residual	1.15291	1.0737

Number of obs: 70683, groups: country, 70

```
Fixed effects:
```

	Estimate	Std. Error	t value
(Intercept)	2.17354	0.03344	65.006
age_group25-34 years old	0.02108	0.01334	1.580
age_group35-44 years old	0.04993	0.01389	3.595
age_group45-54 years old	0.05390	0.01477	3.648
age_group55+ years	0.08664	0.01351	6.415

```
Correlation of Fixed Effects:
```

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.234			
ag_g35-44yo	-0.231	0.566		
ag_g45-54yo	-0.222	0.535	0.534	

ag_grp55+yr -0.249 0.589 0.593 0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
202498.9	202571.9	-101241.4	202482.9	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8169	-0.7919	-0.1567	0.5123	3.2724

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07107	0.2666
Residual		1.12349	1.0599

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.173009	0.033815	64.263
predictorTRUE	-0.051578	0.008607	-5.993
age_group25-34 years old	0.022745	0.013411	1.696
age_group35-44 years old	0.050606	0.013976	3.621
age_group45-54 years old	0.060431	0.014894	4.058
age_group55+ years	0.096851	0.013678	7.081

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.128				
ag_g25-34yo	-0.236	0.018			
ag_g35-44yo	-0.236	0.044	0.568		
ag_g45-54yo	-0.230	0.070	0.536	0.536	
ag_grp55+yr	-0.262	0.114	0.589	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
202205.8	202406.7	-101080.9	202161.8	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0645	-0.7812	-0.1544	0.5276	3.2879

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.064138	0.2533	
	age_group25-34 years old	0.002209	0.0470	0.04
	age_group35-44 years old	0.006225	0.0789	0.30 0.77
	age_group45-54 years old	0.017959	0.1340	-0.05 -0.12 0.46
	age_group55+ years	0.042461	0.2061	-0.03 -0.17 0.36 0.88
Residual		1.115316	1.0561	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.184404	0.032417	67.384
predictorTRUE	-0.059509	0.008621	-6.903
age_group25-34 years old	0.022699	0.014694	1.545
age_group35-44 years old	0.046974	0.017037	2.757
age_group45-54 years old	0.057375	0.022014	2.606
age_group55+ years	0.113552	0.028514	3.982

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.137				
ag_g25-34yo	-0.221	0.021			
ag_g35-44yo	-0.057	0.043	0.608		
ag_g45-54yo	-0.203	0.052	0.311	0.496	
ag_grp55+yr	-0.154	0.052	0.212	0.413	0.753

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
202477.9	202587.6	-101227.0	202453.9	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8149	-0.7901	-0.1513	0.5094	3.2853

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07107	0.2666
	Residual	1.12301	1.0597

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.1893876	0.0353037	62.016
predictorTRUE	-0.0815047	0.0204724	-3.981
age_group25-34 years old	0.0210854	0.0193319	1.091
age_group35-44 years old	0.0528367	0.0195852	2.698
age_group45-54 years old	0.0371521	0.0201867	1.840
age_group55+ years	0.0589524	0.0182950	3.222
predictorTRUE:age_group25-34 years old	0.0006817	0.0267385	0.025
predictorTRUE:age_group35-44 years old	-0.0124992	0.0277282	-0.451
predictorTRUE:age_group45-54 years old	0.0486756	0.0295839	1.645
predictorTRUE:age_group55+ years	0.1027570	0.0267018	3.848

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.312							
ag_g25-34yo	-0.333	0.564						
ag_g35-44yo	-0.334	0.557	0.603					
ag_g45-54yo	-0.328	0.543	0.588	0.594				
ag_grp55+yr	-0.367	0.601	0.652	0.662	0.659			

```

pTRUE:_25yo  0.240 -0.760 -0.720 -0.432 -0.421 -0.467
pTRUE:_35yo  0.233 -0.733 -0.421 -0.698 -0.411 -0.457  0.563
pTRUE:_45yo  0.219 -0.689 -0.395 -0.393 -0.667 -0.430  0.528      0.512
pTRUE:_55+y  0.242 -0.764 -0.437 -0.435 -0.426 -0.649  0.585      0.567
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3    8 202499 202572 -101241  202483
fit_4   12 202478 202588 -101227  202454 28.933  4 8.068e-06 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

boundary (singular) fit: see help('isSingular')

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
202193.9	202431.3	-101070.9	202141.9	68414

```

Scaled residuals:
      Min       1Q   Median       3Q      Max
-2.0419 -0.7733 -0.1561  0.5330  3.3043

```

Random effects:

Groups	Name	Variance	Std.Dev.	Corr				
country	(Intercept)	0.064222	0.25342					
	age_group25-34 years old	0.002028	0.04503	0.04				
	age_group35-44 years old	0.006159	0.07848	0.30	0.77			
	age_group45-54 years old	0.018139	0.13468	-0.05	-0.11	0.48		
	age_group55+ years	0.041681	0.20416	-0.03	-0.15	0.38	0.89	
	Residual	1.115029	1.05595					

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.199003	0.033969	64.736
predictorTRUE	-0.087002	0.020512	-4.242
age_group25-34 years old	0.020358	0.020173	1.009
age_group35-44 years old	0.046997	0.021862	2.150
age_group45-54 years old	0.035342	0.025959	1.361
age_group55+ years	0.078330	0.030892	2.536
predictorTRUE:age_group25-34 years old	0.001646	0.026748	0.062
predictorTRUE:age_group35-44 years old	-0.006308	0.027867	-0.226
predictorTRUE:age_group45-54 years old	0.046700	0.029756	1.569
predictorTRUE:age_group55+ years	0.088825	0.026967	3.294

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo	
predctrTRUE	-0.325								
ag_g25-34yo	-0.329	0.540							
ag_g35-44yo	-0.203	0.501	0.617						
ag_g45-54yo	-0.300	0.424	0.427	0.548					
ag_grp55+yr	-0.249	0.357	0.342	0.482	0.744				
pTRUE:_25yo	0.250	-0.759	-0.690	-0.392	-0.327	-0.274			
pTRUE:_35yo	0.241	-0.732	-0.401	-0.626	-0.317	-0.266	0.566		
pTRUE:_45yo	0.225	-0.688	-0.375	-0.350	-0.521	-0.256	0.523	0.509	
pTRUE:_55+y	0.247	-0.760	-0.412	-0.382	-0.329	-0.393	0.576	0.558	
pTRUE:_4yo									
predctrTRUE									
ag_g25-34yo									
ag_g35-44yo									
ag_g45-54yo									
ag_grp55+yr									
pTRUE:_25yo									
pTRUE:_35yo									
pTRUE:_45yo									

```
pTRUE:_55+y 0.531
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')
```

Data: d

Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

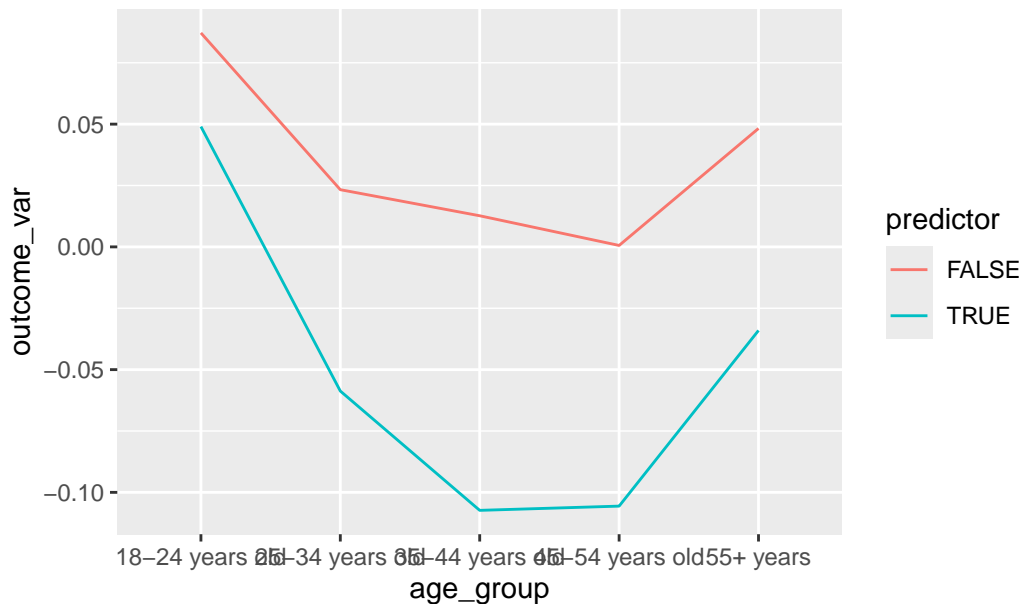
```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	np	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	202206	202407	-101081	202162			
fit_4a	26	202194	202431	-101071	202142	19.949	4	0.000511 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.

9. word_of_mouth_media_info



=====
=====Predictor variable: lonely=====

age_group	FALSE	TRUE
18-24 years	0.08	0.05
25-34 years	0.02	-0.06
35-44 years	0.01	-0.10
45-54 years	0.00	-0.10
55+ years	0.05	-0.03

:----- -----: -----:
18-24 years old -0.0045834 -0.0836419
25-34 years old 0.0112143 -0.0639292
35-44 years old 0.0375652 -0.0482834
45-54 years old 0.0179334 -0.0071851
55+ years 0.0349484 0.0626526

=====Current outcome variable: 11. social_media_media_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
210951.5	211015.6	-105468.7	210937.5	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.22310	-0.76581	-0.08644	0.73179	2.95434

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1034	0.3215
Residual		1.1525	1.0735

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.43769	0.03980	61.243
age_group25-34 years old	0.03074	0.01334	2.305
age_group35-44 years old	0.13293	0.01388	9.574
age_group45-54 years old	0.23654	0.01477	16.010
age_group55+ years	0.42947	0.01351	31.796

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.197			
ag_g35-44yo	-0.194	0.566		
ag_g45-54yo	-0.187	0.535	0.534	
ag_grp55+yr	-0.209	0.589	0.593	0.584

=====
 ===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
202989.8	203062.9	-101486.9	202973.8	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.28161	-0.75787	-0.07924	0.73568	3.06718

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1053	0.3246
Residual		1.1311	1.0635

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.476985	0.040423	61.277
predictorTRUE	-0.106297	0.008637	-12.306
age_group25-34 years old	0.029929	0.013457	2.224
age_group35-44 years old	0.129131	0.014025	9.207
age_group45-54 years old	0.228130	0.014946	15.263
age_group55+ years	0.420916	0.013729	30.658

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.107				
ag_g25-34yo	-0.198	0.018			
ag_g35-44yo	-0.198	0.044	0.568		
ag_g45-54yo	-0.193	0.070	0.536	0.537	
ag_grp55+yr	-0.220	0.113	0.589	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
202317.8	202518.7	-101136.9	202273.8	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.46248	-0.75694	-0.07091	0.69055	3.10977

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.073787	0.27164	
	age_group25-34 years old	0.002667	0.05164	1.00
	age_group35-44 years old	0.015329	0.12381	0.59 0.59
	age_group45-54 years old	0.019843	0.14086	0.50 0.50 0.58
	age_group55+ years	0.077872	0.27906	0.09 0.09 0.24 0.86
Residual		1.116021	1.05642	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.475407	0.034413	71.931
predictorTRUE	-0.103729	0.008627	-12.024
age_group25-34 years old	0.030888	0.014727	2.097
age_group35-44 years old	0.129280	0.020427	6.329
age_group45-54 years old	0.232031	0.022499	10.313
age_group55+ years	0.427839	0.036316	11.781

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.129				
ag_g25-34yo	0.186	0.020			
ag_g35-44yo	0.243	0.036	0.530		

```

ag_g45-54yo  0.206  0.051  0.477  0.559
ag_grp55+yr -0.017  0.040  0.231  0.309  0.737
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

===== Fit 4: Add Interaction =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
202987.7	203097.3	-101481.9	202963.7	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.29526	-0.75113	-0.08047	0.73948	3.04557

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1051	0.3242
Residual		1.1310	1.0635

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.44866	0.04164	58.807
predictorTRUE	-0.05453	0.02055	-2.654
age_group25-34 years old	0.05573	0.01940	2.872
age_group35-44 years old	0.15758	0.01966	8.017
age_group45-54 years old	0.26885	0.02026	13.269
age_group55+ years	0.45527	0.01836	24.791
predictorTRUE:age_group25-34 years old	-0.04738	0.02683	-1.766
predictorTRUE:age_group35-44 years old	-0.05255	0.02783	-1.889
predictorTRUE:age_group45-54 years old	-0.08513	0.02969	-2.867
predictorTRUE:age_group55+ years	-0.07111	0.02680	-2.654

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.266							

```

ag_g25-34yo -0.284 0.564
ag_g35-44yo -0.284 0.557 0.603
ag_g45-54yo -0.279 0.543 0.588 0.594
ag_grp55+yr -0.312 0.601 0.652 0.662 0.659
pTRUE:_25yo 0.204 -0.760 -0.720 -0.432 -0.421 -0.467
pTRUE:_35yo 0.198 -0.733 -0.421 -0.698 -0.411 -0.457 0.563
pTRUE:_45yo 0.186 -0.689 -0.395 -0.393 -0.667 -0.430 0.528 0.512
pTRUE:_55+y 0.206 -0.764 -0.437 -0.435 -0.426 -0.649 0.585 0.567
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3     8 202990 203063 -101487   202974
fit_4    12 202988 203097 -101482   202964 10.077  4    0.03915 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

boundary (singular) fit: see help('isSingular')

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

	AIC	BIC	logLik	deviance	df.resid
	202314.5	202552.0	-101131.3	202262.5	68414

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.4783	-0.7557	-0.0784	0.6933	3.1137

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.073217	0.27059	
	age_group25-34 years old	0.002782	0.05275	1.00
	age_group35-44 years old	0.015686	0.12524	0.59 0.59
	age_group45-54 years old	0.020234	0.14225	0.50 0.50 0.59
	age_group55+ years	0.078030	0.27934	0.09 0.09 0.25 0.86
Residual		1.115833	1.05633	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.44691	0.03574	68.464
predictorTRUE	-0.05084	0.02044	-2.487
age_group25-34 years old	0.05429	0.02029	2.675
age_group35-44 years old	0.16079	0.02473	6.502
age_group45-54 years old	0.27456	0.02640	10.401
age_group55+ years	0.46307	0.03840	12.059
predictorTRUE:age_group25-34 years old	-0.04277	0.02669	-1.603
predictorTRUE:age_group35-44 years old	-0.06009	0.02797	-2.148
predictorTRUE:age_group45-54 years old	-0.09025	0.02961	-3.048
predictorTRUE:age_group55+ years	-0.07167	0.02697	-2.658

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.308							
ag_g25-34yo	-0.030	0.534						
ag_g35-44yo	0.062	0.442	0.563					
ag_g45-54yo	0.046	0.415	0.525	0.590				
ag_grp55+yr	-0.097	0.286	0.314	0.373	0.721			
pTRUE:_25yo	0.237	-0.756	-0.685	-0.343	-0.322	-0.220		
pTRUE:_35yo	0.226	-0.728	-0.393	-0.554	-0.309	-0.210	0.555	
pTRUE:_45yo	0.214	-0.688	-0.371	-0.310	-0.509	-0.206	0.525	0.507
pTRUE:_55+y	0.233	-0.758	-0.404	-0.335	-0.320	-0.317	0.573	0.551
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								

```

ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.530
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

Models:

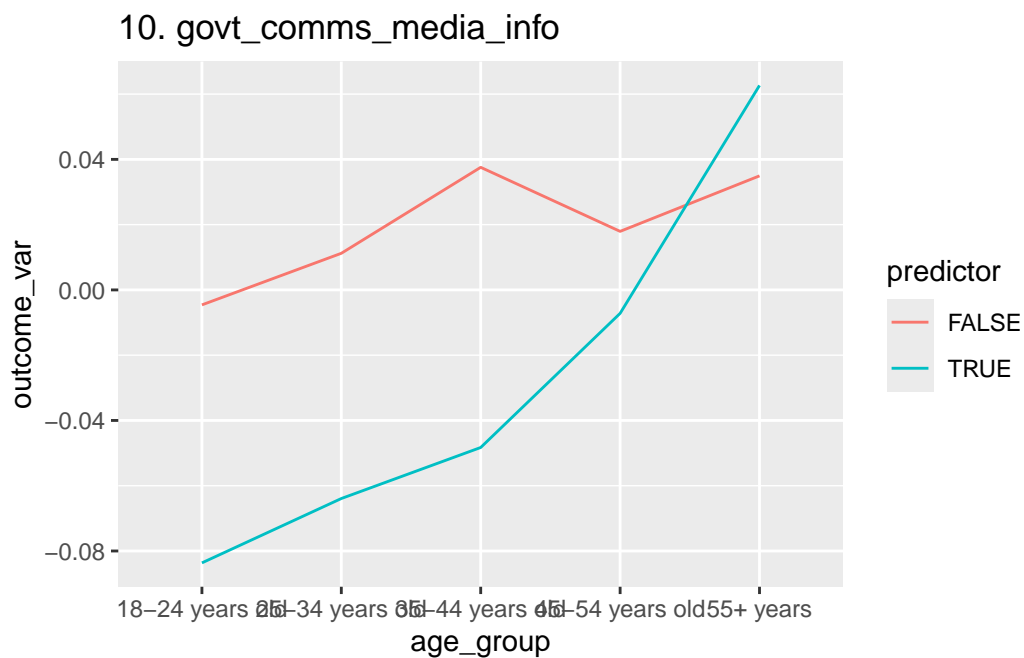
```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	202318	202519	-101137	202274			
fit_4a	26	202315	202552	-101131	202263	11.239	4	0.02401 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.1282773	-0.1802342
25-34 years old	-0.0935298	-0.1787339
35-44 years old	-0.0140522	-0.0936964
45-54 years old	0.0777651	-0.0332867
55+ years	0.2416429	0.1427078

=====Current outcome variable: 12. internet_media_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
210015.2	210079.4	-105000.6	210001.2	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2145	-0.6824	-0.1738	0.5377	3.0934

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08242	0.2871
Residual		1.13757	1.0666

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.20183	0.03583	61.452
age_group25-34 years old	0.02722	0.01325	2.054
age_group35-44 years old	0.13402	0.01379	9.716

age_group45-54 years old	0.17317	0.01468	11.799
age_group55+ years	0.32671	0.01342	24.350

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.217		
ag_g35-44yo	-0.214	0.566	
ag_g45-54yo	-0.206	0.535	0.534
ag_grp55+yr	-0.231	0.589	0.593 0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
201767.0	201840.1	-100875.5	201751.0	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2739	-0.6882	-0.1754	0.5325	3.1940

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08567	0.2927
Residual		1.11132	1.0542

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.215233	0.036751	60.277
predictorTRUE	-0.074201	0.008561	-8.667
age_group25-34 years old	0.031200	0.013338	2.339
age_group35-44 years old	0.137523	0.013901	9.893
age_group45-54 years old	0.179690	0.014814	12.130
age_group55+ years	0.333059	0.013607	24.478

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.117			

```

ag_g25-34yo -0.216  0.018
ag_g35-44yo -0.216  0.044  0.568
ag_g45-54yo -0.211  0.070  0.536  0.537
ag_grp55+yr -0.240  0.113  0.589  0.595  0.589

```

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
201149.5	201350.5	-100552.8	201105.5	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.6991	-0.7328	-0.1607	0.5560	3.1321

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0598087	0.24456	
	age_group25-34 years old	0.0003769	0.01941	1.00
	age_group35-44 years old	0.0138723	0.11778	0.55 0.55
	age_group45-54 years old	0.0248215	0.15755	0.46 0.46 0.88
	age_group55+ years	0.0884745	0.29745	0.19 0.19 0.63 0.86
Residual		1.0974993	1.04762	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.234857	0.031362	71.260
predictorTRUE	-0.081496	0.008555	-9.526
age_group25-34 years old	0.023510	0.013475	1.745
age_group35-44 years old	0.122864	0.019837	6.194
age_group45-54 years old	0.171992	0.023964	7.177
age_group55+ years	0.351037	0.038323	9.160

Correlation of Fixed Effects:
 (Intr) prTRUE a_25yo a_35yo a_45yo
 predctrTRUE -0.141
 ag_g25-34yo -0.089 0.021
 ag_g35-44yo 0.186 0.037 0.458
 ag_g45-54yo 0.180 0.047 0.386 0.726
 ag_grp55+yr 0.070 0.038 0.233 0.556 0.755
 optimizer (nloptwrap) convergence code: 0 (OK)
 boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
201770.0	201879.6	-100873.0	201746.0	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2731	-0.6867	-0.1713	0.5367	3.1835

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08571	0.2928
	Residual	1.11123	1.0542

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.201912	0.038118	57.766
predictorTRUE	-0.049763	0.020365	-2.444
age_group25-34 years old	0.052302	0.019231	2.720
age_group35-44 years old	0.161270	0.019483	8.277
age_group45-54 years old	0.185431	0.020082	9.234
age_group55+ years	0.345045	0.018201	18.957
predictorTRUE:age_group25-34 years old	-0.040410	0.026598	-1.519
predictorTRUE:age_group35-44 years old	-0.048596	0.027583	-1.762
predictorTRUE:age_group45-54 years old	-0.003834	0.029429	-0.130

predictorTRUE:age_group55+ years -0.019532 0.026562 -0.735

Correlation of Fixed Effects:

```
(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.288
ag_g25-34yo -0.307 0.564
ag_g35-44yo -0.308 0.557 0.603
ag_g45-54yo -0.302 0.543 0.588 0.594
ag_grp55+yr -0.338 0.601 0.652 0.662 0.659
pTRUE:_25yo 0.221 -0.760 -0.720 -0.432 -0.421 -0.467
pTRUE:_35yo 0.214 -0.733 -0.421 -0.698 -0.411 -0.457 0.563
pTRUE:_45yo 0.201 -0.689 -0.395 -0.393 -0.667 -0.430 0.528 0.512
pTRUE:_55+y 0.223 -0.764 -0.437 -0.435 -0.426 -0.649 0.585 0.567
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.533
```

=====
===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	201767	201840	-100876	201751			
fit_4	12	201770	201880	-100873	201746	5.0251	4	0.2847

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
201153.1	201390.6	-100550.6	201101.1	68414

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.7013	-0.7329	-0.1620	0.5543	3.1439

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0596275	0.24419	
	age_group25-34 years old	0.0003897	0.01974	1.00
	age_group35-44 years old	0.0143115	0.11963	0.55 0.55
	age_group45-54 years old	0.0244791	0.15646	0.46 0.46 0.88
	age_group55+ years	0.0885048	0.29750	0.19 0.19 0.62 0.86
Residual		1.0974165	1.04758	
Number of obs: 68440, groups: country, 70				

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.21985	0.03287	67.527
predictorTRUE	-0.05374	0.02029	-2.649
age_group25-34 years old	0.03985	0.01929	2.066
age_group35-44 years old	0.14865	0.02420	6.143
age_group45-54 years old	0.18102	0.02742	6.602
age_group55+ years	0.36825	0.04026	9.148
predictorTRUE:age_group25-34 years old	-0.03069	0.02646	-1.160
predictorTRUE:age_group35-44 years old	-0.05285	0.02766	-1.910
predictorTRUE:age_group45-54 years old	-0.01171	0.02943	-0.398
predictorTRUE:age_group55+ years	-0.03452	0.02677	-1.289

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.332							
ag_g25-34yo	-0.244	0.557						
ag_g35-44yo	0.001	0.448	0.520					
ag_g45-54yo	0.025	0.397	0.462	0.704				
ag_grp55+y	-0.020	0.271	0.308	0.560	0.734			
pTRUE:_25yo	0.256	-0.757	-0.715	-0.348	-0.307	-0.208		
pTRUE:_35yo	0.245	-0.730	-0.412	-0.561	-0.299	-0.201	0.557	
pTRUE:_45yo	0.230	-0.688	-0.386	-0.315	-0.487	-0.193	0.523	0.512
pTRUE:_55+y	0.251	-0.758	-0.422	-0.339	-0.304	-0.300	0.573	0.554
	pTRUE:_4yo							
predctrTRUE								

```

ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.528
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

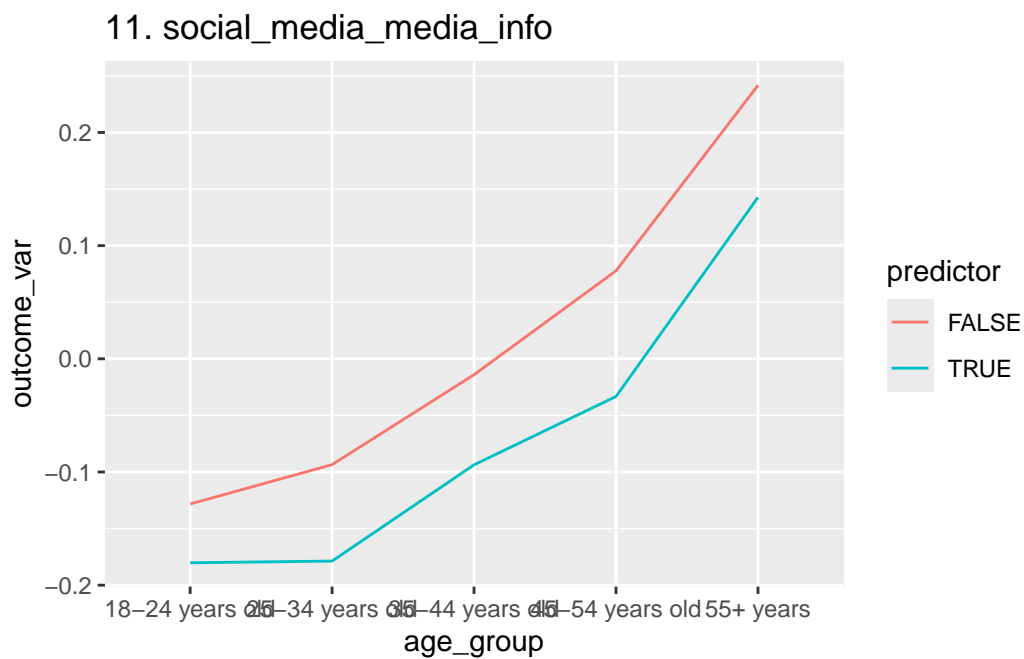
Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	201150	201350	-100553	201106			
fit_4a	26	201153	201391	-100551	201101	4.408	4	0.3536

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.1064844	-0.1539447
25-34 years old	-0.0699692	-0.1475510
35-44 years old	0.0221633	-0.0557974
45-54 years old	0.0320442	-0.0005664
55+ years	0.1749738	0.1251546

=====Current outcome variable: 13. messaging_media_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
213587.3	213651.5	-106786.7	213573.3	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.13746	-0.76119	-0.08104	0.73333	2.75094

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09215	0.3036
Residual		1.19646	1.0938

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.551768	0.037792	67.522
age_group25-34 years old	-0.002498	0.013592	-0.184

age_group35-44 years old	0.054819	0.014146	3.875
age_group45-54 years old	0.123528	0.015053	8.206
age_group55+ years	0.286562	0.013761	20.824

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.211		
ag_g35-44yo	-0.208	0.566	
ag_g45-54yo	-0.200	0.535	0.534
ag_grp55+yr	-0.225	0.589	0.593 0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
205541.3	205614.4	-102762.7	205525.3	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.17532	-0.75468	-0.08196	0.73728	2.82881

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0922	0.3036
Residual		1.1743	1.0837

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.588488	0.038093	67.952
predictorTRUE	-0.093579	0.008800	-10.634
age_group25-34 years old	-0.006638	0.013711	-0.484
age_group35-44 years old	0.047832	0.014289	3.347
age_group45-54 years old	0.116294	0.015228	7.637
age_group55+ years	0.274614	0.013987	19.633

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
--------	--------	--------	--------	--------

```

predctrTRUE -0.116
ag_g25-34yo -0.214  0.018
ag_g35-44yo -0.214  0.044  0.568
ag_g45-54yo -0.209  0.070  0.536  0.537
ag_grp55+yr -0.238  0.113  0.589  0.595  0.589

```

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00272469 (tol = 0.002, component 1)

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
204775.2	204976.1	-102365.6	204731.2	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.33531	-0.73993	-0.08966	0.68807	2.92186

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.067253	0.25933	
	age_group25-34 years old	0.009793	0.09896	0.39
	age_group35-44 years old	0.023214	0.15236	0.19 0.71
	age_group45-54 years old	0.045336	0.21292	0.06 0.50 0.69
	age_group55+ years	0.101677	0.31887	-0.03 0.28 0.51 0.87
Residual		1.155851	1.07511	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.597571	0.033255	78.110
predictorTRUE	-0.095869	0.008790	-10.906
age_group25-34 years old	-0.009751	0.018413	-0.530
age_group35-44 years old	0.039094	0.023386	1.672
age_group45-54 years old	0.116064	0.029803	3.894

age_group55+ years 0.278194 0.040954 6.793

Correlation of Fixed Effects:

(Intr) prTRUE a_25yo a_35yo a_45yo

predctrTRUE -0.139

ag_g25-34yo 0.033 0.022

ag_g35-44yo -0.023 0.036 0.634

ag_g45-54yo -0.085 0.042 0.490 0.637

ag_grp55+yr -0.125 0.038 0.328 0.501 0.799

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.00272469 (tol = 0.002, component 1)

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
205547.3	205656.9	-102761.7	205523.3	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.17943	-0.75493	-0.08493	0.73340	2.82740

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09204	0.3034
Residual		1.17427	1.0836

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.576649	0.039452	65.311
predictorTRUE	-0.071912	0.020935	-3.435
age_group25-34 years old	0.004338	0.019768	0.219
age_group35-44 years old	0.059617	0.020028	2.977
age_group45-54 years old	0.128026	0.020644	6.202
age_group55+ years	0.291562	0.018711	15.583
predictorTRUE:age_group25-34 years old	-0.020210	0.027342	-0.739


```

predictorTRUE:age_group35-44 years old -0.021756    0.028354  -0.767
predictorTRUE:age_group45-54 years old -0.021338    0.030252  -0.705
predictorTRUE:age_group55+ years      -0.038684    0.027305  -1.417

```

Correlation of Fixed Effects:

```

      (Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.286
ag_g25-34yo -0.305  0.564
ag_g35-44yo -0.306  0.557  0.603
ag_g45-54yo -0.300  0.543  0.588  0.594
ag_grp55+yr -0.336  0.601  0.652  0.662  0.659
pTRUE:_25yo  0.219 -0.760 -0.720 -0.432 -0.421 -0.467
pTRUE:_35yo  0.213 -0.733 -0.421 -0.698 -0.411 -0.457  0.563
pTRUE:_45yo  0.200 -0.689 -0.395 -0.393 -0.667 -0.430  0.528      0.512
pTRUE:_55+y  0.222 -0.764 -0.437 -0.435 -0.426 -0.649  0.585      0.567
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

```

fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3     8 205541 205614 -102763   205525
fit_4    12 205547 205657 -102762   205523 2.0199  4      0.7321

```

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
204792.3	205029.8	-102370.2	204740.3	68414

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.33578	-0.73607	-0.09344	0.68919	2.92014

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.064979	0.25491	
	age_group25-34 years old	0.003138	0.05602	1.00
	age_group35-44 years old	0.015982	0.12642	0.38 0.38
	age_group45-54 years old	0.037280	0.19308	0.17 0.17 0.60
	age_group55+ years	0.093853	0.30635	0.03 0.03 0.45 0.87
Residual		1.156426	1.07537	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.579708	0.034188	75.456
predictorTRUE	-0.070859	0.020821	-3.403
age_group25-34 years old	0.004075	0.020753	0.196
age_group35-44 years old	0.058509	0.025113	2.330
age_group45-54 years old	0.136838	0.030967	4.419
age_group55+ years	0.302945	0.041417	7.315
predictorTRUE:age_group25-34 years old	-0.013166	0.027180	-0.484
predictorTRUE:age_group35-44 years old	-0.028820	0.028492	-1.012
predictorTRUE:age_group45-54 years old	-0.032594	0.030346	-1.074
predictorTRUE:age_group55+ years	-0.045055	0.027462	-1.641

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.328							
ag_g25-34yo	-0.043	0.531						
ag_g35-44yo	-0.074	0.444	0.525					
ag_g45-54yo	-0.115	0.361	0.406	0.581				
ag_grp55+yr	-0.148	0.270	0.280	0.470	0.765			
pTRUE:_25yo	0.252	-0.755	-0.682	-0.344	-0.279	-0.208		
pTRUE:_35yo	0.241	-0.728	-0.390	-0.555	-0.268	-0.199	0.554	
pTRUE:_45yo	0.225	-0.685	-0.365	-0.307	-0.444	-0.191	0.519	0.504
pTRUE:_55+y	0.248	-0.758	-0.402	-0.336	-0.278	-0.300	0.572	0.552

```

pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.526
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

Models:

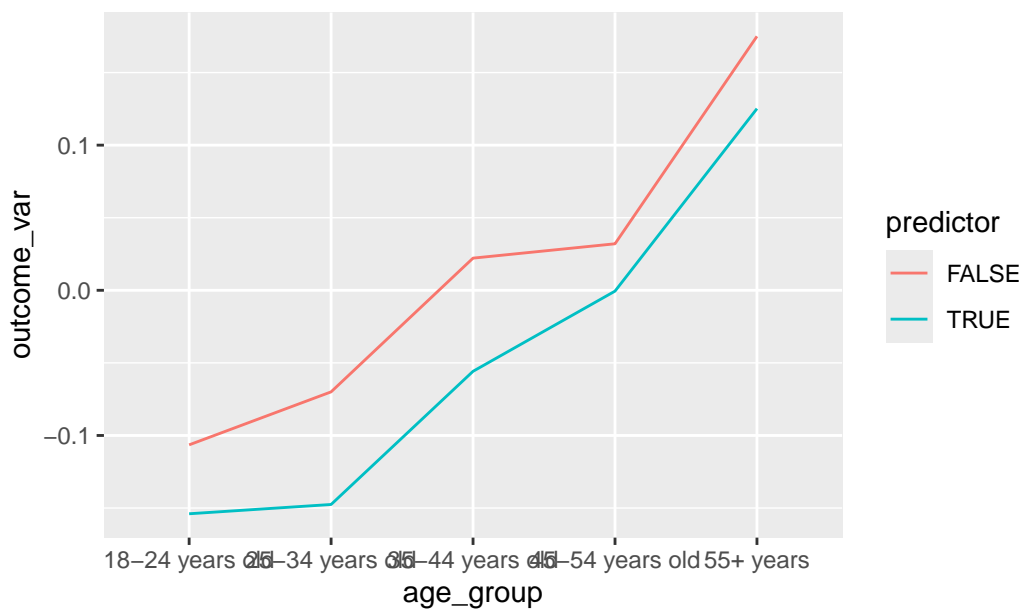
```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

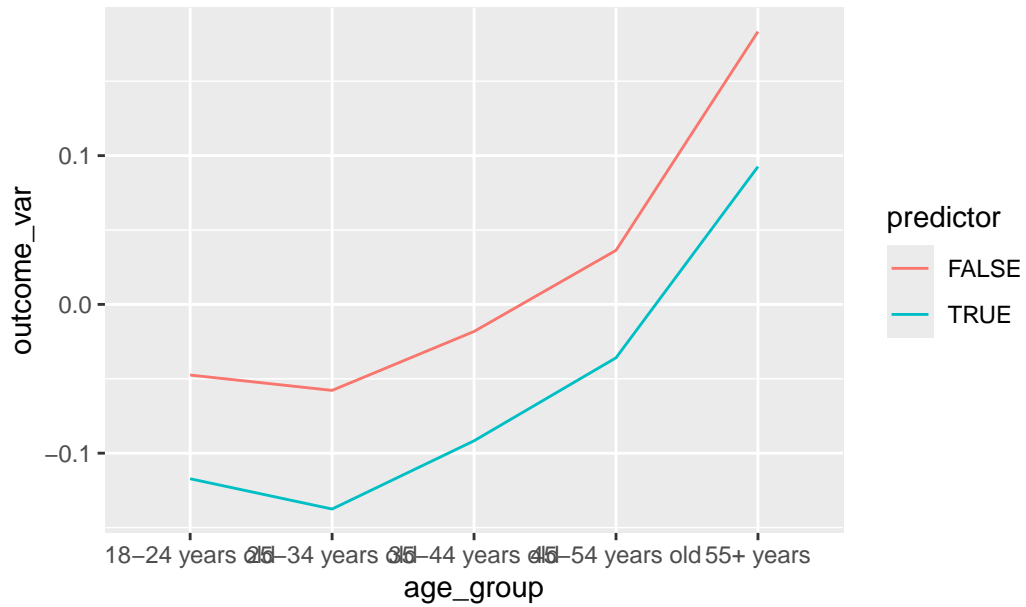
	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	204775	204976	-102366	204731			
fit_4a	26	204792	205030	-102370	204740	0	4	1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.

12. internet_media_info



13. messaging_media_info



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.0474727	-0.1171786
25-34 years old	-0.0578027	-0.1375412
35-44 years old	-0.0181909	-0.0917014
45-54 years old	0.0363212	-0.0359105
55+ years	0.1833463	0.0925804

A2: Which People Would you Trust for Information

Country Level Summary

Note: Higher score = LESS TRUST

```
d %>% dplyr::select(
  country, ends_with("people_info")
) %>%
dplyr::group_by(country) %>%
dplyr::summarise_all(
  mean, na.rm = TRUE
) %>% knitr::kable(digits = 2)
```

country	1. fam-people	2. reli-people	3. com-mu-people	4. fil-people	5. so-people	6. lo-people	7. jour-nal-people	8. jour-nal-people	9. jour-nal-people	10. jour-nal-people	11. em-people	12. fam-people	13. sci-en-people
Argentina	2.00	3.08	2.75	2.32	2.90	2.99	2.79	2.52	2.27	2.33	2.73	2.05	1.98
Australia	2.25	3.19	2.65	2.41	3.19	2.78	2.44	2.79	2.76	2.47	2.93	2.27	2.15
Austria	2.13	3.41	2.85	2.25	3.39	2.99	2.91	2.97	2.82	2.60	2.82	2.19	2.30
Belgium	2.50	3.52	2.96	2.63	3.52	2.97	2.63	2.98	2.80	2.57	3.08	2.13	2.12
Brazil	2.02	2.64	2.50	2.21	2.78	2.75	2.54	2.25	2.32	2.17	2.61	2.08	2.03
Bulgaria	2.76	3.42	2.97	2.01	3.46	3.12	2.91	2.74	2.96	2.67	2.45	2.30	2.22
Cameroon	2.30	2.44	2.59	2.68	3.13	3.01	2.69	2.64	2.36	2.40	2.83	2.21	2.39
Canada	2.33	3.29	2.71	2.44	3.32	2.92	2.53	2.73	2.85	2.48	2.97	2.20	2.10
Chile	2.04	3.08	2.60	2.28	2.92	3.01	2.69	2.54	2.41	2.43	2.66	2.33	2.15
Colombia	2.01	2.71	2.38	2.32	2.72	2.84	2.51	2.31	2.12	2.09	2.56	2.19	2.07
Croatia	2.06	3.34	2.85	2.29	3.52	3.27	3.07	2.87	2.72	2.62	2.78	2.25	2.07
DRC	2.32	2.12	2.57	2.75	3.33	3.06	2.69	2.60	2.51	2.38	2.90	2.19	2.37
Denmark	2.46	3.54	2.92	2.58	3.47	2.88	2.37	2.87	3.03	2.43	3.04	2.45	2.12
Egypt	2.65	1.95	2.00	1.81	2.17	2.10	2.08	2.16	2.28	2.07	2.05	1.69	1.79
Estonia	2.88	3.70	2.99	2.11	3.44	3.14	2.85	3.04	2.98	2.99	2.83	2.48	2.35
Ethiopia	2.67	1.59	2.05	2.11	2.92	2.79	2.43	2.67	2.34	2.51	2.33	1.84	2.26
Finland	2.18	3.54	3.06	2.33	3.38	3.06	2.62	2.96	2.77	2.52	2.98	2.27	2.18
France	2.47	3.44	3.14	2.54	3.46	3.07	2.93	3.08	2.82	2.69	3.16	2.39	2.51
Germany	2.26	3.35	2.92	2.31	3.39	2.89	2.92	3.05	2.98	2.73	2.95	2.40	2.48
Ghana	2.05	2.00	2.05	2.30	2.56	2.32	2.18	2.04	2.04	1.87	2.27	1.85	1.83
Greece	2.01	3.08	2.68	2.10	3.21	2.84	2.67	2.93	2.84	2.25	2.60	2.04	1.79
Hong Kong	1.86	2.99	2.48	2.00	2.76	2.72	2.38	2.50	2.40	2.35	2.31	2.20	2.31

	1.	2.	3.		5.		8.			11.	12.	13.
	fam-	reli-	com-	4.	so-	6. lo-	jour-	9.	10.	em-	fam-	sci-
country	people	people	mu-	in-	ple	ple	ple	ple	ple	ple	ple	ple
Hungary	2.16	3.34	2.96	2.35	3.32	3.19	3.12	3.17	2.73	2.47	2.81	2.26
India	1.54	2.77	2.64	1.87	2.64	2.60	2.53	2.51	2.49	2.40	2.28	2.11
Indonesia	1.83	2.11	2.12	2.05	2.42	2.59	2.28	2.31	2.23	2.08	2.14	1.97
Iraq	1.64	2.52	2.87	2.17	2.94	3.18	3.22	2.85	2.99	2.68	2.79	2.28
Ireland	1.23	3.19	2.62	2.32	3.23	2.85	2.46	2.74	2.56	2.22	2.77	2.15
Israel	2.05	3.07	2.80	2.27	3.18	3.11	2.87	2.77	2.63	2.48	2.69	2.22
Italy	2.20	3.11	2.82	2.39	3.24	2.88	2.79	2.84	2.56	2.42	2.90	2.17
Ivory Coast	2.36	2.23	2.46	2.76	3.19	2.67	2.42	2.70	2.21	2.13	2.93	2.23
Japan	2.48	3.85	3.36	2.88	3.54	3.49	3.10	3.37	3.31	3.03	3.24	3.06
KSA	1.71	2.14	1.93	1.88	2.28	2.31	1.94	2.14	2.08	1.83	2.04	1.75
Kenya	1.92	2.01	2.06	2.28	2.47	2.60	2.29	2.14	2.13	2.12	2.33	1.93
Latvia	1.89	3.28	2.99	2.08	2.98	2.92	2.75	2.79	2.78	2.77	2.56	2.32
Liberia	1.06	1.91	2.13	2.25	2.19	2.44	2.21	2.01	2.02	1.89	2.24	1.88
Lithuania	1.86	3.34	2.77	2.21	3.35	3.02	2.75	2.99	2.85	2.68	2.71	2.41
Malaysia	1.81	2.21	2.06	2.15	2.46	2.37	2.00	2.16	1.97	1.96	2.17	1.87
Mali	1.98	1.92	2.12	2.21	2.83	2.81	2.21	2.48	2.28	2.44	2.38	1.98
Mexico	1.99	2.84	2.41	2.24	2.80	2.69	2.34	2.28	1.97	1.90	2.49	2.04
Netherlands	2.47	3.39	2.90	2.53	3.51	2.96	2.48	2.87	2.70	2.50	3.07	2.37
New Zealand	2.18	3.26	2.56	2.30	3.32	2.77	2.35	2.76	2.65	2.42	2.73	2.20
Nigeria	1.84	1.73	1.99	1.98	2.60	2.26	2.33	2.58	2.19	2.57	2.39	1.98
Nigeria	1.82	1.85	2.09	1.99	2.44	2.47	2.34	2.19	2.03	1.98	2.24	1.85
Norway	2.24	3.50	2.67	2.35	3.55	2.86	2.46	2.93	3.11	2.33	2.81	2.21
Pakistan	1.62	2.50	2.64	2.05	2.94	2.99	3.05	2.98	2.96	2.78	2.28	2.44
Philippines	1.62	2.02	1.86	2.03	2.20	1.99	1.92	1.90	1.81	1.98	2.05	1.65
Poland	1.19	3.37	2.89	2.43	3.35	3.03	2.87	2.65	2.49	2.25	2.88	2.32
Portugal	1.41	3.18	2.66	2.24	3.31	2.71	2.35	2.58	2.13	1.97	2.67	2.04
Qatar	1.55	2.08	2.03	1.70	2.40	2.19	2.07	2.09	2.02	1.84	1.98	1.61
Romania	1.85	3.02	2.78	2.18	3.13	3.00	2.77	2.80	2.58	2.42	2.54	2.09
Russia	2.06	3.30	3.12	2.25	3.24	3.11	2.85	2.93	3.22	3.15	2.87	2.64
Senegal	1.11	2.04	2.56	2.37	3.30	3.00	2.83	3.03	2.94	2.86	2.89	2.18
Sierra Leone	1.81	1.74	1.96	2.22	2.52	2.51	2.20	2.07	1.97	1.89	2.25	1.84
Slovakia	1.04	3.31	2.92	2.20	3.35	3.08	2.99	2.90	2.97	2.76	2.75	2.35
Slovenia	1.04	3.50	2.93	2.19	3.44	3.15	3.08	3.09	2.84	2.78	2.78	2.38
South Africa	1.90	2.12	2.21	2.12	2.35	2.33	2.17	2.16	2.02	2.08	2.27	1.83

	1.	2.	3.		5.		8.				11.	12.	13.
country	fam- people	reli- people	com- mu- info	4. leadi- ngs	so- cial media	6. lo- cal media	7. jour- nal- media	9. tech- nology	10. inter- net	em- ploy- ment	fam- leadi- ngs	sci- en- tists	13. sci- en- tists
South Korea	2.30	3.26	2.91	2.57	3.08	3.13	2.87	2.86	2.84	2.59	2.85	2.60	2.44
South Sudan	1.98	1.93	2.11	2.24	2.59	2.75	2.47	2.25	2.03	1.94	2.37	2.06	2.26
Spain	2.22	3.19	2.66	2.33	3.04	2.72	2.49	2.55	2.45	2.35	2.80	2.17	1.95
Sweden	2.18	3.53	2.59	2.37	3.47	2.80	2.40	3.00	2.57	2.27	2.88	2.59	2.07
Switzerland	2.20	3.31	2.80	2.33	3.36	2.84	2.59	2.92	2.77	2.49	2.74	2.20	2.20
Taiwan	2.04	2.98	2.88	2.14	2.95	2.72	2.56	2.78	2.55	2.47	2.48	2.24	2.58
Thailand	2.78	2.83	1.98	2.24	2.84	2.48	2.38	2.56	2.89	2.83	2.74	1.74	2.50
Turkey	2.90	2.77	2.41	2.14	2.73	2.58	2.40	2.35	2.02	2.21	2.31	1.99	1.75
UAE	1.80	2.09	1.90	1.94	2.25	2.21	1.97	2.10	2.17	1.99	2.10	1.80	1.82
UK	2.47	3.18	2.89	2.56	3.24	2.95	2.61	2.99	2.92	2.50	2.96	2.46	2.32
US	2.06	2.55	2.42	2.15	2.70	2.64	2.45	2.47	2.62	2.44	2.59	2.17	2.23
Uganda	1.81	1.60	1.72	2.11	2.68	2.00	1.91	2.23	2.17	2.33	2.36	1.81	2.12
Ukraine	1.88	3.22	2.73	2.18	2.93	3.13	2.79	2.72	2.78	2.64	2.64	2.12	2.41
Vietnam	1.44	2.64	2.24	1.80	2.67	1.70	1.92	2.46	2.43	2.41	2.30	1.97	2.48

A2: Results for Trust in Media Information and Loneliness.

Question: Who would you trust to give you accurate information about an emerging crisis?

1. Family

No evidence of age effects. MH associated with more trust in family. No difference in MH trust across age groups.

2. Religious Leaders

25-44 have slightly more trust in religious leaders than youth. 55+ have less.

MH associated with more trust. No differences found across age.

3. Community Leaders

55+ less trust than youth. MH associated with more trust. No variation in the effect across age.

4. Friends

35-54 have more trust than youth. 25-34 and 55+ no differences seen.

MH associated with less trust in friends. No evidence of age effect.

5. Social Media

Older people have less trust - amount decreases more as groups get older. MH problems associated with more trust. Age effect on difference is statistically significant, but a bit weird - effect of MH on trust is larger in 35-44 and 45-54 year olds than other groups.

6. Local politicians

Trust decreases with older people. MH problems predict greater trust. No age effect in the difference.

7. Govt and political leaders

All age groups trust less than youth. MH predicts more trust. Larger trust gap for middle age groups than youth and 55+.

8. Journalists.

Older groups trust less than youth.

MH problems associated with more trust. No difference in effect across age.

9. NGOs

Older people have less trust in NGOs. MH problems associated with less trust. No interaction effect.

10. International Authorities

Older people have lower trust.

MH problems associated with higher trust. No significant difference in MH problems across age groups.

11. Employer and colleagues

25-54 trust employer and colleagues more than youth, 55+ trust less than youth.

MH problems associated with more trust. No interaction effect with age.

12. Family doctor or healthcare provides.

Older ages trust their doctor more than youth (more when 55+). MH problems associated with more trust. No interaction effect with age.

13. Scientists.

Older age associated with less trust.

Mental health associated with more trust. This gap shrinks in older age groups.

```
RunModels(ending = "people_info", predictor = "mh_problems")
```

```
=====Current outcome variable: 1. family_people_info =====
```

```
=====Predictor variable: mh_problems =====
```

```
===== Fit 2: Age Group =====
```

```
=====Predictor variable: mh_problems =====
```

```
Linear mixed model fit by maximum likelihood ['lmerMod']
```

```
Formula: outcome_var ~ age_group + (1 | country)
```

```
Data: d
```

AIC	BIC	logLik	deviance	df.resid
192413.1	192477.3	-96199.6	192399.1	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.6050	-0.7563	-0.0914	0.3675	3.7854

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06283	0.2507
Residual		0.88682	0.9417

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.023380	0.031312	64.619
age_group25-34 years old	0.005753	0.011702	0.492
age_group35-44 years old	-0.001090	0.012179	-0.090
age_group45-54 years old	-0.003253	0.012959	-0.251
age_group55+ years	-0.018589	0.011846	-1.569

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.219			
ag_g35-44yo	-0.216	0.566		
ag_g45-54yo	-0.208	0.535	0.534	
ag_grp55+yr	-0.233	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
182454.4	182527.5	-91219.2	182438.4	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.6392	-0.7711	-0.0828	0.3638	3.8496

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.05866	0.2422
Residual		0.84822	0.9210

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.0093328	0.0305092	65.860
predictorTRUE	-0.0357123	0.0078980	-4.522
age_group25-34 years old	0.0114253	0.0116912	0.977
age_group35-44 years old	-0.0018803	0.0121811	-0.154
age_group45-54 years old	0.0060534	0.0129659	0.467
age_group55+ years	-0.0009693	0.0119195	-0.081

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.101				
ag_g25-34yo	-0.227	0.013			
ag_g35-44yo	-0.226	0.034	0.568		
ag_g45-54yo	-0.220	0.051	0.537	0.537	
ag_grp55+yr	-0.251	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
182362.6	182563.5	-91159.3	182318.6	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7162	-0.7708	-0.1042	0.3550	3.8209

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.051952	0.22793	
	age_group25-34 years old	0.008489	0.09214	-0.13
	age_group35-44 years old	0.017483	0.13222	-0.09 1.00
	age_group45-54 years old	0.025131	0.15853	-0.06 0.90 0.90
	age_group55+ years	0.020736	0.14400	-0.18 0.84 0.84 0.98
Residual		0.845133	0.91931	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.014024	0.029114	69.178
predictorTRUE	-0.036897	0.007940	-4.647
age_group25-34 years old	0.006355	0.016403	0.387
age_group35-44 years old	-0.005265	0.020270	-0.260
age_group45-54 years old	0.004510	0.023162	0.195
age_group55+ years	-0.002482	0.021194	-0.117

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.114				
ag_g25-34yo	-0.274	0.022			
ag_g35-44yo	-0.232	0.032	0.802		
ag_g45-54yo	-0.187	0.037	0.734	0.778	
ag_grp55+yr	-0.300	0.066	0.723	0.755	0.853

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

==== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
182457.3	182566.8	-91216.6	182433.3	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.6335	-0.7614	-0.0818	0.3624	3.8424

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0585	0.2419
	Residual	0.8482	0.9210

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	1.998125	0.031218	64.005
predictorTRUE	-0.008833	0.018250	-0.484
age_group25-34 years old	0.018083	0.014999	1.206
age_group35-44 years old	0.011690	0.015416	0.758
age_group45-54 years old	0.018608	0.016141	1.153
age_group55+ years	0.015858	0.014532	1.091
predictorTRUE:age_group25-34 years old	-0.015525	0.023851	-0.651
predictorTRUE:age_group35-44 years old	-0.034078	0.024886	-1.369
predictorTRUE:age_group45-54 years old	-0.030928	0.026685	-1.159
predictorTRUE:age_group55+ years	-0.051862	0.024666	-2.103

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.239							
ag_g25-34yo	-0.288	0.485						
ag_g35-44yo	-0.287	0.478	0.585					
ag_g45-54yo	-0.280	0.462	0.563	0.566				
ag_grp55+yr	-0.317	0.518	0.630	0.638	0.632			
pTRUE:_25yo	0.180	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.175	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.165	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.179	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y								0.507

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	182454	182527	-91219	182438			
fit_4	12	182457	182567	-91217	182433	5.1658	4	0.2707

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	182365.7	182603.1	-91156.9	182313.7	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-1.7176	-0.7612	-0.1067	0.3555	3.8113

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.051739	0.22746	
	age_group25-34 years old	0.008439	0.09186	-0.12
	age_group35-44 years old	0.017411	0.13195	-0.09
	age_group45-54 years old	0.024987	0.15807	-0.05
	age_group55+ years	0.020823	0.14430	-0.19
	Residual	0.845076	0.91928	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.00404	0.02992	66.990
predictorTRUE	-0.01323	0.01868	-0.708
age_group25-34 years old	0.01126	0.01904	0.591
age_group35-44 years old	0.00640	0.02248	0.285
age_group45-54 years old	0.01575	0.02513	0.627
age_group55+ years	0.01402	0.02290	0.612

```

predictorTRUE:age_group25-34 years old -0.01034    0.02420  -0.427
predictorTRUE:age_group35-44 years old -0.02874    0.02544  -1.130
predictorTRUE:age_group45-54 years old -0.02757    0.02717  -1.015
predictorTRUE:age_group55+ years      -0.05021    0.02506  -2.004

```

Correlation of Fixed Effects:

```

      (Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.262
ag_g25-34yo -0.328  0.403
ag_g35-44yo -0.290  0.349  0.762
ag_g45-54yo -0.243  0.312  0.705  0.752
ag_grp55+yr -0.361  0.343  0.713  0.748  0.834
pTRUE:_25yo  0.200 -0.761 -0.510 -0.270 -0.239 -0.262
pTRUE:_35yo  0.192 -0.734 -0.299 -0.433 -0.231 -0.253  0.569
pTRUE:_45yo  0.180 -0.688 -0.277 -0.241 -0.389 -0.245  0.527      0.511
pTRUE:_55+y  0.196 -0.745 -0.300 -0.261 -0.237 -0.367  0.568      0.549
      pTRUE:_4yo

```

```

predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.523
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

Models:

```

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a   22 182363 182563 -91159   182319
fit_4a   26 182366 182603 -91157   182314 4.8971  4      0.298

```

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.0018536	-0.0090284
25-34 years old	0.0154776	-0.0062899
35-44 years old	0.0086365	-0.0312859
45-54 years old	0.0148289	-0.0220667
55+ years	0.0106297	-0.0472585

=====
Current outcome variable: 2. religious_people_info
=====

=====
Predictor variable: mh_problems
=====

=====
Fit 2: Age Group
=====

=====
Predictor variable: mh_problems
=====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
198876.9	198941.1	-99431.5	198862.9	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.8508	-0.7253	-0.0483	0.6821	3.4855

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.3628	0.6023
	Residual	0.9701	0.9850

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.789124	0.072615	38.410
age_group25-34 years old	-0.033164	0.012240	-2.709
age_group35-44 years old	-0.028111	0.012741	-2.206
age_group45-54 years old	0.002975	0.013559	0.219

age_group55+ years	0.096284	0.012400	7.765
--------------------	----------	----------	-------

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.099		
ag_g35-44yo	-0.098	0.566	
ag_g45-54yo	-0.094	0.535	0.534
ag_grp55+yr	-0.105	0.589	0.593
			0.584

=====
===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
190149.8	190222.8	-95066.9	190133.8	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.8868	-0.7157	-0.0306	0.6816	3.5739

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.360	0.6000
Residual		0.948	0.9737

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.813860	0.072433	38.848
predictorTRUE	-0.091950	0.008353	-11.009
age_group25-34 years old	-0.036129	0.012361	-2.923
age_group35-44 years old	-0.032998	0.012881	-2.562
age_group45-54 years old	-0.004528	0.013713	-0.330
age_group55+ years	0.086037	0.012612	6.822

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.045			
ag_g25-34yo	-0.101	0.013		

```

ag_g35-44yo -0.101  0.034  0.568
ag_g45-54yo -0.098  0.051  0.537  0.537
ag_grp55+yr -0.112  0.108  0.589  0.596  0.589

```

```

Warning in checkConv(attr(opt, "derivs"), opt$par, ctrl = control$checkConv, :
Model failed to converge with max|grad| = 0.0160911 (tol = 0.002, component 1)

```

===== Fit 3a: Add Random Slope for Predictor =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

```

	AIC	BIC	logLik	deviance	df.resid
	189761.3	189962.2	-94858.7	189717.3	68113

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.9553	-0.7315	-0.0268	0.6715	3.6393

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.29897	0.5468	
	age_group25-34 years old	0.01906	0.1380	0.13
	age_group35-44 years old	0.04125	0.2031	0.21 0.97
	age_group45-54 years old	0.04349	0.2085	0.28 0.91 0.82
	age_group55+ years	0.05851	0.2419	0.29 0.75 0.63 0.93
Residual		0.93900	0.9690	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.776279	0.066266	41.896
predictorTRUE	-0.079955	0.008384	-9.536
age_group25-34 years old	-0.010741	0.020970	-0.512
age_group35-44 years old	0.001172	0.027788	0.042
age_group45-54 years old	0.024473	0.028666	0.854
age_group55+ years	0.093201	0.031918	2.920

Correlation of Fixed Effects:

```

      (Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.053
ag_g25-34yo  0.023  0.020
ag_g35-44yo  0.124  0.025  0.850
ag_g45-54yo  0.182  0.032  0.797  0.757
ag_grp55+yr  0.204  0.044  0.694  0.620  0.859
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.0160911 (tol = 0.002, component 1)

```

=====
Fit 4: Add Interaction
=====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
190147.8	190257.4	-95061.9	190123.8	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.8836	-0.7171	-0.0328	0.6829	3.5850

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.3587	0.5989
Residual		0.9479	0.9736

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.793223	0.072660	38.442
predictorTRUE	-0.042214	0.019295	-2.188
age_group25-34 years old	-0.018416	0.015858	-1.161
age_group35-44 years old	-0.005878	0.016300	-0.361
age_group45-54 years old	0.019331	0.017070	1.132
age_group55+ years	0.112098	0.015375	7.291
predictorTRUE:age_group25-34 years old	-0.043048	0.025215	-1.707
predictorTRUE:age_group35-44 years old	-0.069105	0.026309	-2.627
predictorTRUE:age_group45-54 years old	-0.059715	0.028212	-2.117

predictorTRUE:age_group55+ years -0.072906 0.026078 -2.796

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.108
ag_g25-34yo -0.131 0.485
ag_g35-44yo -0.131 0.477 0.585
ag_g45-54yo -0.127 0.462 0.563 0.567
ag_grp55+yr -0.144 0.517 0.630 0.638 0.633
pTRUE:_25yo 0.082 -0.753 -0.626 -0.364 -0.351 -0.393
pTRUE:_35yo 0.080 -0.725 -0.358 -0.611 -0.342 -0.385 0.554
pTRUE:_45yo 0.075 -0.680 -0.335 -0.332 -0.591 -0.364 0.517 0.499
pTRUE:_55+y 0.081 -0.739 -0.362 -0.359 -0.350 -0.557 0.560 0.540
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.507

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	np	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	190150	190223	-95067	190134			
fit_4	12	190148	190257	-95062	190124	9.9479	4	0.04131 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
unable to evaluate scaled gradient

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :

Model failed to converge: degenerate Hessian with 1 negative eigenvalues

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
189763.0	190000.4	-94855.5	189711.0	68109

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.9572	-0.7245	-0.0390	0.6716	3.6424

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.29636	0.5444	
	age_group25-34 years old	0.01888	0.1374	0.15
	age_group35-44 years old	0.04076	0.2019	0.23 0.97
	age_group45-54 years old	0.04344	0.2084	0.29 0.91 0.82
	age_group55+ years	0.05844	0.2417	0.29 0.76 0.63 0.93
Residual		0.93893	0.9690	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.757694	0.066416	41.522
predictorTRUE	-0.036491	0.019783	-1.844
age_group25-34 years old	0.007785	0.023315	0.334
age_group35-44 years old	0.024366	0.029546	0.825
age_group45-54 years old	0.045864	0.030503	1.504
age_group55+ years	0.116002	0.033230	3.491
predictorTRUE:age_group25-34 years old	-0.043355	0.025598	-1.694
predictorTRUE:age_group35-44 years old	-0.057159	0.027016	-2.116
predictorTRUE:age_group45-54 years old	-0.052487	0.028707	-1.828
predictorTRUE:age_group55+ years	-0.059600	0.026593	-2.241

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.126							
ag_g25-34yo	-0.010	0.352						
ag_g35-44yo	0.091	0.283	0.813					
ag_g45-54yo	0.145	0.274	0.768	0.742				

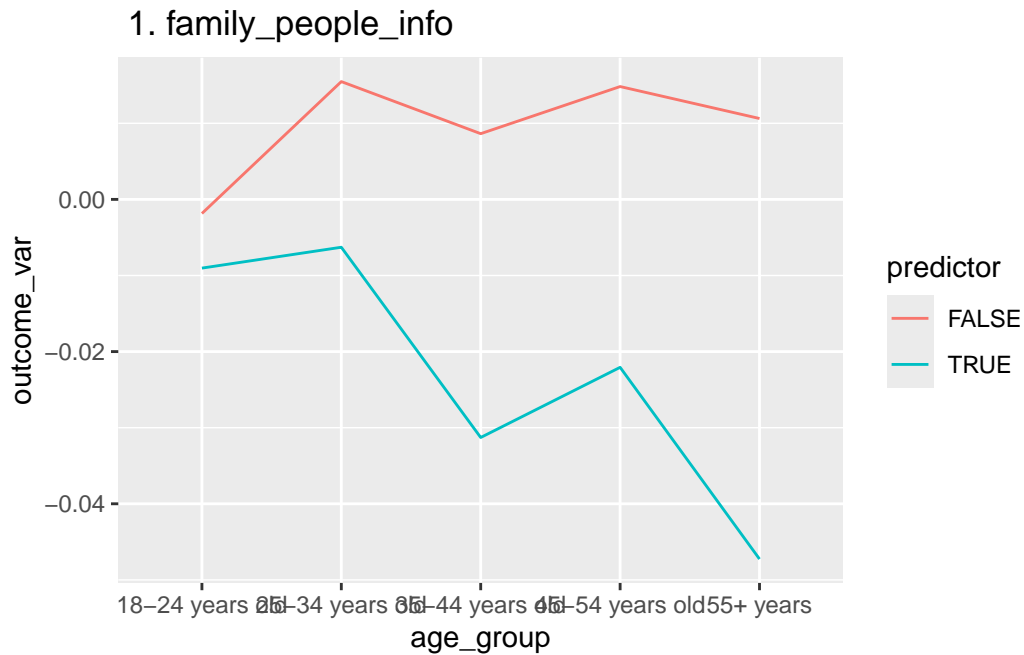
```

ag_grp55+yr  0.168  0.251  0.688  0.628  0.844
pTRUE:_25yo  0.096 -0.763 -0.442 -0.220 -0.211 -0.193
pTRUE:_35yo  0.092 -0.734 -0.260 -0.350 -0.202 -0.183  0.571
pTRUE:_45yo  0.087 -0.690 -0.242 -0.196 -0.340 -0.180  0.531      0.510
pTRUE:_55+y  0.094 -0.744 -0.261 -0.211 -0.207 -0.274  0.569      0.545
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.522
optimizer (nloptwrap) convergence code: 0 (OK)
unable to evaluate scaled gradient
Model failed to converge: degenerate Hessian with 1 negative eigenvalues

Data: d
Models:
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a   22 189761 189962 -94859   189717
fit_4a   26 189763 190000 -94855   189711 6.3403  4      0.1751

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

```



=====
 =====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	0.0109906	-0.0304662
25-34 years old	-0.0132094	-0.0918633
35-44 years old	-0.0064414	-0.1082582
45-54 years old	0.0122665	-0.0789617
55+ years	0.0974900	-0.0078795

=====
 =====Current outcome variable: 3. community_leaders_people_info =====

=====
 =====Predictor variable: mh_problems =====

=====
 ===== Fit 2: Age Group =====

=====
 =====Predictor variable: mh_problems =====
 Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
203137.3	203201.5	-101561.7	203123.3	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3474	-0.7700	-0.0452	0.5077	3.2432

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1381	0.3716
Residual		1.0315	1.0156

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.534480	0.045485	55.721
age_group25-34 years old	-0.014007	0.012621	-1.110
age_group35-44 years old	0.008565	0.013136	0.652
age_group45-54 years old	0.015463	0.013979	1.106
age_group55+ years	0.066473	0.012782	5.201

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.163			
ag_g35-44yo	-0.161	0.566		
ag_g45-54yo	-0.155	0.535	0.534	
ag_grp55+yr	-0.173	0.589	0.593	0.584

=====
===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
193931.8	194004.8	-96957.9	193915.8	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3722	-0.7662	-0.0379	0.5044	3.3176

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1339	0.3659
Residual		1.0032	1.0016

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.544140	0.044967	56.577
predictorTRUE	-0.072309	0.008591	-8.417
age_group25-34 years old	-0.014318	0.012715	-1.126
age_group35-44 years old	0.003034	0.013249	0.229
age_group45-54 years old	0.012644	0.014104	0.896
age_group55+ years	0.063212	0.012969	4.874

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.074				
ag_g25-34yo	-0.168	0.013			
ag_g35-44yo	-0.167	0.034	0.568		
ag_g45-54yo	-0.162	0.051	0.537	0.537	
ag_grp55+yr	-0.185	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
193764.9	193965.8	-96860.5	193720.9	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-2.4474 -0.7479 -0.0389 0.4839 3.3124

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.106554	0.32643	
	age_group25-34 years old	0.006634	0.08145	0.21
	age_group35-44 years old	0.021696	0.14730	0.32 0.96
	age_group45-54 years old	0.018064	0.13440	0.28 0.63 0.71
	age_group55+ years	0.023885	0.15455	0.29 0.46 0.43 0.85
Residual		0.997755	0.99888	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.5219561	0.0405341	62.218
predictorTRUE	-0.0675839	0.0086290	-7.832
age_group25-34 years old	0.0009892	0.0163181	0.061
age_group35-44 years old	0.0277204	0.0223065	1.243
age_group45-54 years old	0.0306141	0.0216016	1.417
age_group55+ years	0.0712999	0.0230055	3.099

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.087				
ag_g25-34yo	-0.041	0.019			
ag_g35-44yo	0.123	0.028	0.743		
ag_g45-54yo	0.075	0.041	0.578	0.646	
ag_grp55+yr	0.103	0.061	0.501	0.491	0.745

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

=====
===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
193934.9	194044.5	-96955.5	193910.9	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3758	-0.7668	-0.0410	0.5030	3.3136

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1334	0.3653
Residual		1.0031	1.0016

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.53036	0.04550	55.610
predictorTRUE	-0.03915	0.01985	-1.972
age_group25-34 years old	-0.00353	0.01631	-0.216
age_group35-44 years old	0.01965	0.01677	1.172
age_group45-54 years old	0.02836	0.01756	1.615
age_group55+ years	0.08222	0.01581	5.200
predictorTRUE:age_group25-34 years old	-0.02599	0.02594	-1.002
predictorTRUE:age_group35-44 years old	-0.04176	0.02706	-1.543
predictorTRUE:age_group45-54 years old	-0.03908	0.02902	-1.346
predictorTRUE:age_group55+ years	-0.05609	0.02683	-2.091

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.178							
ag_g25-34yo	-0.215	0.485						
ag_g35-44yo	-0.214	0.477	0.585					
ag_g45-54yo	-0.209	0.462	0.563	0.567				
ag_grp55+yr	-0.237	0.517	0.630	0.638	0.632			
pTRUE:_25yo	0.134	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.131	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.123	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.134	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								

pTRUE:_55+y 0.507

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	193932	194005	-96958	193916			
fit_4	12	193935	194044	-96955	193911	4.8659	4	0.3013

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	193783.3	194020.6	-96865.6	193731.3	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.4347	-0.7476	-0.0374	0.4793	3.3139

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.1060847	0.32571	
	age_group25-34 years old	0.0006652	0.02579	1.00
	age_group35-44 years old	0.0105519	0.10272	0.63 0.63
	age_group45-54 years old	0.0132889	0.11528	0.40 0.40 0.56
	age_group55+ years	0.0202634	0.14235	0.35 0.35 0.17 0.84
Residual		0.9983019	0.99915	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.51257	0.04101	61.268
predictorTRUE	-0.03595	0.01987	-1.809
age_group25-34 years old	0.00996	0.01658	0.601

age_group35-44 years old	0.03561	0.02088	1.706
age_group45-54 years old	0.04129	0.02234	1.848
age_group55+ years	0.08719	0.02354	3.704
predictorTRUE:age_group25-34 years old	-0.03150	0.02590	-1.216
predictorTRUE:age_group35-44 years old	-0.02958	0.02730	-1.083
predictorTRUE:age_group45-54 years old	-0.03578	0.02923	-1.224
predictorTRUE:age_group55+ years	-0.05745	0.02699	-2.128

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.198							
ag_g25-34yo	-0.058	0.475						
ag_g35-44yo	0.160	0.386	0.531					
ag_g45-54yo	0.050	0.364	0.477	0.562				
ag_grp55+yr	0.064	0.347	0.459	0.416	0.709			
pTRUE:_25yo	0.149	-0.750	-0.615	-0.294	-0.275	-0.262		
pTRUE:_35yo	0.144	-0.722	-0.347	-0.493	-0.268	-0.252	0.547	
pTRUE:_45yo	0.135	-0.679	-0.323	-0.265	-0.465	-0.246	0.510	0.497
pTRUE:_55+y	0.147	-0.736	-0.351	-0.286	-0.275	-0.383	0.553	0.530
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y								0.509

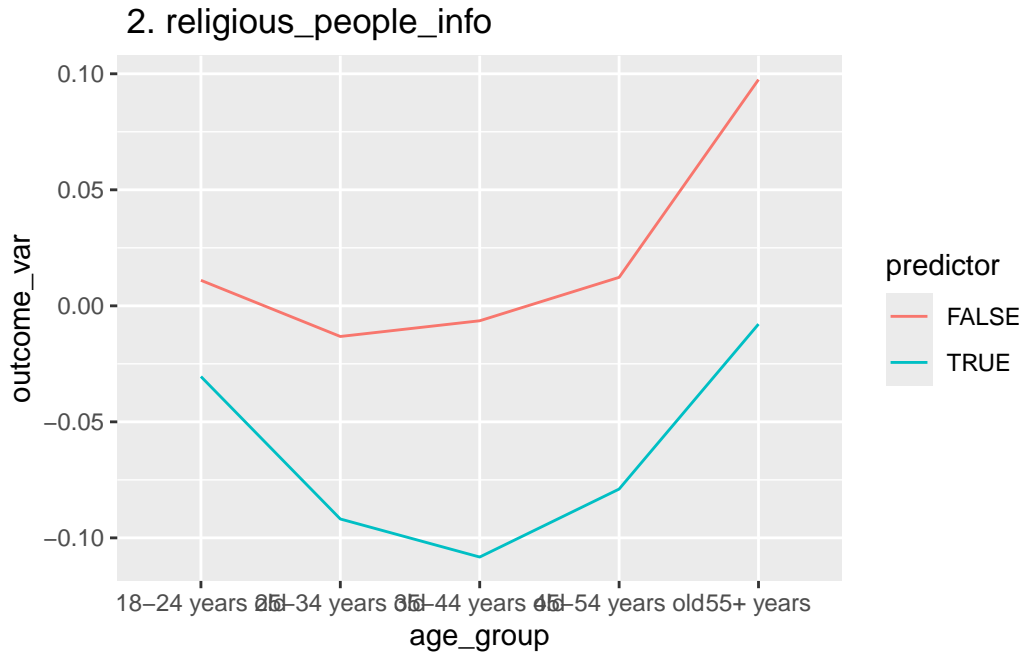
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

Data: d

Models:

fit_3a:	outcome_var	~	predictor	+	age_group	+	(age_group country)
fit_4a:	outcome_var	~	predictor	*	age_group	+	(age_group country)
	npair	AIC	BIC	logLik	deviance	Chisq	Df Pr(>Chisq)
fit_3a	22	193765	193966	-96860	193721		
fit_4a	26	193783	194021	-96866	193731	0	4 1

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.



=====
 =====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	0.0007909	-0.0375181
25-34 years old	-0.0073037	-0.0671807
35-44 years old	0.0114474	-0.0620927
45-54 years old	0.0155134	-0.0546144
55+ years	0.0638466	-0.0239517

=====
 =====Current outcome variable: 4. friends_people_info =====

=====
 =====Predictor variable: mh_problems =====

=====
 ===== Fit 2: Age Group =====

=====
 =====Predictor variable: mh_problems =====
 Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
195738.8	195803.0	-97862.4	195724.8	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9612	-0.5615	-0.2028	0.6296	3.4161

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.04986	0.2233
Residual		0.92979	0.9643

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.267477	0.028269	80.210
age_group25-34 years old	-0.021234	0.011982	-1.772
age_group35-44 years old	-0.042719	0.012469	-3.426
age_group45-54 years old	-0.030157	0.013267	-2.273
age_group55+ years	-0.007873	0.012126	-0.649

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.249			
ag_g35-44yo	-0.245	0.566		
ag_g45-54yo	-0.236	0.535	0.534	
ag_grp55+yr	-0.265	0.589	0.593	0.584

=====
===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
186191.3	186264.3	-93087.6	186175.3	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9704	-0.5568	-0.1884	0.6362	3.5209

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.04718	0.2172
Residual		0.89629	0.9467

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.266719	0.027786	81.576
predictorTRUE	-0.057590	0.008118	-7.094
age_group25-34 years old	-0.019514	0.012018	-1.624
age_group35-44 years old	-0.043292	0.012520	-3.458
age_group45-54 years old	-0.026736	0.013326	-2.006
age_group55+ years	-0.002334	0.012249	-0.191

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.114				
ag_g25-34yo	-0.257	0.013			
ag_g35-44yo	-0.256	0.034	0.568		
ag_g45-54yo	-0.248	0.051	0.537	0.537	
ag_grp55+yr	-0.283	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (age_group | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
186112.8	186313.6	-93034.4	186068.8	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-1.9955 -0.5498 -0.1879 0.6178 3.5278

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.045579	0.21349	
	age_group25-34 years old	0.004493	0.06703	-0.09
	age_group35-44 years old	0.012987	0.11396	-0.05 0.94
	age_group45-54 years old	0.011757	0.10843	-0.10 0.90 0.71
	age_group55+ years	0.019371	0.13918	-0.30 0.80 0.55 0.93
Residual		0.893130	0.94506	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.261e+00	2.756e-02	82.024
predictorTRUE	-5.631e-02	8.160e-03	-6.900
age_group25-34 years old	-1.459e-02	1.472e-02	-0.992
age_group35-44 years old	-3.651e-02	1.880e-02	-1.942
age_group45-54 years old	-2.165e-02	1.881e-02	-1.151
age_group55+ years	-7.541e-05	2.088e-02	-0.004

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.123				
ag_g25-34yo	-0.280	0.023			
ag_g35-44yo	-0.227	0.033	0.713		
ag_g45-54yo	-0.260	0.046	0.676	0.634	
ag_grp55+yr	-0.397	0.065	0.644	0.568	0.770

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
186192.2	186301.7	-93084.1	186168.2	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9741	-0.5555	-0.1844	0.6315	3.5033

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.04713	0.2171
Residual		0.89620	0.9467

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.265418	0.028636	79.111
predictorTRUE	-0.054856	0.018758	-2.924
age_group25-34 years old	-0.028201	0.015418	-1.829
age_group35-44 years old	-0.039945	0.015845	-2.521
age_group45-54 years old	-0.029142	0.016590	-1.757
age_group55+ years	0.006313	0.014934	0.423
predictorTRUE:age_group25-34 years old	0.023286	0.024517	0.950
predictorTRUE:age_group35-44 years old	-0.008908	0.025580	-0.348
predictorTRUE:age_group45-54 years old	0.009601	0.027430	0.350
predictorTRUE:age_group55+ years	-0.036622	0.025353	-1.444

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.267							
ag_g25-34yo	-0.323	0.485						
ag_g35-44yo	-0.322	0.478	0.585					
ag_g45-54yo	-0.314	0.462	0.563	0.566				
ag_grp55+yr	-0.355	0.518	0.630	0.638	0.632			
pTRUE:_25yo	0.202	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.196	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.185	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.201	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								

pTRUE:_55+y 0.507

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	186191	186264	-93088	186175			
fit_4	12	186192	186302	-93084	186168	7.1085	4	0.1303

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	186129.7	186367.0	-93038.8	186077.7	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-1.9881	-0.5499	-0.1888	0.6091	3.5119

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	4.445e-02	0.210821	
	age_group25-34 years old	6.473e-05	0.008046	1.00
	age_group35-44 years old	5.943e-03	0.077092	0.16 0.16
	age_group45-54 years old	5.495e-03	0.074132	0.10 0.10 0.38
	age_group55+ years	1.196e-02	0.109367	-0.21 -0.21 0.18 0.88
Residual		8.934e-01	0.945201	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.263539	0.028010	80.813
predictorTRUE	-0.054914	0.018819	-2.918
age_group25-34 years old	-0.028088	0.015452	-1.818

age_group35-44 years old	-0.039052	0.018468	-2.115
age_group45-54 years old	-0.027985	0.018884	-1.482
age_group55+ years	0.006799	0.020054	0.339
predictorTRUE:age_group25-34 years old	0.026594	0.024507	1.085
predictorTRUE:age_group35-44 years old	-0.004107	0.025870	-0.159
predictorTRUE:age_group45-54 years old	0.011432	0.027575	0.415
predictorTRUE:age_group55+ years	-0.039906	0.025527	-1.563

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.275							
ag_g25-34yo	-0.275	0.483						
ag_g35-44yo	-0.216	0.415	0.508					
ag_g45-54yo	-0.245	0.409	0.497	0.522				
ag_grp55+yr	-0.390	0.386	0.456	0.464	0.685			
pTRUE:_25yo	0.208	-0.750	-0.625	-0.315	-0.309	-0.291		
pTRUE:_35yo	0.200	-0.722	-0.352	-0.529	-0.300	-0.281	0.547	
pTRUE:_45yo	0.189	-0.680	-0.331	-0.286	-0.522	-0.275	0.513	0.496
pTRUE:_55+y	0.204	-0.737	-0.356	-0.307	-0.308	-0.422	0.553	0.533
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.510							

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

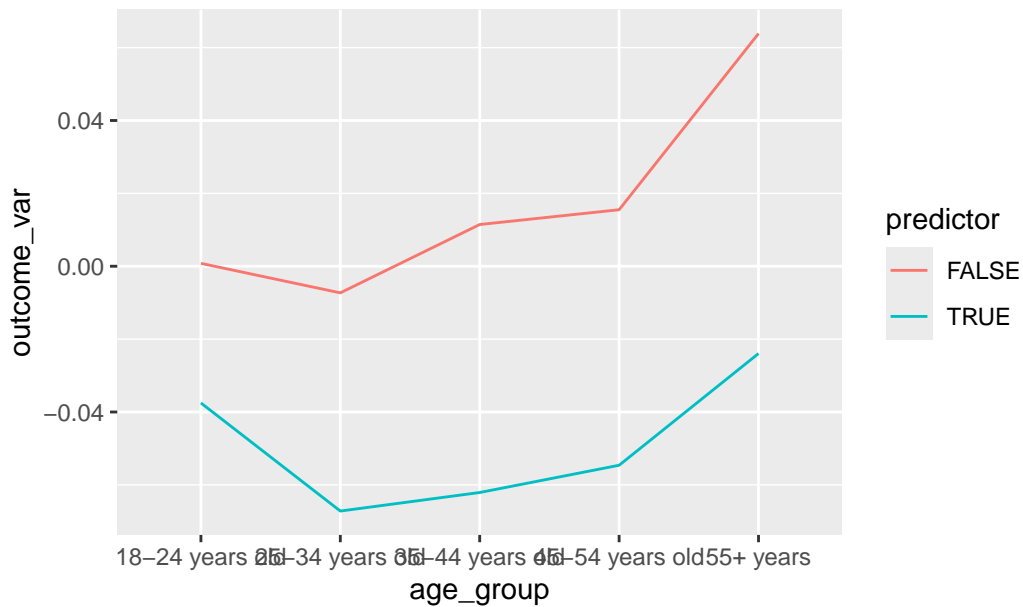
Data: d

Models:

fit_3a:	outcome_var	~	predictor	+	age_group	+	(age_group country)
fit_4a:	outcome_var	~	predictor	*	age_group	+	(age_group country)
			npair		AIC		BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a	22	186113	186314	-93034	186069		
fit_4a	26	186130	186367	-93039	186078	0	4 1

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

3. community_leaders_people_info



=====**Predictor variable: mh_problems**=====

age_group	FALSE	TRUE
18-24 years old	0.0350497	-0.0166620
25-34 years old	0.0063684	-0.0208318
35-44 years old	-0.0059191	-0.0648360
45-54 years old	0.0035571	-0.0371698
55+ years	0.0364729	-0.0506676

=====**Current outcome variable: 5. social_medial_people_info**=====

=====**Predictor variable: mh_problems**=====

=====**Fit 2: Age Group**=====

=====**Predictor variable: mh_problems**=====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
200801.5	200865.7	-100393.7	200787.5	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.71774	-0.63598	-0.04159	0.66519	2.93753

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1332	0.3649
Residual		0.9979	0.9990

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.83949	0.04467	63.562
age_group25-34 years old	0.03817	0.01241	3.075
age_group35-44 years old	0.09898	0.01292	7.661
age_group45-54 years old	0.19074	0.01375	13.872
age_group55+ years	0.35008	0.01257	27.846

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.163			
ag_g35-44yo	-0.161	0.566		
ag_g45-54yo	-0.155	0.535	0.534	
ag_grp55+yr	-0.174	0.589	0.593	0.584

=====
===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
192083.2	192156.2	-96033.6	192067.2	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.77917	-0.64365	-0.01994	0.67918	3.03488

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1301	0.3608
Residual		0.9763	0.9881

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.880745	0.044340	64.969
predictorTRUE	-0.138431	0.008475	-16.334
age_group25-34 years old	0.036684	0.012544	2.925
age_group35-44 years old	0.094591	0.013070	7.237
age_group45-54 years old	0.181275	0.013914	13.029
age_group55+ years	0.337147	0.012794	26.352

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.074				
ag_g25-34yo	-0.168	0.013			
ag_g35-44yo	-0.167	0.034	0.568		
ag_g45-54yo	-0.162	0.051	0.537	0.537	
ag_grp55+yr	-0.185	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
191610.3	191811.2	-95783.2	191566.3	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-2.78440 -0.63736 -0.00881 0.67068 3.12890

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.096408	0.31050	
	age_group25-34 years old	0.003314	0.05757	1.00
	age_group35-44 years old	0.012717	0.11277	0.72 0.72
	age_group45-54 years old	0.014122	0.11884	0.61 0.61 0.62
	age_group55+ years	0.046234	0.21502	0.15 0.15 0.15 0.83
Residual		0.966530	0.98312	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.859419	0.038536	74.202
predictorTRUE	-0.129715	0.008491	-15.278
age_group25-34 years old	0.051732	0.014253	3.630
age_group35-44 years old	0.113397	0.018813	6.028
age_group45-54 years old	0.198704	0.019865	10.003
age_group55+ years	0.344789	0.028942	11.913

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.088				
ag_g25-34yo	0.297	0.014			
ag_g35-44yo	0.363	0.028	0.592		
ag_g45-54yo	0.292	0.040	0.537	0.578	
ag_grp55+yr	0.037	0.042	0.286	0.274	0.708

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
192082.7	192192.2	-96029.3	192058.7	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.77666	-0.63828	-0.02078	0.67947	3.00847

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1298	0.3603
Residual		0.9762	0.9880

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.86352	0.04488	63.802
predictorTRUE	-0.09676	0.01958	-4.942
age_group25-34 years old	0.05402	0.01609	3.357
age_group35-44 years old	0.12157	0.01654	7.350
age_group45-54 years old	0.20557	0.01732	11.869
age_group55+ years	0.35273	0.01560	22.614
predictorTRUE:age_group25-34 years old	-0.04268	0.02559	-1.668
predictorTRUE:age_group35-44 years old	-0.07042	0.02670	-2.638
predictorTRUE:age_group45-54 years old	-0.06444	0.02863	-2.251
predictorTRUE:age_group55+ years	-0.03217	0.02646	-1.216

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.178							
ag_g25-34yo	-0.215	0.485						
ag_g35-44yo	-0.214	0.477	0.585					
ag_g45-54yo	-0.209	0.462	0.563	0.567				
ag_grp55+yr	-0.237	0.517	0.630	0.638	0.632			
pTRUE:_25yo	0.134	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.131	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.123	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.134	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								

pTRUE:_55+y 0.507

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	192083	192156	-96034	192067			
fit_4	12	192083	192192	-96029	192059	8.5282	4	0.07404 .

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	191587.8	191825.2	-95767.9	191535.8	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.78627	-0.63918	-0.00091	0.66993	3.14734

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.09532	0.3087	
	age_group25-34 years old	0.01185	0.1088	0.43
	age_group35-44 years old	0.02537	0.1593	0.39 1.00
	age_group45-54 years old	0.02194	0.1481	0.41 0.80 0.79
	age_group55+ years	0.05054	0.2248	0.12 0.34 0.34 0.82
Residual		0.96580	0.9828	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.84100	0.03920	72.472

```

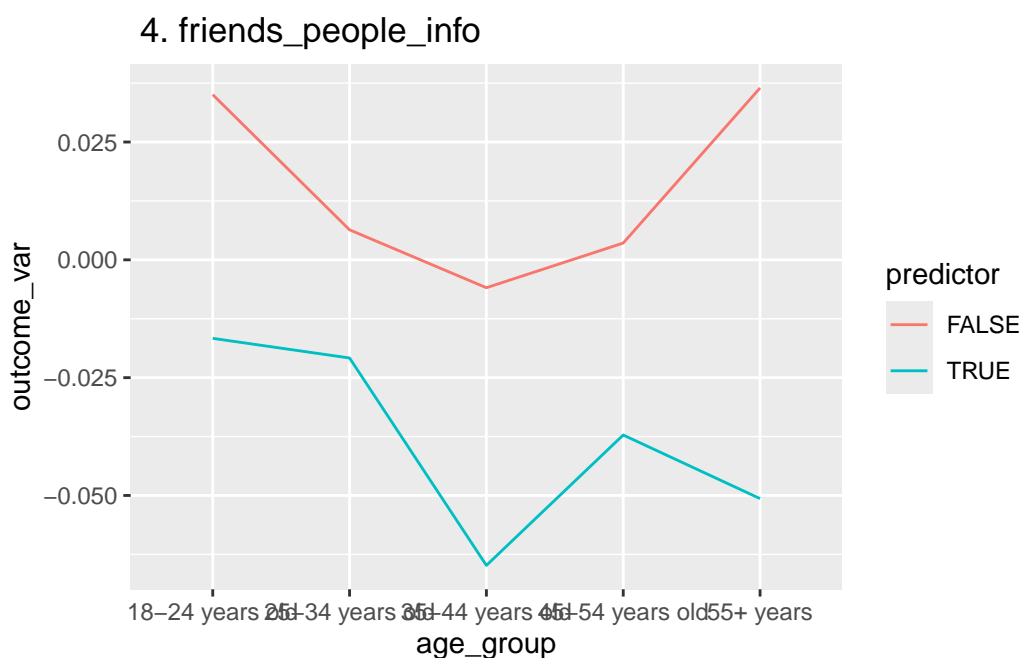
predictorTRUE                -0.08173    0.01989  -4.109
age_group25-34 years old      0.06904    0.02106   3.278
age_group35-44 years old      0.13991    0.02556   5.474
age_group45-54 years old      0.22564    0.02501   9.021
age_group55+ years           0.36350    0.03159  11.506
predictorTRUE:age_group25-34 years old -0.04778    0.02584  -1.850
predictorTRUE:age_group35-44 years old -0.07036    0.02721  -2.585
predictorTRUE:age_group45-54 years old -0.07454    0.02887  -2.582
predictorTRUE:age_group55+ years      -0.04944    0.02687  -1.840

Correlation of Fixed Effects:
      (Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.212
ag_g25-34yo  0.044  0.387
ag_g35-44yo  0.099  0.326  0.780
ag_g45-54yo  0.092  0.332  0.673  0.696
ag_grp55+yr -0.044  0.264  0.435  0.432  0.730
pTRUE:_25yo  0.161 -0.759 -0.491 -0.252 -0.254 -0.200
pTRUE:_35yo  0.155 -0.732 -0.286 -0.406 -0.246 -0.192  0.568
pTRUE:_45yo  0.147 -0.687 -0.267 -0.227 -0.417 -0.190  0.526      0.510
pTRUE:_55+y  0.157 -0.740 -0.287 -0.241 -0.251 -0.291  0.561      0.541
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.518
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

Data: d
Models:
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a   22 191610 191811 -95783   191566
fit_4a   26 191588 191825 -95768   191536 30.508  4 3.857e-06 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.0873704	-0.1877338
25-34 years old	-0.0502145	-0.1780374
35-44 years old	0.0006386	-0.1472399
45-54 years old	0.0675175	-0.0707654
55+ years	0.1960426	0.0883007

=====Current outcome variable: 6. local_politician_people_info =====

=====Predictor variable: mh_problems =====

===== Fit 2: Age Group =====

```

=====Predictor variable:  mh_problems =====
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
202386.5	202450.7	-101186.3	202372.5	70676

```

Scaled residuals:
    Min       1Q   Median       3Q      Max
-2.5060 -0.7756 -0.0351  0.8105  3.1835

```

```

Random effects:
Groups   Name             Variance Std.Dev.
country (Intercept) 0.1087    0.3298
Residual                1.0208    1.0103
Number of obs: 70683, groups:  country, 70

```

```

Fixed effects:
              Estimate Std. Error t value
(Intercept)      2.730053   0.040607  67.231
age_group25-34 years old -0.004261   0.012555  -0.339
age_group35-44 years old  0.034561   0.013067   2.645
age_group45-54 years old  0.052825   0.013905   3.799
age_group55+ years      0.112871   0.012714   8.878

```

```

Correlation of Fixed Effects:
              (Intr) a_25yo a_35yo a_45yo
ag_g25-34yo -0.181
ag_g35-44yo -0.179  0.566
ag_g45-54yo -0.172  0.535  0.534
ag_grp55+yr -0.193  0.589  0.593  0.584

```

```

===== Fit 3: Add Predictor =====

```

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
193675.0	193748.1	-96829.5	193659.0	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.5176	-0.7778	-0.0292	0.8027	3.2012

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1058	0.3253
Residual		0.9996	0.9998

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.740366	0.040263	68.062
predictorTRUE	-0.067593	0.008575	-7.882
age_group25-34 years old	-0.002221	0.012692	-0.175
age_group35-44 years old	0.029056	0.013225	2.197
age_group45-54 years old	0.050151	0.014078	3.562
age_group55+ years	0.110521	0.012944	8.538

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.083				
ag_g25-34yo	-0.187	0.013			
ag_g35-44yo	-0.186	0.034	0.568		
ag_g45-54yo	-0.181	0.051	0.537	0.537	
ag_grp55+yr	-0.206	0.108	0.589	0.596	0.589

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
unable to evaluate scaled gradient

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge: degenerate Hessian with 1 negative eigenvalues

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
193447.8	193648.6	-96701.9	193403.8	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.5160	-0.7841	-0.0361	0.8008	3.2212

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.086081	0.2934	
	age_group25-34 years old	0.005625	0.0750	0.39
	age_group35-44 years old	0.019858	0.1409	0.35 0.99
	age_group45-54 years old	0.016064	0.1267	0.35 0.43 0.50
	age_group55+ years	0.018714	0.1368	0.07 0.01 0.13 0.85
Residual		0.993377	0.9967	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.721819	0.036705	74.154
predictorTRUE	-0.061308	0.008607	-7.123
age_group25-34 years old	0.011994	0.015731	0.762
age_group35-44 years old	0.051146	0.021634	2.364
age_group45-54 years old	0.064142	0.020856	3.076
age_group55+ years	0.125946	0.021263	5.923

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.095				
ag_g25-34yo	0.033	0.017			
ag_g35-44yo	0.126	0.028	0.739		
ag_g45-54yo	0.097	0.040	0.490	0.520	
ag_grp55+yr	-0.095	0.065	0.318	0.317	0.735

optimizer (nloptwrap) convergence code: 0 (OK)

unable to evaluate scaled gradient

Model failed to converge: degenerate Hessian with 1 negative eigenvalues

==== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
193677.5	193787.0	-96826.7	193653.5	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.5138	-0.7754	-0.0281	0.8089	3.2059

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1057	0.3251
Residual		0.9996	0.9998

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.729199	0.040915	66.705
predictorTRUE	-0.040285	0.019813	-2.033
age_group25-34 years old	0.016026	0.016284	0.984
age_group35-44 years old	0.044581	0.016737	2.664
age_group45-54 years old	0.066078	0.017526	3.770
age_group55+ years	0.117352	0.015781	7.436
predictorTRUE:age_group25-34 years old	-0.046270	0.025893	-1.787
predictorTRUE:age_group35-44 years old	-0.040094	0.027016	-1.484
predictorTRUE:age_group45-54 years old	-0.042746	0.028970	-1.476
predictorTRUE:age_group55+ years	-0.006163	0.026778	-0.230

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.198							
ag_g25-34yo	-0.239	0.485						
ag_g35-44yo	-0.238	0.477	0.585					
ag_g45-54yo	-0.232	0.462	0.563	0.567				
ag_grp55+yr	-0.263	0.517	0.630	0.638	0.632			
pTRUE:_25yo	0.149	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.145	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.137	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.148	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								


```

predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.507

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3     8 193675 193748 -96830   193659
fit_4    12 193677 193787 -96827   193653 5.5933  4    0.2316

```

boundary (singular) fit: see help('isSingular')

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

	AIC	BIC	logLik	deviance	df.resid
	193464.1	193701.4	-96706.0	193412.1	68109

```

Scaled residuals:
      Min       1Q   Median       3Q      Max
-2.5158 -0.7882 -0.0378  0.8030  3.2173

```

```

Random effects:
Groups   Name                                Variance Std.Dev. Corr
country (Intercept)                        0.085553 0.29249
      age_group25-34 years old 0.001263 0.03553   1.00
      age_group35-44 years old 0.011255 0.10609   0.61  0.61
      age_group45-54 years old 0.014726 0.12135   0.38  0.38  0.31
      age_group55+ years      0.020964 0.14479   0.05  0.05 -0.04  0.87

```

Residual 0.993669 0.99683
 Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.71600	0.03725	72.919
predictorTRUE	-0.03454	0.01982	-1.743
age_group25-34 years old	0.02556	0.01679	1.522
age_group35-44 years old	0.05601	0.02109	2.656
age_group45-54 years old	0.07395	0.02278	3.246
age_group55+ years	0.12747	0.02364	5.393
predictorTRUE:age_group25-34 years old	-0.04961	0.02584	-1.920
predictorTRUE:age_group35-44 years old	-0.02732	0.02728	-1.002
predictorTRUE:age_group45-54 years old	-0.03997	0.02914	-1.372
predictorTRUE:age_group55+ years	-0.01512	0.02692	-0.562

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.218							
ag_g25-34yo	-0.016	0.467						
ag_g35-44yo	0.136	0.382	0.541					
ag_g45-54yo	0.032	0.356	0.477	0.465				
ag_grp55+yr	-0.155	0.344	0.410	0.317	0.733			
pTRUE:_25yo	0.164	-0.749	-0.606	-0.290	-0.269	-0.259		
pTRUE:_35yo	0.158	-0.721	-0.341	-0.487	-0.260	-0.249	0.546	
pTRUE:_45yo	0.149	-0.678	-0.319	-0.261	-0.455	-0.246	0.511	0.493
pTRUE:_55+y	0.161	-0.736	-0.344	-0.282	-0.269	-0.378	0.552	0.530
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.510							

optimizer (nloptwrap) convergence code: 0 (OK)
 boundary (singular) fit: see help('isSingular')

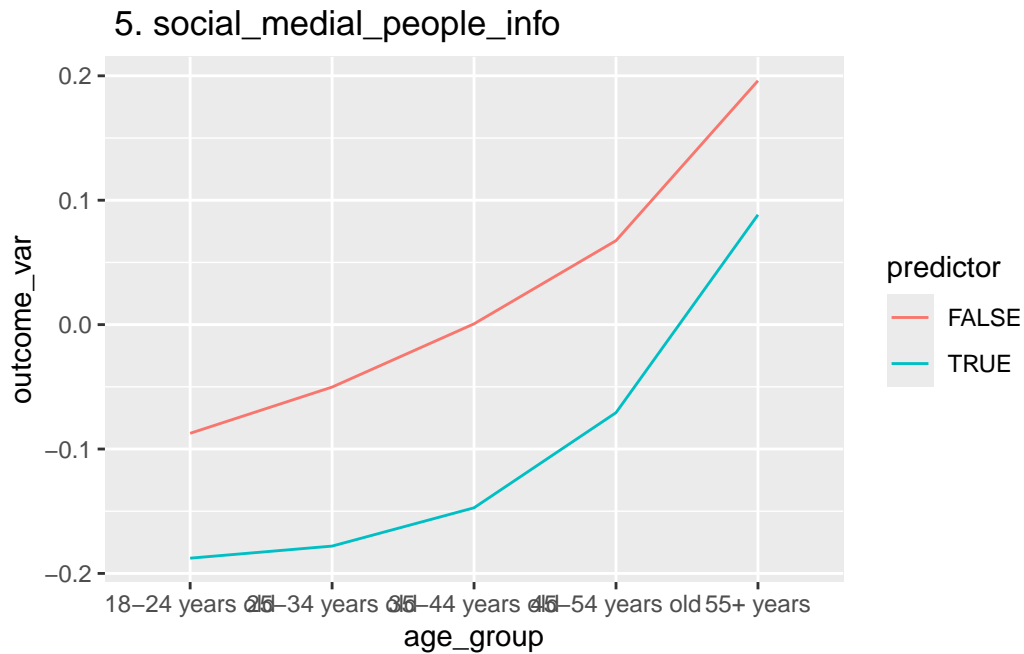
Data: d

Models:

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a   22 193448 193649 -96702   193404
fit_4a   26 193464 193701 -96706   193412     0  4         1
```

`summarise()` has grouped output by 'age_group'. You can override using the `groups` argument.



=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.0213180	-0.0616817
25-34 years old	-0.0114205	-0.0921957
35-44 years old	0.0110723	-0.0607706
45-54 years old	0.0263220	-0.0471669
55+ years	0.0705328	0.0326618

=====Current outcome variable: 7. govt_pol_leaders_people_info =====

=====Predictor variable: mh_problems =====

===== Fit 2: Age Group =====

=====Predictor variable: mh_problems =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
208273.2	208337.4	-104129.6	208259.2	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1427	-0.7371	-0.1438	0.6917	2.9593

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1025	0.3201
Residual		1.1096	1.0534

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.49297	0.03960	62.961
age_group25-34 years old	0.03789	0.01309	2.894
age_group35-44 years old	0.05137	0.01362	3.770
age_group45-54 years old	0.06647	0.01450	4.585
age_group55+ years	0.07707	0.01325	5.815

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.194			
ag_g35-44yo	-0.191	0.566		
ag_g45-54yo	-0.184	0.535	0.534	
ag_grp55+yr	-0.207	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
199081.1	199154.1	-99532.5	199065.1	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1859	-0.7423	-0.1499	0.6897	3.0152

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.101	0.3178
	Residual	1.082	1.0403

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.490878	0.039509	63.046
predictorTRUE	-0.044031	0.008923	-4.935
age_group25-34 years old	0.037596	0.013207	2.847
age_group35-44 years old	0.047254	0.013761	3.434
age_group45-54 years old	0.064293	0.014648	4.389
age_group55+ years	0.081530	0.013468	6.054

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.088				
ag_g25-34yo	-0.198	0.013			
ag_g35-44yo	-0.198	0.034	0.568		
ag_g45-54yo	-0.192	0.051	0.537	0.537	
ag_grp55+yr	-0.219	0.108	0.589	0.596	0.589

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
 Model failed to converge with max|grad| = 0.00310031 (tol = 0.002, component 1)

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (age_group | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
198891.5	199092.3	-99423.7	198847.5	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2363	-0.7456	-0.1467	0.6997	3.0476

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.09283	0.30468	
	age_group25-34 years old	0.00754	0.08683	0.14
	age_group35-44 years old	0.01408	0.11864	0.23 0.76
	age_group45-54 years old	0.01884	0.13724	0.05 0.38 0.50
	age_group55+ years	0.01748	0.13221	-0.15 -0.14 0.09 0.71
Residual		1.07574	1.03718	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.483781	0.038138	65.127
predictorTRUE	-0.045214	0.008958	-5.047
age_group25-34 years old	0.046971	0.017139	2.741
age_group35-44 years old	0.059228	0.020030	2.957
age_group45-54 years old	0.073402	0.022190	3.308
age_group55+ years	0.098325	0.021323	4.611

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.095				
ag_g25-34yo	-0.091	0.015			
ag_g35-44yo	0.000	0.030	0.654		
ag_g45-54yo	-0.106	0.039	0.462	0.522	
ag_grp55+yr	-0.260	0.068	0.257	0.331	0.651

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.00310031 (tol = 0.002, component 1)

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
199081.4	199190.9	-99528.7	199057.4	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1907	-0.7347	-0.1509	0.6964	3.0074

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.101	0.3178
Residual		1.082	1.0403

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.48346	0.04024	61.710
predictorTRUE	-0.02557	0.02062	-1.240
age_group25-34 years old	0.05669	0.01694	3.346
age_group35-44 years old	0.05782	0.01741	3.320
age_group45-54 years old	0.07492	0.01824	4.109
age_group55+ years	0.08164	0.01642	4.972
predictorTRUE:age_group25-34 years old	-0.04923	0.02694	-1.827
predictorTRUE:age_group35-44 years old	-0.02757	0.02811	-0.981
predictorTRUE:age_group45-54 years old	-0.02898	0.03014	-0.962
predictorTRUE:age_group55+ years	0.01602	0.02786	0.575

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.209							
ag_g25-34yo	-0.253	0.485						
ag_g35-44yo	-0.252	0.477	0.585					
ag_g45-54yo	-0.246	0.462	0.563	0.567				
ag_grp55+yr	-0.278	0.517	0.630	0.638	0.632			
pTRUE:_25yo	0.158	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.153	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.144	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499

```

pTRUE:_55+y  0.157 -0.739 -0.362 -0.359 -0.350 -0.557  0.560      0.540
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.507

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

```
fit_3: outcome_var ~ predictor + age_group + (1 | country)
```

```
fit_4: outcome_var ~ predictor * age_group + (1 | country)
```

	np	par	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	199081	199154	-99533	199065				
fit_4	12	199081	199191	-99529	199057	7.7291	4		0.102

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00452921 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	198893.8	199131.1	-99420.9	198841.8	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.2385	-0.7489	-0.1468	0.6983	3.0467

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.092564	0.30424	
	age_group25-34 years old	0.007646	0.08744	0.14

age_group35-44 years old	0.014207	0.11919	0.23	0.76
age_group45-54 years old	0.018680	0.13668	0.05	0.36 0.50
age_group55+ years	0.017444	0.13207	-0.14	-0.13 0.10 0.71
Residual	1.075649	1.03713		

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.475830	0.038897	63.650
predictorTRUE	-0.026025	0.020897	-1.245
age_group25-34 years old	0.066901	0.020347	3.288
age_group35-44 years old	0.066939	0.022855	2.929
age_group45-54 years old	0.083200	0.024757	3.361
age_group55+ years	0.100609	0.023463	4.288
predictorTRUE:age_group25-34 years old	-0.051196	0.027309	-1.875
predictorTRUE:age_group35-44 years old	-0.018497	0.028614	-0.646
predictorTRUE:age_group45-54 years old	-0.025486	0.030633	-0.832
predictorTRUE:age_group55+ years	0.004382	0.028207	0.155

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.223							
ag_g25-34yo	-0.170	0.419						
ag_g35-44yo	-0.082	0.379	0.644					
ag_g45-54yo	-0.166	0.351	0.491	0.542				
ag_grp55+yr	-0.305	0.374	0.357	0.410	0.665			
pTRUE:_25yo	0.169	-0.755	-0.535	-0.290	-0.267	-0.282		
pTRUE:_35yo	0.163	-0.728	-0.308	-0.476	-0.258	-0.274	0.557	
pTRUE:_45yo	0.153	-0.682	-0.286	-0.260	-0.444	-0.263	0.518	0.500
pTRUE:_55+y	0.167	-0.740	-0.314	-0.284	-0.267	-0.410	0.558	0.539

pTRUE:_4yo

predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.512

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.00452921 (tol = 0.002, component 1)

Data: d

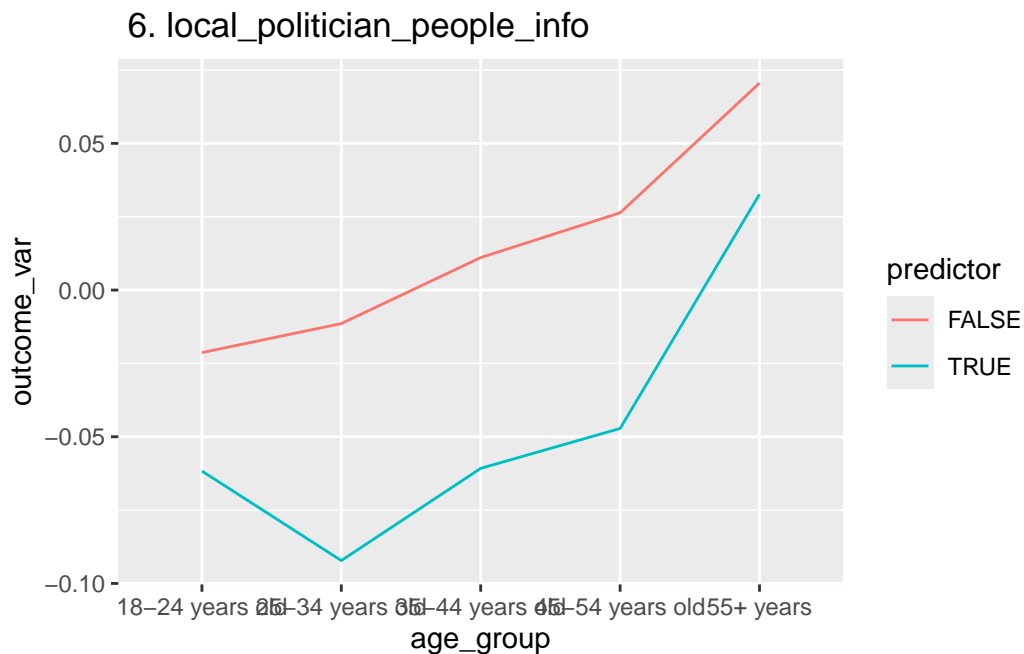
Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	198891	199092	-99424	198847			
fit_4a	26	198894	199131	-99421	198842	5.6879	4	0.2237

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.



=====
=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.0357580	-0.0610057
25-34 years old	0.0166660	-0.0540768
35-44 years old	0.0139497	-0.0335580
45-54 years old	0.0274286	-0.0212144
55+ years	0.0300634	0.0255949

```

=====Current outcome variable:  8. journalists_people_info =====

=====Predictor variable:  mh_problems =====

===== Fit 2: Age Group =====

=====Predictor variable:  mh_problems =====
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

      AIC      BIC    logLik deviance df.resid
204197.9 204262.0 -102091.9  204183.9     70676

Scaled residuals:
      Min       1Q   Median       3Q      Max
-2.37321 -0.77341 -0.07775  0.71257  3.02976

Random effects:
 Groups   Name      Variance Std.Dev.
country (Intercept) 0.1018   0.3191
Residual                1.0474   1.0234
Number of obs: 70683, groups:  country, 70

Fixed effects:
              Estimate Std. Error t value
(Intercept)      2.54439    0.03940  64.582
age_group25-34 years old 0.03039    0.01272   2.390
age_group35-44 years old 0.06486    0.01324   4.900
age_group45-54 years old 0.10315    0.01408   7.324
age_group55+ years      0.18844    0.01288  14.633

Correlation of Fixed Effects:
      (Intr) a_25yo a_35yo a_45yo
ag_g25-34yo -0.189
ag_g35-44yo -0.187  0.566
ag_g45-54yo -0.180  0.535  0.534
ag_grp55+yr -0.202  0.589  0.593  0.584

```

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
195151.3	195224.3	-97567.6	195135.3	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.38880	-0.75923	-0.07982	0.68756	3.13515

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09948	0.3154
	Residual	1.02162	1.0108

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.565118	0.039152	65.517
predictorTRUE	-0.100751	0.008669	-11.622
age_group25-34 years old	0.029921	0.012831	2.332
age_group35-44 years old	0.059905	0.013369	4.481
age_group45-54 years old	0.099964	0.014231	7.024
age_group55+ years	0.183455	0.013085	14.020

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.086				
ag_g25-34yo	-0.194	0.013			
ag_g35-44yo	-0.194	0.034	0.568		
ag_g45-54yo	-0.188	0.051	0.537	0.537	
ag_grp55+yr	-0.215	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
194978.0	195178.8	-97467.0	194934.0	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.4241	-0.7615	-0.0839	0.7054	3.1824

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.084439	0.29058	
	age_group25-34 years old	0.005327	0.07298	0.38
	age_group35-44 years old	0.014293	0.11955	0.30 1.00
	age_group45-54 years old	0.007834	0.08851	0.19 0.43 0.42
	age_group55+ years	0.021924	0.14807	0.02 0.14 0.14 0.92
	Residual	1.016316	1.00812	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.555940	0.036419	70.182
predictorTRUE	-0.099269	0.008703	-11.406
age_group25-34 years old	0.037611	0.015741	2.389
age_group35-44 years old	0.069068	0.019803	3.488
age_group45-54 years old	0.109325	0.017945	6.092
age_group55+ years	0.191813	0.022394	8.565

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.097				
ag_g25-34yo	0.017	0.018			
ag_g35-44yo	0.054	0.030	0.736		
ag_g45-54yo	-0.066	0.048	0.511	0.488	
ag_grp55+yr	-0.123	0.061	0.358	0.326	0.718

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
195151.0	195260.6	-97563.5	195127.0	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.39214	-0.75900	-0.07959	0.68916	3.14478

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09909	0.3148
Residual		1.02150	1.0107

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.54543	0.03979	63.978
predictorTRUE	-0.05305	0.02003	-2.649
age_group25-34 years old	0.05173	0.01646	3.143
age_group35-44 years old	0.08570	0.01692	5.065
age_group45-54 years old	0.11739	0.01772	6.626
age_group55+ years	0.20798	0.01595	13.037
predictorTRUE:age_group25-34 years old	-0.05412	0.02618	-2.068
predictorTRUE:age_group35-44 years old	-0.06586	0.02731	-2.411
predictorTRUE:age_group45-54 years old	-0.03979	0.02929	-1.359
predictorTRUE:age_group55+ years	-0.06858	0.02707	-2.533

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.205							
ag_g25-34yo	-0.248	0.485						
ag_g35-44yo	-0.247	0.477	0.585					
ag_g45-54yo	-0.241	0.462	0.563	0.567				
ag_grp55+yr	-0.273	0.517	0.630	0.638	0.632			
pTRUE:_25yo	0.155	-0.753	-0.626	-0.364	-0.351	-0.393		

```

pTRUE:_35yo  0.151 -0.725 -0.358 -0.611 -0.342 -0.385  0.554
pTRUE:_45yo  0.142 -0.680 -0.335 -0.332 -0.591 -0.364  0.517      0.499
pTRUE:_55+y  0.154 -0.739 -0.362 -0.359 -0.350 -0.557  0.560      0.540
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.507

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance  Chisq Df Pr(>Chisq)
fit_3     8 195151 195224 -97568   195135
fit_4    12 195151 195261 -97564   195127 8.2555  4    0.08265 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```

Warning in checkConv(attr(opt, "derivs"), opt$par, ctrl = control$checkConv, :
Model failed to converge with max|grad| = 0.0464907 (tol = 0.002, component 1)

```

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

```

      AIC      BIC   logLik deviance df.resid
194977.2 195214.6 -97462.6 194925.2     68109

```

```

Scaled residuals:
      Min       1Q   Median       3Q      Max
-2.4260 -0.7658 -0.0855  0.7045  3.1903

```

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.083641	0.28921	
	age_group25-34 years old	0.005268	0.07258	0.41
	age_group35-44 years old	0.013988	0.11827	0.31 0.99
	age_group45-54 years old	0.006999	0.08366	0.24 0.31 0.42
	age_group55+ years	0.020932	0.14468	0.03 0.00 0.13 0.92
	Residual	1.016199	1.00807	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.53615	0.03704	68.474
predictorTRUE	-0.05166	0.02024	-2.553
age_group25-34 years old	0.05933	0.01886	3.146
age_group35-44 years old	0.09291	0.02233	4.161
age_group45-54 years old	0.12722	0.02060	6.176
age_group55+ years	0.21830	0.02401	9.092
predictorTRUE:age_group25-34 years old	-0.05392	0.02635	-2.047
predictorTRUE:age_group35-44 years old	-0.05916	0.02778	-2.130
predictorTRUE:age_group45-54 years old	-0.04102	0.02947	-1.392
predictorTRUE:age_group55+ years	-0.07389	0.02738	-2.698

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.226							
ag_g25-34yo	-0.071	0.433						
ag_g35-44yo	-0.028	0.375	0.699					
ag_g45-54yo	-0.128	0.407	0.515	0.521				
ag_grp55+yr	-0.180	0.350	0.384	0.396	0.702			
pTRUE:_25yo	0.171	-0.755	-0.555	-0.289	-0.310	-0.265		
pTRUE:_35yo	0.165	-0.729	-0.319	-0.471	-0.299	-0.256	0.562	
pTRUE:_45yo	0.157	-0.683	-0.300	-0.261	-0.516	-0.253	0.519	0.501
pTRUE:_55+y	0.168	-0.739	-0.322	-0.278	-0.308	-0.385	0.558	0.538
								pTRUE:_4yo
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								


```
pTRUE:_55+y 0.514
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.0464907 (tol = 0.002, component 1)
```

Data: d

Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

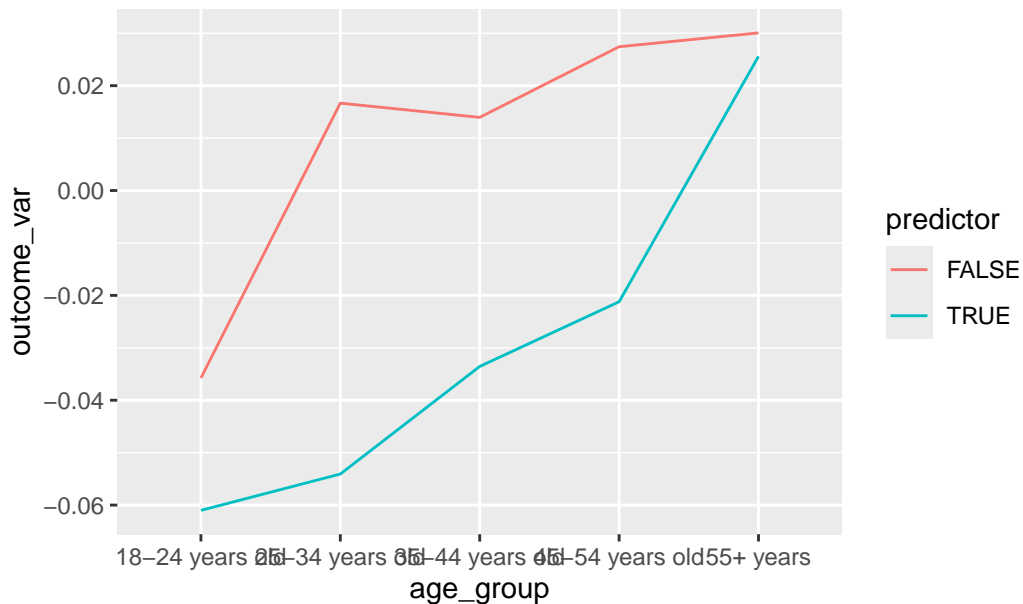
```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	194978	195179	-97467	194934			
fit_4a	26	194977	195215	-97463	194925	8.7611	4	0.06736

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.

7. govt_pol_leaders_people_info



=====
=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
-----------	-------	------

:----- -----: -----:
18-24 years old -0.0529748 -0.1070759
25-34 years old -0.0112124 -0.1105063
35-44 years old 0.0132415 -0.0934196
45-54 years old 0.0352790 -0.0434958
55+ years 0.1150342 0.0064486

=====Current outcome variable: 9. ngos_people_info =====

=====Predictor variable: mh_problems =====

===== Fit 2: Age Group =====

=====Predictor variable: mh_problems =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
208604.2	208668.4	-104295.1	208590.2	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2509	-0.7602	-0.1014	0.6111	3.0726

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.119	0.3449
Residual		1.115	1.0558

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.44444	0.04247	57.560
age_group25-34 years old	0.01847	0.01312	1.408
age_group35-44 years old	0.05115	0.01366	3.746
age_group45-54 years old	0.10916	0.01453	7.513
age_group55+ years	0.19255	0.01329	14.493

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.181			
ag_g35-44yo	-0.179	0.566		
ag_g45-54yo	-0.172	0.535	0.534	
ag_grp55+yr	-0.193	0.589	0.593	0.584

=====
 ===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (1 | country)
 Data: d

	AIC	BIC	logLik	deviance	df.resid
	199290.8	199363.8	-99637.4	199274.8	68127

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.27581	-0.75639	-0.09307	0.59879	3.08433

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1167	0.3416
Residual		1.0855	1.0419

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.459377	0.042255	58.203
predictorTRUE	-0.106443	0.008936	-11.912
age_group25-34 years old	0.024785	0.013226	1.874
age_group35-44 years old	0.052332	0.013781	3.797
age_group45-54 years old	0.111892	0.014670	7.627
age_group55+ years	0.191969	0.013489	14.232

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.082				
ag_g25-34yo	-0.186	0.013			
ag_g35-44yo	-0.185	0.034	0.568		
ag_g45-54yo	-0.180	0.051	0.537	0.537	
ag_grp55+yr	-0.205	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
198958.4	199159.2	-99457.2	198914.4	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3903	-0.7406	-0.1087	0.5979	3.0877

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.08947	0.2991	
	age_group25-34 years old	0.01135	0.1065	0.15
	age_group35-44 years old	0.01639	0.1280	0.26 0.90
	age_group45-54 years old	0.01790	0.1338	0.31 0.63 0.50
	age_group55+ years	0.04251	0.2062	0.24 0.32 0.28 0.91
Residual		1.07667	1.0376	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.440883	0.037542	65.017
predictorTRUE	-0.104129	0.008965	-11.615
age_group25-34 years old	0.039417	0.018788	2.098
age_group35-44 years old	0.071135	0.020895	3.404
age_group45-54 years old	0.127996	0.021945	5.833
age_group55+ years	0.195888	0.028531	6.866

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.098				
ag_g25-34yo	-0.068	0.018			
ag_g35-44yo	0.030	0.031	0.746		

```

ag_g45-54yo  0.065  0.042  0.594  0.524
ag_grp55+yr  0.078  0.049  0.405  0.378  0.775
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

===== Fit 4: Add Interaction =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
199287.7	199397.2	-99631.8	199263.7	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.27078	-0.75752	-0.09158	0.59801	3.08611

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1169	0.3419
Residual		1.0853	1.0418

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.45940	0.04299	57.210
predictorTRUE	-0.10585	0.02065	-5.127
age_group25-34 years old	0.04151	0.01697	2.447
age_group35-44 years old	0.04408	0.01744	2.528
age_group45-54 years old	0.11506	0.01826	6.300
age_group55+ years	0.18476	0.01644	11.235
predictorTRUE:age_group25-34 years old	-0.04439	0.02698	-1.645
predictorTRUE:age_group35-44 years old	0.02367	0.02815	0.841
predictorTRUE:age_group45-54 years old	-0.01128	0.03019	-0.374
predictorTRUE:age_group55+ years	0.03235	0.02790	1.159

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.196						

```

ag_g25-34yo -0.237  0.485
ag_g35-44yo -0.236  0.477  0.585
ag_g45-54yo -0.230  0.462  0.563  0.567
ag_grp55+yr -0.260  0.517  0.630  0.638  0.632
pTRUE:_25yo  0.148 -0.753 -0.626 -0.364 -0.351 -0.393
pTRUE:_35yo  0.144 -0.725 -0.358 -0.611 -0.342 -0.385  0.554
pTRUE:_45yo  0.135 -0.680 -0.335 -0.332 -0.591 -0.364  0.517      0.499
pTRUE:_55+y  0.147 -0.739 -0.362 -0.359 -0.350 -0.557  0.560      0.540
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.507

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar      AIC      BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3      8 199291 199364 -99637   199275
fit_4     12 199288 199397 -99632   199264 11.09  4    0.02557 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

boundary (singular) fit: see help('isSingular')

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

```

      AIC      BIC  logLik deviance df.resid
198973.7 199211.1 -99460.9 198921.7    68109

```

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.38058	-0.74709	-0.09811	0.60079	3.06189

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.088058	0.29674	
	age_group25-34 years old	0.001129	0.03360	1.00
	age_group35-44 years old	0.007302	0.08545	0.61 0.61
	age_group45-54 years old	0.012891	0.11354	0.46 0.46 0.14
	age_group55+ years	0.040852	0.20212	0.27 0.27 0.11 0.96
Residual		1.077360	1.03796	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.44274	0.03789	64.461
predictorTRUE	-0.10156	0.02061	-4.927
age_group25-34 years old	0.05377	0.01738	3.094
age_group35-44 years old	0.05750	0.02026	2.839
age_group45-54 years old	0.12990	0.02276	5.707
age_group55+ years	0.18662	0.02947	6.332
predictorTRUE:age_group25-34 years old	-0.04834	0.02690	-1.797
predictorTRUE:age_group35-44 years old	0.02948	0.02832	1.041
predictorTRUE:age_group45-54 years old	-0.01666	0.03022	-0.551
predictorTRUE:age_group55+ years	0.02597	0.02806	0.926

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.222							
ag_g25-34yo	-0.044	0.470						
ag_g35-44yo	0.058	0.412	0.559					
ag_g45-54yo	0.047	0.370	0.500	0.433				
ag_grp55+yr	0.051	0.286	0.387	0.342	0.750			
pTRUE:_25yo	0.167	-0.750	-0.609	-0.313	-0.281	-0.215		
pTRUE:_35yo	0.162	-0.721	-0.344	-0.527	-0.270	-0.208	0.548	
pTRUE:_45yo	0.153	-0.679	-0.323	-0.283	-0.474	-0.205	0.514	0.491
pTRUE:_55+y	0.163	-0.734	-0.345	-0.302	-0.278	-0.317	0.551	0.530
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								

```

ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.508
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

Models:

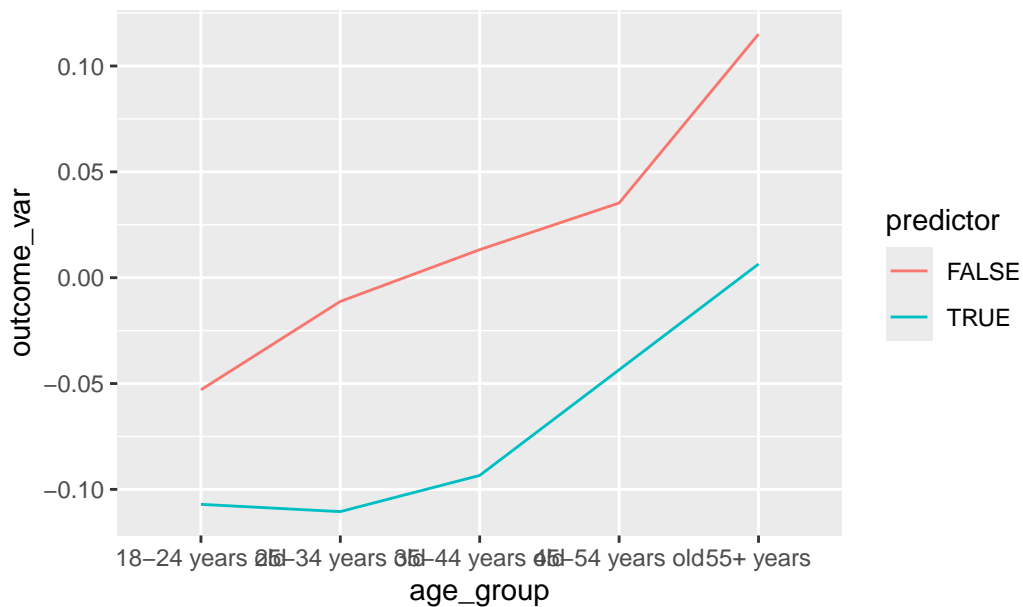
```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	198958	199159	-99457	198914			
fit_4a	26	198974	199211	-99461	198922	0	4	1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.

8. journalists_people_info



====Predictor variable: mh_problems=====

age_group	FALSE	TRUE
18-24 years old	-0.0331052	-0.1389873
25-34 years old	-0.0015631	-0.1430178
35-44 years old	-0.0086684	-0.0779270
45-54 years old	0.0524621	-0.0501944
55+ years	0.1112542	0.0507001

=====
Current outcome variable: 10. int_authority_people_info
=====

=====
Predictor variable: mh_problems
=====

=====
Fit 2: Age Group
=====

=====
Predictor variable: mh_problems
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
214446.8	214511.0	-107216.4	214432.8	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0408	-0.7306	-0.2069	0.5836	2.9462

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08175	0.2859
Residual		1.21125	1.1006

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.26122	0.03579	63.179
age_group25-34 years old	0.04168	0.01368	3.048
age_group35-44 years old	0.11083	0.01423	7.787
age_group45-54 years old	0.17463	0.01514	11.531
age_group55+ years	0.24876	0.01384	17.969

Correlation of Fixed Effects:

```
(Intr) a_25yo a_35yo a_45yo
ag_g25-34yo -0.224
ag_g35-44yo -0.221  0.566
ag_g45-54yo -0.213  0.535  0.534
ag_grp55+yr -0.239  0.589  0.593  0.584
```

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
204814.0	204887.1	-102399.0	204798.0	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0958	-0.7238	-0.1875	0.5864	3.0568

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08076	0.2842
Residual		1.17770	1.0852

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.274328	0.035813	63.505
predictorTRUE	-0.105973	0.009306	-11.387
age_group25-34 years old	0.047143	0.013776	3.422
age_group35-44 years old	0.109410	0.014353	7.623
age_group45-54 years old	0.176701	0.015278	11.566
age_group55+ years	0.249492	0.014045	17.764

Correlation of Fixed Effects:

```
(Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.101
ag_g25-34yo -0.228  0.013
ag_g35-44yo -0.227  0.034  0.568
```

```

ag_g45-54yo -0.221  0.051  0.537  0.537
ag_grp55+yr -0.252  0.108  0.589  0.596  0.589

```

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
204476.1	204677.0	-102216.1	204432.1	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2849	-0.7341	-0.1846	0.5916	3.0342

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.055499	0.23558	
	age_group25-34 years old	0.007109	0.08432	0.33
	age_group35-44 years old	0.020553	0.14336	0.24 1.00
	age_group45-54 years old	0.024646	0.15699	0.11 0.61 0.62
	age_group55+ years	0.056337	0.23736	0.12 0.50 0.50 0.97
Residual		1.168268	1.08086	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.260702	0.030547	74.008
predictorTRUE	-0.107786	0.009342	-11.538
age_group25-34 years old	0.060969	0.017309	3.522
age_group35-44 years old	0.125037	0.022621	5.527
age_group45-54 years old	0.191972	0.024380	7.874
age_group55+ years	0.261774	0.031971	8.188

Correlation of Fixed Effects:

(Intr) prTRUE a_25yo a_35yo a_45yo

```

predctrTRUE -0.126
ag_g25-34yo -0.052  0.020
ag_g35-44yo -0.015  0.031  0.751
ag_g45-54yo -0.096  0.040  0.562  0.592
ag_grp55+yr -0.038  0.046  0.474  0.510  0.835
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

===== Fit 4: Add Interaction =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
204815.3	204924.8	-102395.6	204791.3	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0876	-0.7192	-0.1893	0.5815	3.0592

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0808	0.2842
	Residual	1.1776	1.0852

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.276436	0.036702	62.025
predictorTRUE	-0.110505	0.021503	-5.139
age_group25-34 years old	0.056250	0.017674	3.183
age_group35-44 years old	0.111557	0.018164	6.142
age_group45-54 years old	0.169888	0.019019	8.932
age_group55+ years	0.239487	0.017123	13.986
predictorTRUE:age_group25-34 years old	-0.024570	0.028104	-0.874
predictorTRUE:age_group35-44 years old	-0.007621	0.029323	-0.260
predictorTRUE:age_group45-54 years old	0.019685	0.031443	0.626
predictorTRUE:age_group55+ years	0.040656	0.029063	1.399

Correlation of Fixed Effects:

```

      (Intr) prTRUE a_25yo a_35yo a_45yo a_55+y prTRUE:_2yo prTRUE:_3yo
predctrTRUE -0.239
ag_g25-34yo -0.289  0.485
ag_g35-44yo -0.288  0.478  0.585
ag_g45-54yo -0.281  0.462  0.563  0.566
ag_grp55+yr -0.318  0.518  0.630  0.638  0.632
prTRUE:_25yo  0.181 -0.753 -0.626 -0.364 -0.351 -0.393
prTRUE:_35yo  0.175 -0.725 -0.358 -0.611 -0.342 -0.385  0.554
prTRUE:_45yo  0.165 -0.680 -0.335 -0.332 -0.591 -0.364  0.517      0.499
prTRUE:_55+y  0.179 -0.739 -0.362 -0.359 -0.350 -0.557  0.560      0.540
      prTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
prTRUE:_25yo
prTRUE:_35yo
prTRUE:_45yo
prTRUE:_55+y  0.507

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

```

fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3     8 204814 204887 -102399   204798
fit_4    12 204815 204925 -102396   204791 6.7412  4      0.1502

```

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

```

      AIC      BIC    logLik deviance df.resid
204479.1 204716.5 -102213.6 204427.1     68109

```

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2788	-0.7335	-0.1794	0.5908	3.0397

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.055585	0.23577	
	age_group25-34 years old	0.007001	0.08367	0.33
	age_group35-44 years old	0.020694	0.14385	0.24 1.00
	age_group45-54 years old	0.025010	0.15815	0.11 0.62 0.62
	age_group55+ years	0.056343	0.23737	0.12 0.50 0.50 0.97
Residual		1.168178	1.08082	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.263931	0.031647	71.536
predictorTRUE	-0.115629	0.021786	-5.308
age_group25-34 years old	0.068649	0.020614	3.330
age_group35-44 years old	0.122102	0.025363	4.814
age_group45-54 years old	0.183713	0.027050	6.791
age_group55+ years	0.251470	0.033545	7.497
predictorTRUE:age_group25-34 years old	-0.021038	0.028281	-0.744
predictorTRUE:age_group35-44 years old	0.006933	0.029867	0.232
predictorTRUE:age_group45-54 years old	0.023857	0.031743	0.752
predictorTRUE:age_group55+ years	0.035907	0.029451	1.219

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.286							
ag_g25-34yo	-0.164	0.428						
ag_g35-44yo	-0.114	0.357	0.715					
ag_g45-54yo	-0.178	0.335	0.570	0.601				
ag_grp55+yr	-0.106	0.270	0.495	0.533	0.814			
pTRUE:_25yo	0.217	-0.756	-0.546	-0.275	-0.255	-0.205		
pTRUE:_35yo	0.209	-0.730	-0.315	-0.447	-0.246	-0.197	0.563	
pTRUE:_45yo	0.197	-0.685	-0.295	-0.247	-0.422	-0.195	0.521	0.503
pTRUE:_55+y	0.211	-0.740	-0.316	-0.264	-0.253	-0.296	0.560	0.541
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								

```

ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.517
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

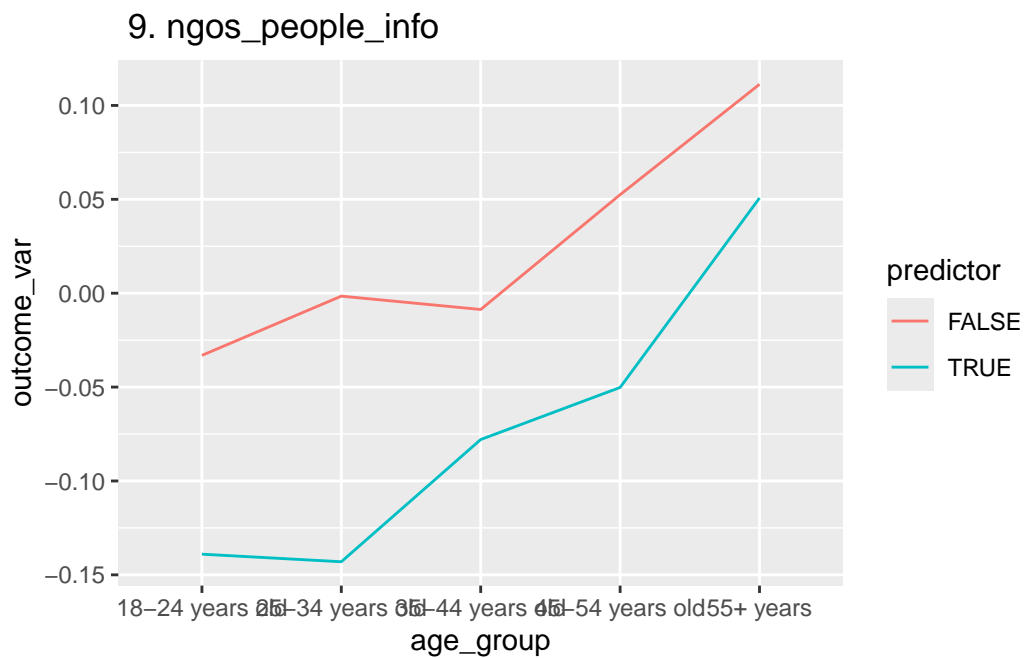
Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	204476	204677	-102216	204432			
fit_4a	26	204479	204717	-102214	204427	4.9858	4	0.2888

`summarise()` has grouped output by 'age_group'. You can override using the `groups` argument.



=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.0678317	-0.1799013
25-34 years old	-0.0241931	-0.1500493
35-44 years old	0.0188514	-0.0849324
45-54 years old	0.0652965	-0.0093238
55+ years	0.1220611	0.0666799

=====
Current outcome variable: 11. employer_colleague_people_info
=====

=====
Predictor variable: mh_problems
=====

=====
Fit 2: Age Group
=====

=====
Predictor variable: mh_problems
=====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
208588.7	208652.8	-104287.4	208574.7	70154

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2068	-0.7165	-0.1977	0.6386	2.8629

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07898	0.281
	Residual	1.13961	1.068

Number of obs: 70161, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.59402	0.03516	73.778
age_group25-34 years old	-0.07905	0.01334	-5.927
age_group35-44 years old	-0.07387	0.01388	-5.324
age_group45-54 years old	-0.03303	0.01476	-2.238

age_group55+ years 0.19868 0.01349 14.723

Correlation of Fixed Effects:

(Intr) a_25yo a_35yo a_45yo
ag_g25-34yo -0.223
ag_g35-44yo -0.220 0.567
ag_g45-54yo -0.212 0.536 0.535
ag_grp55+yr -0.237 0.590 0.595 0.585

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
199646.5	199719.4	-99815.2	199630.5	67605

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2128	-0.7195	-0.1921	0.6262	2.9360

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07645	0.2765
	Residual	1.11664	1.0567

Number of obs: 67613, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.600467	0.034873	74.570
predictorTRUE	-0.061519	0.009103	-6.758
age_group25-34 years old	-0.081439	0.013491	-6.036
age_group35-44 years old	-0.076855	0.014052	-5.469
age_group45-54 years old	-0.034848	0.014956	-2.330
age_group55+ years	0.200072	0.013750	14.551

Correlation of Fixed Effects:

(Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.102
ag_g25-34yo -0.230 0.014

```

ag_g35-44yo -0.229  0.035  0.570
ag_g45-54yo -0.223  0.053  0.539  0.539
ag_grp55+yr -0.254  0.110  0.591  0.598  0.591

```

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.0064918 (tol = 0.002, component 1)

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
199170.0	199370.7	-99563.0	199126.0	67591

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2838	-0.6992	-0.1894	0.6064	2.9443

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.06315	0.2513	
	age_group25-34 years old	0.01068	0.1033	-0.03
	age_group35-44 years old	0.01812	0.1346	-0.08 0.81
	age_group45-54 years old	0.02151	0.1467	-0.11 0.58 0.54
	age_group55+ years	0.06557	0.2561	0.10 0.47 0.28 0.70
Residual		1.10408	1.0508	

Number of obs: 67613, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.586881	0.032258	80.194
predictorTRUE	-0.053828	0.009127	-5.897
age_group25-34 years old	-0.075228	0.018736	-4.015
age_group35-44 years old	-0.068041	0.021706	-3.135
age_group45-54 years old	-0.021335	0.023332	-0.914
age_group55+ years	0.169856	0.034044	4.989

Correlation of Fixed Effects:

```
(Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.118
ag_g25-34yo -0.222  0.020
ag_g35-44yo -0.236  0.033  0.698
ag_g45-54yo -0.247  0.042  0.566  0.550
ag_grp55+yr -0.035  0.042  0.467  0.355  0.636
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.0064918 (tol = 0.002, component 1)
```

=====
Fit 4: Add Interaction
=====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
199648.5	199757.9	-99812.2	199624.5	67601

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2188	-0.7215	-0.1971	0.6223	2.9377

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07633	0.2763
Residual		1.11654	1.0567

Number of obs: 67613, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.598272	0.035725	72.730
predictorTRUE	-0.056176	0.021057	-2.668
age_group25-34 years old	-0.078080	0.017324	-4.507
age_group35-44 years old	-0.078294	0.017796	-4.400
age_group45-54 years old	-0.043025	0.018635	-2.309
age_group55+ years	0.209614	0.016775	12.495
predictorTRUE:age_group25-34 years old	-0.008507	0.027506	-0.309
predictorTRUE:age_group35-44 years old	0.005217	0.028687	0.182
predictorTRUE:age_group45-54 years old	0.028737	0.030756	0.934

predictorTRUE:age_group55+ years -0.039994 0.028437 -1.406

Correlation of Fixed Effects:

```
(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.242
ag_g25-34yo -0.292 0.487
ag_g35-44yo -0.291 0.480 0.587
ag_g45-54yo -0.284 0.464 0.565 0.569
ag_grp55+yr -0.321 0.520 0.632 0.640 0.635
pTRUE:_25yo 0.183 -0.754 -0.627 -0.366 -0.353 -0.395
pTRUE:_35yo 0.177 -0.725 -0.360 -0.612 -0.344 -0.387 0.554
pTRUE:_45yo 0.167 -0.680 -0.336 -0.333 -0.592 -0.366 0.518 0.500
pTRUE:_55+y 0.181 -0.739 -0.364 -0.360 -0.352 -0.557 0.560 0.541
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.508
```

=====
===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	np	par	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	199646	199719	-99815	199630				
fit_4	12	199648	199758	-99812	199624	5.9961	4		0.1994

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00313331 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
199173.8	199411.0	-99560.9	199121.8	67587

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2868	-0.6994	-0.1883	0.6040	2.9474

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.06311	0.2512	
	age_group25-34 years old	0.01076	0.1037	-0.03
	age_group35-44 years old	0.01809	0.1345	-0.08 0.81
	age_group45-54 years old	0.02144	0.1464	-0.10 0.58 0.54
	age_group55+ years	0.06531	0.2556	0.09 0.47 0.28 0.70
	Residual	1.10400	1.0507	

Number of obs: 67613, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.5838628	0.0332634	77.679
predictorTRUE	-0.0466646	0.0214245	-2.178
age_group25-34 years old	-0.0701756	0.0218668	-3.209
age_group35-44 years old	-0.0676127	0.0244262	-2.768
age_group45-54 years old	-0.0275708	0.0259539	-1.062
age_group55+ years	0.1800750	0.0354704	5.077
predictorTRUE:age_group25-34 years old	-0.0126114	0.0279402	-0.451
predictorTRUE:age_group35-44 years old	0.0005403	0.0292576	0.018
predictorTRUE:age_group45-54 years old	0.0229123	0.0312456	0.733
predictorTRUE:age_group55+ years	-0.0355431	0.0289302	-1.229

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.270							
ag_g25-34yo	-0.293	0.405						
ag_g35-44yo	-0.297	0.367	0.682					
ag_g45-54yo	-0.298	0.347	0.577	0.565				
ag_grp55+yr	-0.103	0.254	0.488	0.395	0.636			
pTRUE:_25yo	0.206	-0.759	-0.513	-0.282	-0.265	-0.194		
pTRUE:_35yo	0.198	-0.731	-0.299	-0.458	-0.256	-0.185	0.562	
pTRUE:_45yo	0.186	-0.684	-0.279	-0.254	-0.436	-0.178	0.521	0.503
pTRUE:_55+y	0.200	-0.741	-0.300	-0.272	-0.260	-0.281	0.563	0.540
pTRUE:_4yo								

```

predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.511
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.00313331 (tol = 0.002, component 1)

```

Data: d

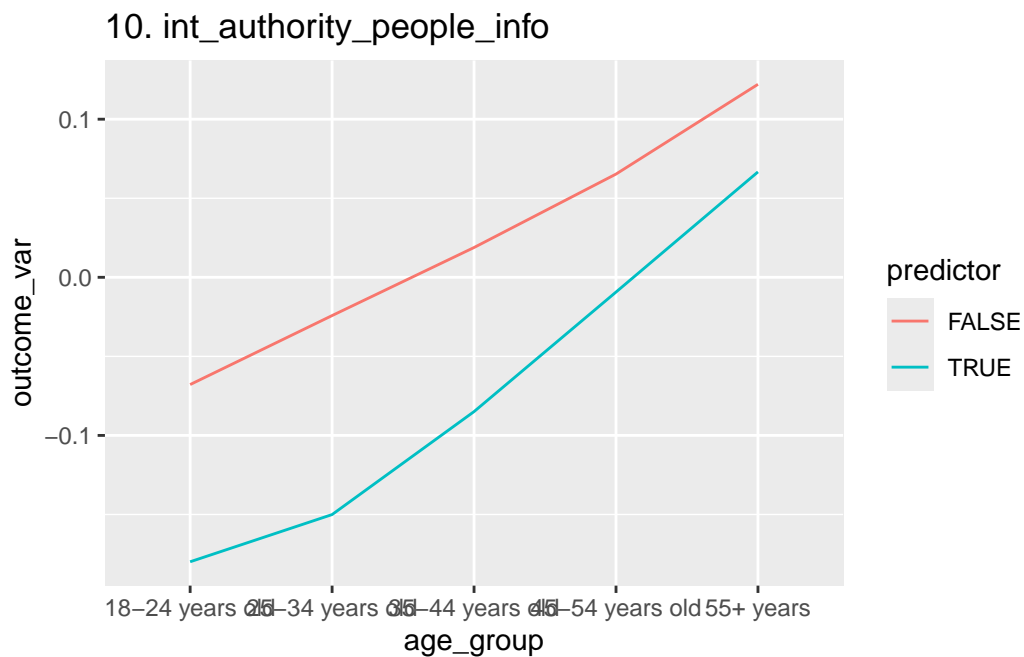
Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npair	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	199170	199371	-99563	199126			
fit_4a	26	199174	199411	-99561	199122	4.2288	4	0.3759

`summarise()` has grouped output by 'age_group'. You can override using the
 `groups` argument.



Warning: Removed 10 rows containing missing values or values outside the scale range (`geom_line()`).

=====
=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	NA	NA
25-34 years old	NA	NA
35-44 years old	NA	NA
45-54 years old	NA	NA
55+ years	NA	NA

=====
=====Current outcome variable: 12. family_doc_people_info =====

=====
=====Predictor variable: mh_problems =====

=====
===== Fit 2: Age Group =====

=====
=====Predictor variable: mh_problems =====
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
200662.1	200726.2	-100324.0	200648.1	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1234	-0.7578	-0.1708	0.4498	3.4082

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07005	0.2647
Residual		0.99660	0.9983

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.20080	0.03307	66.544
age_group25-34 years old	-0.03231	0.01241	-2.605
age_group35-44 years old	-0.05410	0.01291	-4.190
age_group45-54 years old	-0.05768	0.01374	-4.199
age_group55+ years	-0.10120	0.01256	-8.059

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.220			
ag_g35-44yo	-0.217	0.566		
ag_g45-54yo	-0.209	0.535	0.534	
ag_grp55+yr	-0.234	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
190804.1	190877.2	-95394.1	190788.1	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1437	-0.7807	-0.1550	0.4214	3.5225

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06585	0.2566
Residual		0.95881	0.9792

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.199149	0.032335	68.010
predictorTRUE	-0.066129	0.008397	-7.875
age_group25-34 years old	-0.030491	0.012430	-2.453
age_group35-44 years old	-0.054268	0.012951	-4.190
age_group45-54 years old	-0.053455	0.013785	-3.878

age_group55+ years -0.092447 0.012673 -7.295

Correlation of Fixed Effects:

```
(Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.101
ag_g25-34yo -0.228  0.013
ag_g35-44yo -0.227  0.034  0.568
ag_g45-54yo -0.221  0.051  0.537  0.537
ag_grp55+yr -0.252  0.108  0.589  0.596  0.589
```

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	190695.0	190895.9	-95325.5	190651.0	68113

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.1374	-0.7726	-0.1497	0.4215	3.5226

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	7.489e-02	0.273669	
	age_group25-34 years old	2.751e-05	0.005245	-1.00
	age_group35-44 years old	6.827e-03	0.082628	-0.25 0.25
	age_group45-54 years old	6.366e-03	0.079787	-0.26 0.26 0.49
	age_group55+ years	2.118e-02	0.145523	-0.48 0.48 0.35 0.86
Residual		9.549e-01	0.977188	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.209217	0.034334	64.345
predictorTRUE	-0.070528	0.008434	-8.363

age_group25-34 years old	-0.033618	0.012457	-2.699
age_group35-44 years old	-0.060494	0.016434	-3.681
age_group45-54 years old	-0.061123	0.016859	-3.626
age_group55+ years	-0.082883	0.021743	-3.812

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.099
ag_g25-34yo -0.265  0.016
ag_g35-44yo -0.321  0.033  0.459
ag_g45-54yo -0.316  0.047  0.449  0.524
ag_grp55+yr -0.502  0.059  0.361  0.442  0.671
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
190808.6	190918.1	-95392.3	190784.6	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1502	-0.7782	-0.1507	0.4278	3.5281

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0660	0.2569
	Residual	0.9588	0.9792

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.204135	0.033164	66.461
predictorTRUE	-0.077846	0.019403	-4.012
age_group25-34 years old	-0.029361	0.015947	-1.841
age_group35-44 years old	-0.056641	0.016390	-3.456

age_group45-54 years old	-0.064412	0.017162	-3.753
age_group55+ years	-0.101894	0.015451	-6.595
predictorTRUE:age_group25-34 years old	-0.003963	0.025359	-0.156
predictorTRUE:age_group35-44 years old	0.004310	0.026459	0.163
predictorTRUE:age_group45-54 years old	0.031030	0.028372	1.094
predictorTRUE:age_group55+ years	0.031677	0.026224	1.208

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.239							
ag_g25-34yo	-0.288	0.485						
ag_g35-44yo	-0.288	0.478	0.585					
ag_g45-54yo	-0.280	0.462	0.563	0.566				
ag_grp55+yr	-0.317	0.518	0.630	0.638	0.632			
pTRUE:_25yo	0.180	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.175	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.165	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.179	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.507							

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	190804	190877	-95394	190788			
fit_4	12	190809	190918	-95392	190785	3.5486	4	0.4705

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (age_group | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
190700.1	190937.5	-95324.1	190648.1	68109

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1370	-0.7712	-0.1482	0.4219	3.5347

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	7.527e-02	0.274359	
	age_group25-34 years old	3.755e-05	0.006128	-1.00
	age_group35-44 years old	7.038e-03	0.083893	-0.26 0.26
	age_group45-54 years old	6.547e-03	0.080916	-0.26 0.26 0.52
	age_group55+ years	2.120e-02	0.145589	-0.48 0.48 0.35 0.85
Residual		9.548e-01	0.977157	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.216413	0.035172	63.016
predictorTRUE	-0.087471	0.019500	-4.486
age_group25-34 years old	-0.035550	0.015985	-2.224
age_group35-44 years old	-0.069231	0.019395	-3.570
age_group45-54 years old	-0.075703	0.019818	-3.820
age_group55+ years	-0.092117	0.023549	-3.912
predictorTRUE:age_group25-34 years old	0.003197	0.025345	0.126
predictorTRUE:age_group35-44 years old	0.021632	0.026778	0.808
predictorTRUE:age_group45-54 years old	0.041092	0.028543	1.440
predictorTRUE:age_group55+ years	0.024473	0.026457	0.925

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.228							
ag_g25-34yo	-0.317	0.483						
ag_g35-44yo	-0.362	0.411	0.505					
ag_g45-54yo	-0.353	0.405	0.496	0.556				
ag_grp55+yr	-0.527	0.341	0.427	0.490	0.669			
pTRUE:_25yo	0.172	-0.750	-0.626	-0.311	-0.306	-0.257		
pTRUE:_35yo	0.166	-0.724	-0.353	-0.522	-0.297	-0.249	0.547	

```

pTRUE:_45yo  0.157 -0.680 -0.332 -0.284 -0.516 -0.242  0.514      0.498
pTRUE:_55+y  0.168 -0.737 -0.356 -0.303 -0.304 -0.375  0.553      0.534

```

```

pTRUE:_4yo

```

```

predctrTRUE

```

```

ag_g25-34yo

```

```

ag_g35-44yo

```

```

ag_g45-54yo

```

```

ag_grp55+yr

```

```

pTRUE:_25yo

```

```

pTRUE:_35yo

```

```

pTRUE:_45yo

```

```

pTRUE:_55+y  0.509

```

```

optimizer (nloptwrap) convergence code: 0 (OK)

```

```

boundary (singular) fit: see help('isSingular')

```

```

Data: d

```

```

Models:

```

```

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

```

```

fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

```

```

      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)

```

```

fit_3a   22 190695 190896 -95326   190651

```

```

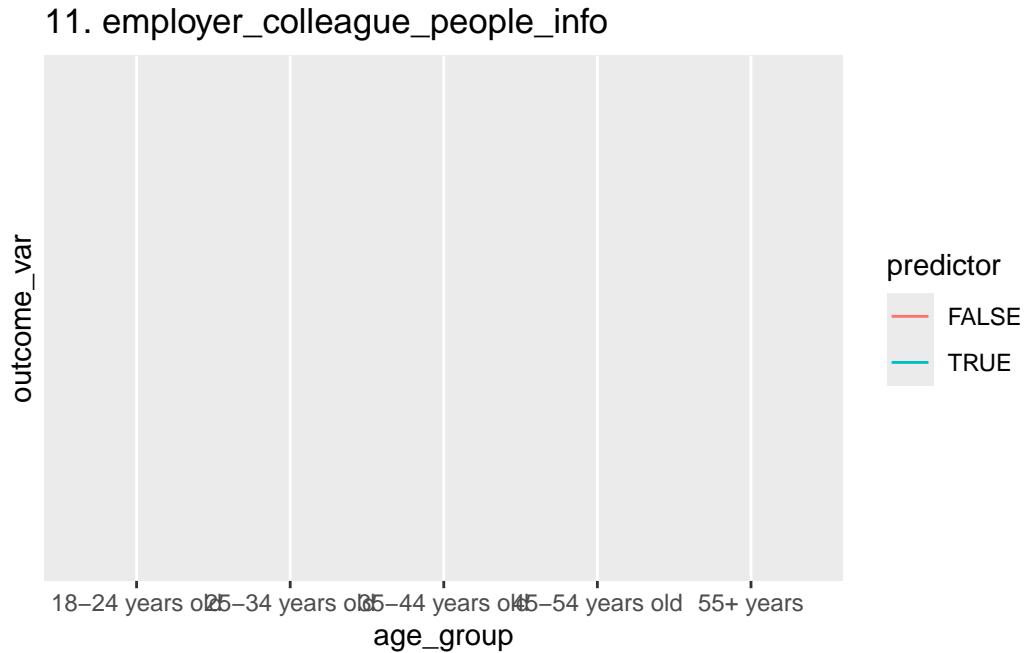
fit_4a   26 190700 190937 -95324   190648  2.9413  4      0.5677

```

```

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

```



====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	0.0701996	-0.0012584
25-34 years old	0.0432174	-0.0339345
35-44 years old	0.0188152	-0.0514658
45-54 years old	0.0137551	-0.0315561
55+ years	-0.0218856	-0.0675560

====Current outcome variable: 13. scientist_people_info =====

====Predictor variable: mh_problems =====

==== Fit 2: Age Group =====

====Predictor variable: mh_problems =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
208455.4	208519.6	-104220.7	208441.4	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8881	-0.7899	-0.1456	0.5466	3.1843

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06185	0.2487
Residual		1.11302	1.0550

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.11611	0.03142	67.340
age_group25-34 years old	0.03895	0.01311	2.971
age_group35-44 years old	0.07455	0.01364	5.464
age_group45-54 years old	0.08650	0.01452	5.959
age_group55+ years	0.10553	0.01327	7.953

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.245			
ag_g35-44yo	-0.242	0.566		
ag_g45-54yo	-0.232	0.535	0.534	
ag_grp55+yr	-0.261	0.589	0.593	0.584

=====
===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
198581.8	198654.8	-99282.9	198565.8	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9524	-0.8038	-0.1370	0.5328	3.2890

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06196	0.2489
Residual		1.07495	1.0368

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.10554	0.03166	66.493
predictorTRUE	-0.06307	0.00889	-7.094
age_group25-34 years old	0.04495	0.01316	3.416
age_group35-44 years old	0.07987	0.01371	5.825
age_group45-54 years old	0.10008	0.01460	6.857
age_group55+ years	0.12083	0.01342	9.006

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.109				
ag_g25-34yo	-0.247	0.013			
ag_g35-44yo	-0.246	0.034	0.568		
ag_g45-54yo	-0.238	0.051	0.537	0.537	
ag_grp55+yr	-0.272	0.108	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (age_group | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
198374.9	198575.7	-99165.4	198330.9	68113

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-2.0973 -0.7967 -0.1223 0.5188 3.2466

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0440043	0.20977	
	age_group25-34 years old	0.0007391	0.02719	1.00
	age_group35-44 years old	0.0066333	0.08145	0.30 0.30
	age_group45-54 years old	0.0135910	0.11658	0.45 0.45 0.51
	age_group55+ years	0.0324565	0.18016	0.17 0.17 0.39 0.94
Residual		1.0689811	1.03392	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.108977	0.027356	77.094
predictorTRUE	-0.069841	0.008924	-7.826
age_group25-34 years old	0.045616	0.013529	3.372
age_group35-44 years old	0.082891	0.016899	4.905
age_group45-54 years old	0.101186	0.020210	5.007
age_group55+ years	0.128776	0.025558	5.039

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.131				
ag_g25-34yo	-0.056	0.015			
ag_g35-44yo	-0.076	0.033	0.487		
ag_g45-54yo	0.081	0.041	0.448	0.520	
ag_grp55+yr	-0.026	0.051	0.330	0.437	0.768

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
198576.3	198685.9	-99276.2	198552.3	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9434	-0.8025	-0.1348	0.5350	3.3109

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06185	0.2487
Residual		1.07473	1.0367

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.1209297	0.0325501	65.159
predictorTRUE	-0.0996764	0.0205423	-4.852
age_group25-34 years old	0.0435923	0.0168840	2.582
age_group35-44 years old	0.0582994	0.0173520	3.360
age_group45-54 years old	0.0793146	0.0181683	4.366
age_group55+ years	0.0963235	0.0163556	5.889
predictorTRUE:age_group25-34 years old	0.0006641	0.0268484	0.025
predictorTRUE:age_group35-44 years old	0.0551517	0.0280128	1.969
predictorTRUE:age_group45-54 years old	0.0535976	0.0300380	1.784
predictorTRUE:age_group55+ years	0.0770194	0.0277646	2.774

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.257							
ag_g25-34yo	-0.311	0.485						
ag_g35-44yo	-0.310	0.478	0.585					
ag_g45-54yo	-0.302	0.462	0.563	0.566				
ag_grp55+yr	-0.342	0.518	0.630	0.638	0.632			
pTRUE:_25yo	0.194	-0.753	-0.626	-0.364	-0.351	-0.393		
pTRUE:_35yo	0.189	-0.725	-0.358	-0.611	-0.342	-0.385	0.554	
pTRUE:_45yo	0.178	-0.680	-0.335	-0.332	-0.591	-0.364	0.517	0.499
pTRUE:_55+y	0.193	-0.739	-0.362	-0.359	-0.350	-0.557	0.560	0.540
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								

pTRUE:_55+y 0.507

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	198582	198655	-99283	198566			
fit_4	12	198576	198686	-99276	198552	13.507	4	0.009047 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	198368.0	198605.4	-99158.0	198316.0	68109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.0801	-0.8044	-0.1189	0.5268	3.2720

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0437664	0.20920	
	age_group25-34 years old	0.0007368	0.02714	1.00
	age_group35-44 years old	0.0069972	0.08365	0.30 0.30
	age_group45-54 years old	0.0141153	0.11881	0.43 0.43 0.54
	age_group55+ years	0.0327604	0.18100	0.17 0.17 0.41 0.94
Residual		1.0687284	1.03379	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.126914	0.028337	75.057

predictorTRUE	-0.113547	0.020555	-5.524
age_group25-34 years old	0.041547	0.017160	2.421
age_group35-44 years old	0.056232	0.020123	2.794
age_group45-54 years old	0.076490	0.023089	3.313
age_group55+ years	0.101715	0.027340	3.720
predictorTRUE:age_group25-34 years old	0.007761	0.026802	0.290
predictorTRUE:age_group35-44 years old	0.069730	0.028253	2.468
predictorTRUE:age_group45-54 years old	0.065373	0.030132	2.170
predictorTRUE:age_group55+ years	0.080345	0.027950	2.875

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.297							
ag_g25-34yo	-0.183	0.474						
ag_g35-44yo	-0.181	0.415	0.522					
ag_g45-54yo	-0.040	0.365	0.482	0.550				
ag_grp55+yr	-0.112	0.308	0.388	0.483	0.756			
pTRUE:_25yo	0.223	-0.749	-0.615	-0.315	-0.276	-0.231		
pTRUE:_35yo	0.216	-0.723	-0.346	-0.529	-0.267	-0.225	0.546	
pTRUE:_45yo	0.204	-0.680	-0.325	-0.286	-0.466	-0.221	0.513	0.496
pTRUE:_55+y	0.218	-0.735	-0.348	-0.305	-0.274	-0.339	0.551	0.532
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.510							

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

Data: d

Models:

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

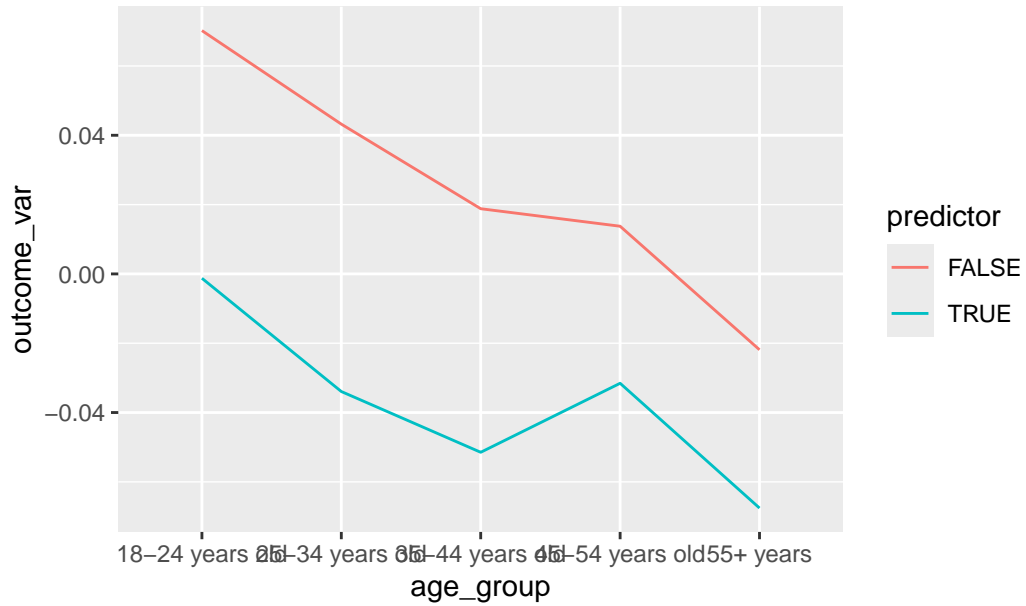
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	198375	198576	-99165	198331			
fit_4a	26	198368	198605	-99158	198316	14.848	4	0.005027 **

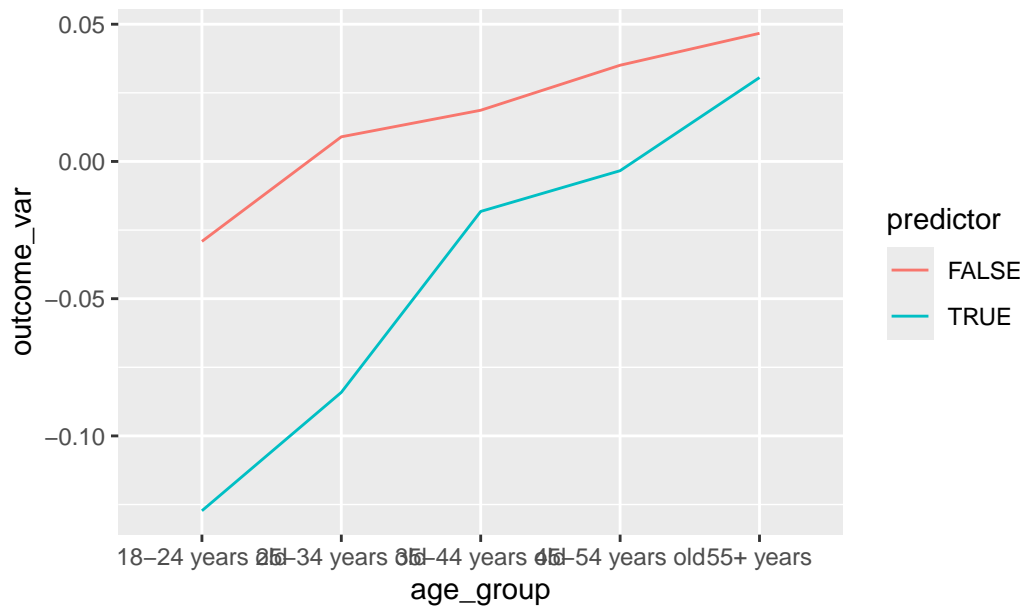
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

``summarise()`` has grouped output by 'age_group'. You can override using the ``groups`` argument.

12. family_doc_people_info



13. scientist_people_info



=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	-0.0291265	-0.1272690
25-34 years old	0.0089795	-0.0841330
35-44 years old	0.0186576	-0.0182037
45-54 years old	0.0350619	-0.0033706
55+ years	0.0466855	0.0305687

```
RunModels(ending = "people_info", predictor = "lonely")
```

=====Current outcome variable: 1. family_people_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
192413.1	192477.3	-96199.6	192399.1	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.6050	-0.7563	-0.0914	0.3675	3.7854

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06283	0.2507
Residual		0.88682	0.9417

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.023380	0.031312	64.619
age_group25-34 years old	0.005753	0.011702	0.492
age_group35-44 years old	-0.001090	0.012179	-0.090
age_group45-54 years old	-0.003253	0.012959	-0.251
age_group55+ years	-0.018589	0.011846	-1.569

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.219			
ag_g35-44yo	-0.216	0.566		
ag_g45-54yo	-0.208	0.535	0.534	
ag_grp55+yr	-0.233	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
183316.0	183389.1	-91650.0	183300.0	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.6528	-0.7623	-0.0834	0.3595	3.8455

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.05957	0.2441
	Residual	0.84878	0.9213

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.030489	0.030786	65.956
predictorTRUE	-0.060697	0.007481	-8.113
age_group25-34 years old	0.003759	0.011657	0.322
age_group35-44 years old	-0.003909	0.012148	-0.322

age_group45-54 years old	-0.001486	0.012946	-0.115
age_group55+ years	-0.012554	0.011890	-1.056

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.122				
ag_g25-34yo	-0.225	0.018			
ag_g35-44yo	-0.225	0.044	0.568		
ag_g45-54yo	-0.220	0.070	0.536	0.536	
ag_grp55+yr	-0.250	0.114	0.589	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
183222.4	183423.4	-91589.2	183178.4	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7275	-0.7696	-0.1026	0.3571	3.8426

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.054809	0.23411	
	age_group25-34 years old	0.008363	0.09145	-0.18
	age_group35-44 years old	0.017282	0.13146	-0.14 1.00
	age_group45-54 years old	0.026121	0.16162	-0.10 0.93 0.91
	age_group55+ years	0.021570	0.14687	-0.21 0.88 0.85 0.98
Residual		0.845698	0.91962	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.035762	0.029870	68.153

predictorTRUE	-0.060769	0.007507	-8.096
age_group25-34 years old	-0.002270	0.016303	-0.139
age_group35-44 years old	-0.008546	0.020170	-0.424
age_group45-54 years old	-0.003826	0.023442	-0.163
age_group55+ years	-0.015485	0.021442	-0.722

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.133
ag_g25-34yo -0.302 0.024
ag_g35-44yo -0.259 0.037 0.800
ag_g45-54yo -0.219 0.046 0.748 0.785
ag_grp55+yr -0.317 0.068 0.741 0.763 0.860
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

=====
Fit 4: Add Interaction
=====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
183322.5	183432.1	-91649.2	183298.5	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.6542	-0.7646	-0.0855	0.3575	3.8427

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0595	0.2439
Residual		0.8488	0.9213

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.0208495	0.0320091	63.134
predictorTRUE	-0.0430395	0.0177981	-2.418
age_group25-34 years old	0.0150372	0.0168066	0.895

age_group35-44 years old	0.0086291	0.0170270	0.507
age_group45-54 years old	0.0060500	0.0175502	0.345
age_group55+ years	-0.0007139	0.0159061	-0.045
predictorTRUE:age_group25-34 years old	-0.0211813	0.0232455	-0.911
predictorTRUE:age_group35-44 years old	-0.0244821	0.0241060	-1.016
predictorTRUE:age_group45-54 years old	-0.0119182	0.0257193	-0.463
predictorTRUE:age_group55+ years	-0.0248562	0.0232138	-1.071

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.299							
ag_g25-34yo	-0.320	0.564						
ag_g35-44yo	-0.320	0.557	0.603					
ag_g45-54yo	-0.315	0.543	0.588	0.594				
ag_grp55+yr	-0.352	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.230	-0.760	-0.720	-0.432	-0.421	-0.467		
pTRUE:_35yo	0.223	-0.733	-0.421	-0.698	-0.411	-0.457	0.563	
pTRUE:_45yo	0.210	-0.689	-0.395	-0.393	-0.667	-0.430	0.528	0.512
pTRUE:_55+y	0.232	-0.764	-0.437	-0.435	-0.426	-0.649	0.585	0.567
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y								0.533

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	np	par	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	183316	183389	-91650	183300				
fit_4	12	183322	183432	-91649	183298	1.5477	4		0.8182

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (age_group | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
183261.9	183499.3	-91604.9	183209.9	68414

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7149	-0.7620	-0.1042	0.3473	3.8138

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	5.185e-02	0.227704	
	age_group25-34 years old	4.215e-05	0.006492	1.00
	age_group35-44 years old	5.468e-03	0.073943	0.17 0.17
	age_group45-54 years old	1.338e-02	0.115670	0.16 0.16 0.86
	age_group55+ years	1.016e-02	0.100804	0.00 0.00 0.66 0.95
Residual		8.464e-01	0.919980	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.0211572	0.0302960	66.714
predictorTRUE	-0.0423561	0.0178310	-2.375
age_group25-34 years old	0.0154461	0.0168368	0.917
age_group35-44 years old	0.0090358	0.0192867	0.468
age_group45-54 years old	0.0093293	0.0223887	0.417
age_group55+ years	0.0009973	0.0200841	0.050
predictorTRUE:age_group25-34 years old	-0.0205426	0.0232425	-0.884
predictorTRUE:age_group35-44 years old	-0.0255046	0.0242553	-1.052
predictorTRUE:age_group45-54 years old	-0.0124860	0.0258908	-0.482
predictorTRUE:age_group55+ years	-0.0252772	0.0233443	-1.083

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.317							
ag_g25-34yo	-0.297	0.561						
ag_g35-44yo	-0.231	0.494	0.537					
ag_g45-54yo	-0.174	0.428	0.463	0.657				
ag_grp55+yr	-0.291	0.477	0.513	0.643	0.763			
pTRUE:_25yo	0.244	-0.757	-0.719	-0.384	-0.330	-0.369		
pTRUE:_35yo	0.234	-0.731	-0.415	-0.618	-0.323	-0.356	0.558	

```

pTRUE:_45yo  0.218 -0.689 -0.386 -0.344 -0.523 -0.343  0.521      0.513
pTRUE:_55+y  0.243 -0.763 -0.430 -0.380 -0.335 -0.518  0.579      0.561
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.536
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

Models:

```

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a   22 183222 183423 -91589   183178
fit_4a   26 183262 183499 -91605   183210     0  4         1

```

`summarise()` has grouped output by 'age_group'. You can override using the
 `groups` argument.

=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	0.0208807	-0.0203752
25-34 years old	0.0342388	-0.0270401
35-44 years old	0.0264219	-0.0370043
45-54 years old	0.0229647	-0.0279720
55+ years	0.0145045	-0.0494987

=====Current outcome variable: 2. religious_people_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
198876.9	198941.1	-99431.5	198862.9	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.8508	-0.7253	-0.0483	0.6821	3.4855

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.3628	0.6023
Residual		0.9701	0.9850

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.789124	0.072615	38.410
age_group25-34 years old	-0.033164	0.012240	-2.709
age_group35-44 years old	-0.028111	0.012741	-2.206
age_group45-54 years old	0.002975	0.013559	0.219
age_group55+ years	0.096284	0.012400	7.765

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.099			
ag_g35-44yo	-0.098	0.566		
ag_g45-54yo	-0.094	0.535	0.534	
ag_grp55+yr	-0.105	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
190899.5	190972.6	-95441.8	190883.5	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.9018	-0.7084	-0.0316	0.6857	3.6023

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.3541	0.5951
Residual		0.9466	0.9729

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.846918	0.071878	39.608
predictorTRUE	-0.127069	0.007904	-16.077
age_group25-34 years old	-0.039323	0.012311	-3.194
age_group35-44 years old	-0.042582	0.012832	-3.318
age_group45-54 years old	-0.016189	0.013676	-1.184
age_group55+ years	0.074271	0.012566	5.910

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.055				
ag_g25-34yo	-0.102	0.017			
ag_g35-44yo	-0.102	0.043	0.568		
ag_g45-54yo	-0.100	0.069	0.537	0.537	
ag_grp55+yr	-0.113	0.113	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
190544.9	190745.9	-95250.5	190500.9	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.9698	-0.7214	-0.0244	0.6751	3.6502

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.29742	0.5454	
	age_group25-34 years old	0.01749	0.1322	0.14
	age_group35-44 years old	0.03912	0.1978	0.19 1.00
	age_group45-54 years old	0.03876	0.1969	0.29 0.85 0.85
	age_group55+ years	0.05181	0.2276	0.32 0.64 0.65 0.92
Residual		0.93825	0.9686	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.811720	0.066122	42.523
predictorTRUE	-0.117001	0.007919	-14.774
age_group25-34 years old	-0.016253	0.020373	-0.798
age_group35-44 years old	-0.010830	0.027189	-0.398
age_group45-54 years old	0.009810	0.027436	0.358
age_group55+ years	0.077754	0.030384	2.559

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.063				
ag_g25-34yo	0.027	0.020			
ag_g35-44yo	0.100	0.029	0.862		
ag_g45-54yo	0.187	0.042	0.746	0.780	
ag_grp55+yr	0.227	0.049	0.612	0.637	0.842

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

==== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
190885.1	190994.7	-95430.5	190861.1	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.9017	-0.7024	-0.0300	0.6872	3.6027

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.3527	0.5939
Residual		0.9463	0.9728

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.80422	0.07234	38.765
predictorTRUE	-0.04899	0.01879	-2.607
age_group25-34 years old	0.00481	0.01775	0.271
age_group35-44 years old	0.01175	0.01798	0.653
age_group45-54 years old	0.02932	0.01854	1.582
age_group55+ years	0.12467	0.01681	7.418
predictorTRUE:age_group25-34 years old	-0.08200	0.02455	-3.341
predictorTRUE:age_group35-44 years old	-0.10562	0.02545	-4.149
predictorTRUE:age_group45-54 years old	-0.08542	0.02716	-3.145
predictorTRUE:age_group55+ years	-0.10269	0.02451	-4.189

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.140							
ag_g25-34yo	-0.149	0.564						
ag_g35-44yo	-0.150	0.557	0.603					
ag_g45-54yo	-0.147	0.543	0.588	0.594				
ag_grp55+y	-0.164	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.107	-0.760	-0.720	-0.432	-0.421	-0.467		
pTRUE:_35yo	0.104	-0.733	-0.421	-0.698	-0.411	-0.457	0.563	
pTRUE:_45yo	0.098	-0.689	-0.395	-0.393	-0.667	-0.430	0.528	0.512
pTRUE:_55+y	0.108	-0.764	-0.437	-0.435	-0.426	-0.649	0.585	0.567
pTRUE:_4yo								
predctrTRUE								


```

ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

```
fit_3: outcome_var ~ predictor + age_group + (1 | country)
```

```
fit_4: outcome_var ~ predictor * age_group + (1 | country)
```

	np	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	190900	190973	-95442	190884			
fit_4	12	190885	190995	-95431	190861	22.467	4	0.0001618 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.102281 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']

```
Formula: outcome_var ~ predictor * age_group + (age_group | country)
```

Data: d

	AIC	BIC	logLik	deviance	df.resid
	190531.1	190768.6	-95239.5	190479.1	68414

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.9744	-0.7242	-0.0288	0.6744	3.6393

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.29700	0.5450	
	age_group25-34 years old	0.01770	0.1330	0.13
	age_group35-44 years old	0.03848	0.1962	0.18 0.98

age_group45-54 years old	0.04022	0.2005	0.28	0.91	0.82
age_group55+ years	0.05369	0.2317	0.30	0.73	0.62 0.92
Residual	0.93792	0.9685			

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.77346	0.06673	41.562
predictorTRUE	-0.04689	0.01900	-2.468
age_group25-34 years old	0.02850	0.02415	1.180
age_group35-44 years old	0.03890	0.02985	1.303
age_group45-54 years old	0.04967	0.03051	1.628
age_group55+ years	0.12118	0.03285	3.689
predictorTRUE:age_group25-34 years old	-0.08304	0.02468	-3.364
predictorTRUE:age_group35-44 years old	-0.09760	0.02589	-3.769
predictorTRUE:age_group45-54 years old	-0.07309	0.02742	-2.666
predictorTRUE:age_group55+ years	-0.08371	0.02487	-3.367

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.153							
ag_g25-34yo	-0.047	0.419						
ag_g35-44yo	0.034	0.343	0.796					
ag_g45-54yo	0.110	0.335	0.750	0.739				
ag_grp55+yr	0.148	0.311	0.668	0.625	0.828			
pTRUE:_25yo	0.118	-0.764	-0.532	-0.268	-0.261	-0.241		
pTRUE:_35yo	0.112	-0.735	-0.308	-0.423	-0.248	-0.227	0.571	
pTRUE:_45yo	0.106	-0.693	-0.290	-0.239	-0.407	-0.223	0.534	0.514
pTRUE:_55+y	0.117	-0.764	-0.321	-0.262	-0.261	-0.341	0.585	0.560
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y								0.538

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.102281 (tol = 0.002, component 1)

Data: d

Models:

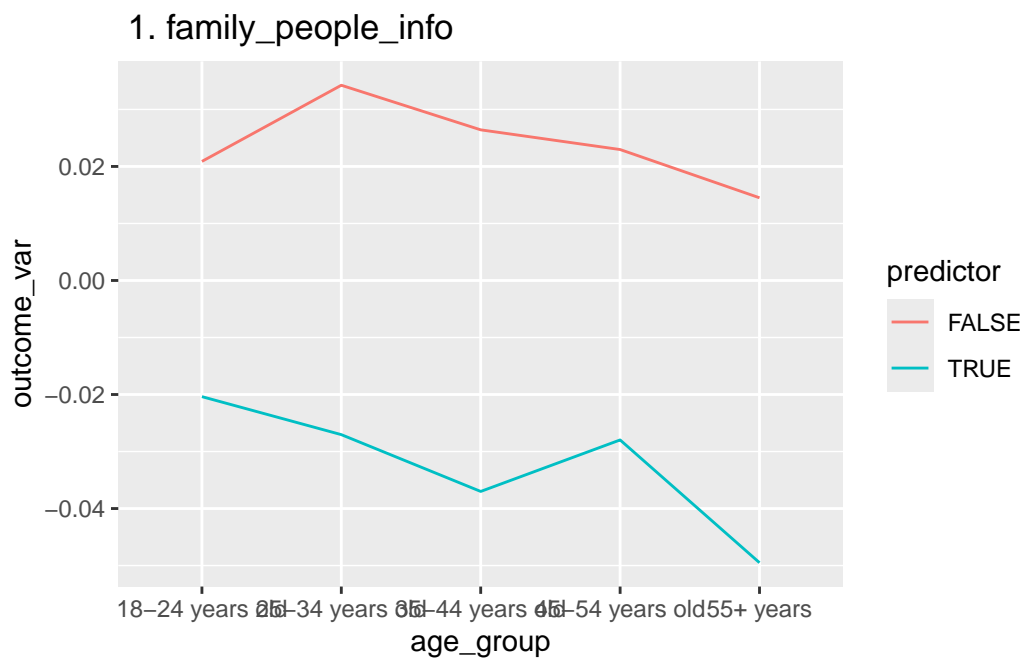
```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	190545	190746	-95250	190501			
fit_4a	26	190531	190769	-95240	190479	21.841	4	0.0002156 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	0.0216153	-0.0239114
25-34 years old	0.0183340	-0.1031626
35-44 years old	0.0170585	-0.1231434
45-54 years old	0.0280145	-0.0919307

|55+ years | 0.1148891| -0.0232095|

=====Current outcome variable: 3. community_leaders_people_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
203137.3	203201.5	-101561.7	203123.3	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3474	-0.7700	-0.0452	0.5077	3.2432

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1381	0.3716
Residual		1.0315	1.0156

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.534480	0.045485	55.721
age_group25-34 years old	-0.014007	0.012621	-1.110
age_group35-44 years old	0.008565	0.013136	0.652
age_group45-54 years old	0.015463	0.013979	1.106
age_group55+ years	0.066473	0.012782	5.201

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.163			
ag_g35-44yo	-0.161	0.566		
ag_g45-54yo	-0.155	0.535	0.534	
ag_grp55+yr	-0.173	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
194864.8	194937.8	-97424.4	194848.8	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3750	-0.7687	-0.0383	0.4998	3.3170

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1318	0.363
	Residual	1.0042	1.002

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.575325	0.044692	57.624
predictorTRUE	-0.113653	0.008139	-13.964
age_group25-34 years old	-0.016282	0.012679	-1.284
age_group35-44 years old	0.001526	0.013215	0.115
age_group45-54 years old	0.004209	0.014084	0.299
age_group55+ years	0.053819	0.012938	4.160

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.091				
ag_g25-34yo	-0.169	0.017			
ag_g35-44yo	-0.169	0.044	0.568		
ag_g45-54yo	-0.165	0.070	0.536	0.537	
ag_grp55+yr	-0.188	0.113	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
194709.4	194910.3	-97332.7	194665.4	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.4547	-0.7596	-0.0452	0.4915	3.3802

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.107429	0.32776	
	age_group25-34 years old	0.006379	0.07987	0.16
	age_group35-44 years old	0.021499	0.14663	0.29 0.99
	age_group45-54 years old	0.014982	0.12240	0.28 0.72 0.74
	age_group55+ years	0.023734	0.15406	0.26 0.44 0.46 0.89
Residual		0.999116	0.99956	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.554399	0.040746	62.691
predictorTRUE	-0.109707	0.008162	-13.441
age_group25-34 years old	-0.002457	0.016150	-0.152
age_group35-44 years old	0.024931	0.022219	1.122
age_group45-54 years old	0.020809	0.020526	1.014
age_group55+ years	0.061151	0.022946	2.665

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.105				
ag_g25-34yo	-0.068	0.023			
ag_g35-44yo	0.098	0.034	0.755		
ag_g45-54yo	0.056	0.055	0.619	0.654	
ag_grp55+yr	0.073	0.065	0.494	0.509	0.754

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
194869.7	194979.3	-97422.8	194845.7	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3771	-0.7680	-0.0395	0.4969	3.3186

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1315	0.3627
	Residual	1.0041	1.0021

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.559394	0.045669	56.042
predictorTRUE	-0.084501	0.019359	-4.365
age_group25-34 years old	0.000965	0.018281	0.053
age_group35-44 years old	0.021728	0.018521	1.173
age_group45-54 years old	0.019369	0.019092	1.015
age_group55+ years	0.073123	0.017306	4.225
predictorTRUE:age_group25-34 years old	-0.032182	0.025284	-1.273
predictorTRUE:age_group35-44 years old	-0.039252	0.026220	-1.497
predictorTRUE:age_group45-54 years old	-0.026977	0.027975	-0.964
predictorTRUE:age_group55+ years	-0.040086	0.025250	-1.588

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.228							
ag_g25-34yo	-0.244	0.564						
ag_g35-44yo	-0.244	0.557	0.603					
ag_g45-54yo	-0.240	0.543	0.588	0.594				
ag_grp55+yr	-0.268	0.601	0.652	0.662	0.659			

```

pTRUE:_25yo  0.175 -0.760 -0.720 -0.432 -0.421 -0.467
pTRUE:_35yo  0.170 -0.733 -0.421 -0.698 -0.411 -0.457  0.563
pTRUE:_45yo  0.160 -0.689 -0.395 -0.393 -0.667 -0.430  0.528      0.512
pTRUE:_55+y  0.177 -0.764 -0.437 -0.435 -0.426 -0.649  0.585      0.567
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

```
fit_3: outcome_var ~ predictor + age_group + (1 | country)
```

```
fit_4: outcome_var ~ predictor * age_group + (1 | country)
```

	np	par	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	194865	194938	-97424	194849				
fit_4	12	194870	194979	-97423	194846	3.0967	4	0.5418	

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	194713.9	194951.3	-97330.9	194661.9	68414

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.4576	-0.7589	-0.0475	0.4905	3.3824

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
--------	------	----------	----------	------


```

country (Intercept)                0.107122 0.32729
age_group25-34 years old 0.007126 0.08442 0.15
age_group35-44 years old 0.021403 0.14630 0.29 0.95
age_group45-54 years old 0.014953 0.12228 0.29 0.64 0.74
age_group55+ years            0.024046 0.15507 0.25 0.47 0.45 0.87
Residual                        0.998939 0.99947
Number of obs: 68440, groups: country, 70

```

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.54364	0.04181	60.841
predictorTRUE	-0.09036	0.01951	-4.633
age_group25-34 years old	0.01365	0.02116	0.645
age_group35-44 years old	0.03708	0.02574	1.440
age_group45-54 years old	0.02960	0.02429	1.219
age_group55+ years	0.07335	0.02584	2.839
predictorTRUE:age_group25-34 years old	-0.02962	0.02541	-1.166
predictorTRUE:age_group35-44 years old	-0.02242	0.02661	-0.843
predictorTRUE:age_group45-54 years old	-0.01340	0.02818	-0.475
predictorTRUE:age_group55+ years	-0.02413	0.02556	-0.944

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.251
ag_g25-34yo -0.176 0.491
ag_g35-44yo -0.016 0.408 0.703
ag_g45-54yo -0.050 0.431 0.602 0.654
ag_grp55+yr -0.036 0.406 0.554 0.550 0.738
pTRUE:_25yo 0.193 -0.761 -0.624 -0.318 -0.333 -0.314
pTRUE:_35yo 0.184 -0.733 -0.361 -0.505 -0.320 -0.297 0.568
pTRUE:_45yo 0.175 -0.691 -0.342 -0.286 -0.527 -0.292 0.527 0.513
pTRUE:_55+y 0.192 -0.763 -0.376 -0.312 -0.336 -0.445 0.582 0.559
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.535
optimizer (nloptwrap) convergence code: 0 (OK)

```

boundary (singular) fit: see help('isSingular')

Data: d

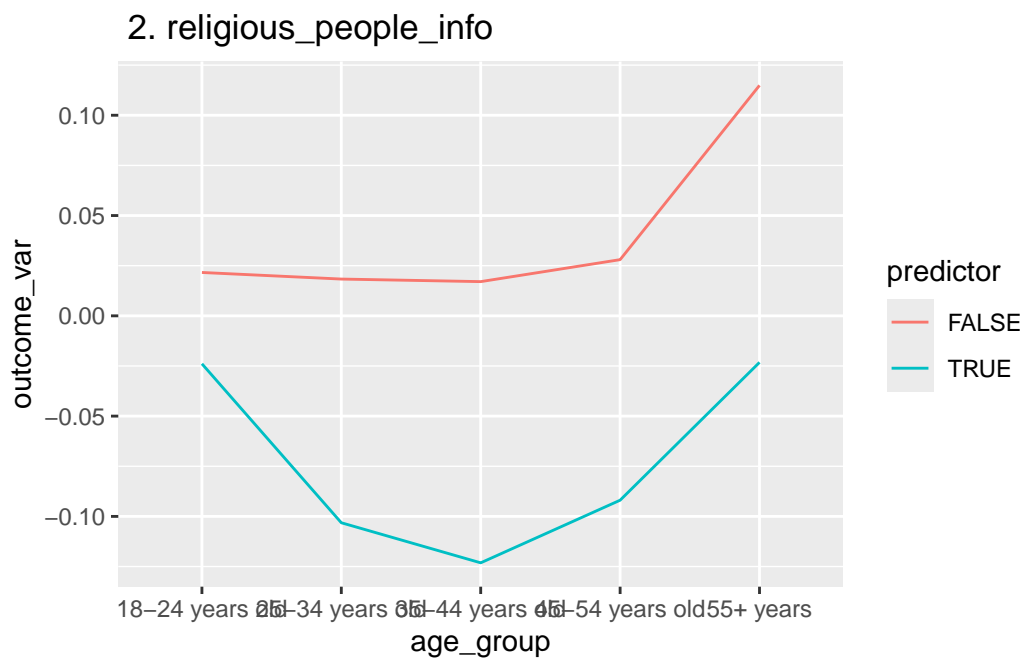
Models:

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	194709	194910	-97333	194665			
fit_4a	26	194714	194951	-97331	194662	3.5138	4	0.4758

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



====Predictor variable: lonely====

age_group	FALSE	TRUE
18-24 years old	0.0287068	-0.0520419
25-34 years old	0.0230010	-0.0853588
35-44 years old	0.0372171	-0.0744698

```
|45-54 years old | 0.0301277| -0.0695214|
|55+ years      | 0.0775855| -0.0359545|
```

```
=====Current outcome variable:  4. friends_people_info =====
```

```
=====Predictor variable:  lonely =====
```

```
===== Fit 2: Age Group =====
```

```
=====Predictor variable:  lonely =====
```

```
Linear mixed model fit by maximum likelihood ['lmerMod']
```

```
Formula: outcome_var ~ age_group + (1 | country)
```

```
Data: d
```

AIC	BIC	logLik	deviance	df.resid
195738.8	195803.0	-97862.4	195724.8	70676

```
Scaled residuals:
```

Min	1Q	Median	3Q	Max
-1.9612	-0.5615	-0.2028	0.6296	3.4161

```
Random effects:
```

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.04986	0.2233
	Residual	0.92979	0.9643

Number of obs: 70683, groups: country, 70

```
Fixed effects:
```

	Estimate	Std. Error	t value
(Intercept)	2.267477	0.028269	80.210
age_group25-34 years old	-0.021234	0.011982	-1.772
age_group35-44 years old	-0.042719	0.012469	-3.426
age_group45-54 years old	-0.030157	0.013267	-2.273
age_group55+ years	-0.007873	0.012126	-0.649

```
Correlation of Fixed Effects:
```

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.249			
ag_g35-44yo	-0.245	0.566		
ag_g45-54yo	-0.236	0.535	0.534	

ag_grp55+yr -0.265 0.589 0.593 0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
187073.6	187146.7	-93528.8	187057.6	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9822	-0.5470	-0.1920	0.6159	3.5222

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.04886	0.2210
Residual		0.89691	0.9471

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.279598	0.028289	80.584
predictorTRUE	-0.066250	0.007690	-8.615
age_group25-34 years old	-0.021118	0.011982	-1.762
age_group35-44 years old	-0.043996	0.012487	-3.523
age_group45-54 years old	-0.031474	0.013306	-2.365
age_group55+ years	-0.005646	0.012220	-0.462

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.136				
ag_g25-34yo	-0.252	0.018			
ag_g35-44yo	-0.252	0.044	0.568		
ag_g45-54yo	-0.246	0.070	0.536	0.536	
ag_grp55+yr	-0.280	0.114	0.589	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
187020.7	187221.7	-93488.4	186976.7	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9884	-0.5433	-0.1889	0.6127	3.5226

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	4.921e-02	0.221823	
	age_group25-34 years old	6.138e-06	0.002478	-1.00
	age_group35-44 years old	4.830e-03	0.069496	0.02 -0.02
	age_group45-54 years old	4.524e-03	0.067259	-0.01 0.01 0.38
	age_group55+ years	1.250e-02	0.111785	-0.24 0.24 0.27 0.94
Residual		8.944e-01	0.945717	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.277233	0.028428	80.105
predictorTRUE	-0.065210	0.007710	-8.458
age_group25-34 years old	-0.020151	0.011996	-1.680
age_group35-44 years old	-0.041971	0.015117	-2.776
age_group45-54 years old	-0.029810	0.015622	-1.908
age_group55+ years	-0.006577	0.018285	-0.360

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.139				
ag_g25-34yo	-0.276	0.020			
ag_g35-44yo	-0.204	0.041	0.472		
ag_g45-54yo	-0.218	0.063	0.459	0.494	
ag_grp55+yr	-0.349	0.074	0.396	0.438	0.692

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
187077.6	187187.2	-93526.8	187053.6	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9786	-0.5464	-0.1926	0.6122	3.5223

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.04876	0.2208
	Residual	0.89686	0.9470

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.262090	0.029682	76.211
predictorTRUE	-0.034221	0.018295	-1.871
age_group25-34 years old	-0.003322	0.017276	-0.192
age_group35-44 years old	-0.022889	0.017502	-1.308
age_group45-54 years old	-0.012395	0.018039	-0.687
age_group55+ years	0.015624	0.016347	0.956
predictorTRUE:age_group25-34 years old	-0.033026	0.023895	-1.382
predictorTRUE:age_group35-44 years old	-0.040618	0.024779	-1.639
predictorTRUE:age_group45-54 years old	-0.036185	0.026438	-1.369
predictorTRUE:age_group55+ years	-0.044200	0.023862	-1.852

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.332							
ag_g25-34yo	-0.354	0.564						
ag_g35-44yo	-0.355	0.557	0.603					
ag_g45-54yo	-0.349	0.543	0.588	0.594				
ag_grp55+yr	-0.390	0.601	0.652	0.662	0.659			

```

pTRUE:_25yo  0.255 -0.760 -0.720 -0.432 -0.421 -0.467
pTRUE:_35yo  0.247 -0.733 -0.421 -0.698 -0.411 -0.457  0.563
pTRUE:_45yo  0.232 -0.689 -0.395 -0.393 -0.667 -0.430  0.528      0.512
pTRUE:_55+y  0.257 -0.764 -0.437 -0.435 -0.426 -0.649  0.585      0.567
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	np	par	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	187074	187147	-93529	187058				
fit_4	12	187078	187187	-93527	187054	4.0093	4	0.4048	

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	187011.4	187248.9	-93479.7	186959.4	68414

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-1.9906	-0.5413	-0.1922	0.6004	3.5246

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
--------	------	----------	----------	------

```

country (Intercept)                0.049917 0.22342
age_group25-34 years old 0.003678 0.06064 -0.20
age_group35-44 years old 0.010221 0.10110 -0.12 0.94
age_group45-54 years old 0.009504 0.09749 -0.14 0.90 0.71
age_group55+ years          0.019144 0.13836 -0.32 0.82 0.59 0.96
Residual                        0.894031 0.94553
Number of obs: 68440, groups: country, 70

```

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.2587913	0.0301191	74.995
predictorTRUE	-0.0354427	0.0184416	-1.922
age_group25-34 years old	-0.0003726	0.0189579	-0.020
age_group35-44 years old	-0.0193084	0.0215458	-0.896
age_group45-54 years old	-0.0099547	0.0216767	-0.459
age_group55+ years	0.0147723	0.0234892	0.629
predictorTRUE:age_group25-34 years old	-0.0323179	0.0239815	-1.348
predictorTRUE:age_group35-44 years old	-0.0379203	0.0251071	-1.510
predictorTRUE:age_group45-54 years old	-0.0335436	0.0265883	-1.262
predictorTRUE:age_group55+ years	-0.0391114	0.0241484	-1.620

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.329
ag_g25-34yo -0.402 0.517
ag_g35-44yo -0.359 0.459 0.671
ag_g45-54yo -0.365 0.456 0.650 0.633
ag_grp55+yr -0.475 0.422 0.644 0.615 0.756
pTRUE:_25yo 0.254 -0.762 -0.659 -0.359 -0.355 -0.328
pTRUE:_35yo 0.243 -0.733 -0.382 -0.570 -0.339 -0.312 0.566
pTRUE:_45yo 0.230 -0.692 -0.361 -0.322 -0.557 -0.305 0.531 0.511
pTRUE:_55+y 0.251 -0.764 -0.393 -0.350 -0.354 -0.458 0.584 0.561
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.538
optimizer (nloptwrap) convergence code: 0 (OK)

```


boundary (singular) fit: see help('isSingular')

Data: d

Models:

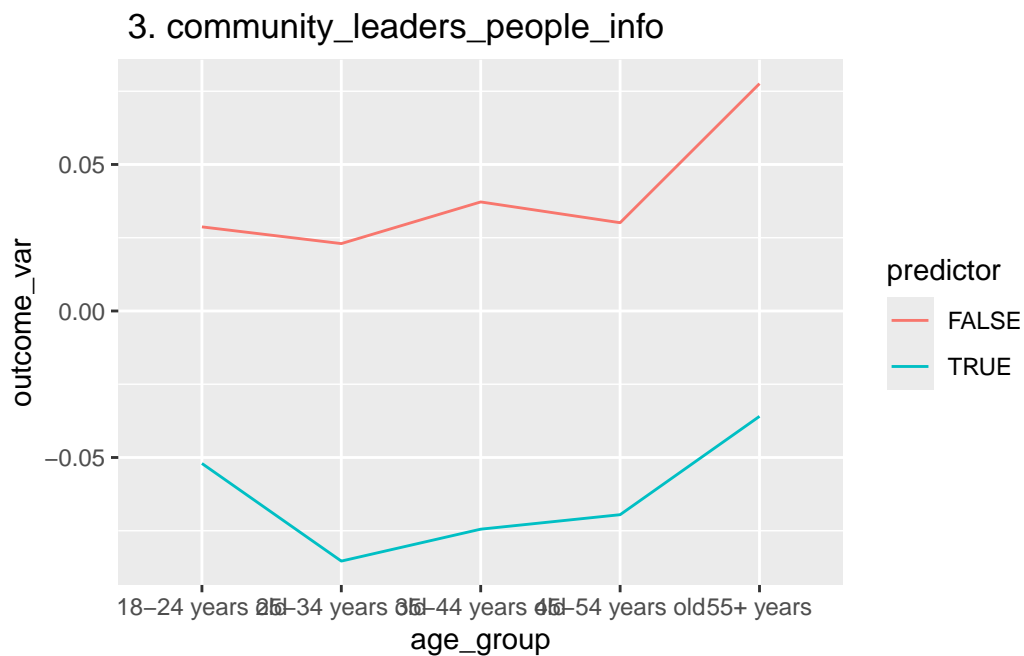
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	187021	187222	-93488	186977			
fit_4a	26	187011	187249	-93480	186959	17.324	4	0.001672 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	0.0323226	-0.0005029

25-34 years old	0.0271492	-0.0368711
35-44 years old	0.0055733	-0.0642929
45-54 years old	0.0141771	-0.0510266
55+ years	0.0391669	-0.0341411

=====Current outcome variable: 5. social_medial_people_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
200801.5	200865.7	-100393.7	200787.5	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.71774	-0.63598	-0.04159	0.66519	2.93753

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1332	0.3649
Residual		0.9979	0.9990

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.83949	0.04467	63.562
age_group25-34 years old	0.03817	0.01241	3.075
age_group35-44 years old	0.09898	0.01292	7.661
age_group45-54 years old	0.19074	0.01375	13.872
age_group55+ years	0.35008	0.01257	27.846

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.163		

```

ag_g35-44yo -0.161  0.566
ag_g45-54yo -0.155  0.535  0.534
ag_grp55+yr -0.174  0.589  0.593  0.584

```

===== Fit 3: Add Predictor =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
193009.1	193082.2	-96496.5	192993.1	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.78993	-0.64774	-0.00975	0.67553	3.03296

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1314	0.3626
	Residual	0.9773	0.9886

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.895663	0.044601	64.923
predictorTRUE	-0.127067	0.008029	-15.825
age_group25-34 years old	0.031895	0.012509	2.550
age_group35-44 years old	0.089595	0.013037	6.872
age_group45-54 years old	0.173777	0.013894	12.507
age_group55+ years	0.331195	0.012764	25.947

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.090				
ag_g25-34yo	-0.167	0.017			
ag_g35-44yo	-0.167	0.044	0.568		
ag_g45-54yo	-0.163	0.070	0.536	0.537	
ag_grp55+yr	-0.185	0.113	0.589	0.596	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
192542.6	192743.6	-96249.3	192498.6	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.79531	-0.63978	0.00225	0.67272	3.03726

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.097549	0.31233	
	age_group25-34 years old	0.003335	0.05775	1.00
	age_group35-44 years old	0.012938	0.11375	0.71 0.71
	age_group45-54 years old	0.013421	0.11585	0.60 0.60 0.62
	age_group55+ years	0.046424	0.21546	0.16 0.16 0.18 0.82
Residual		0.967539	0.98364	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.874179	0.038809	74.060
predictorTRUE	-0.119715	0.008031	-14.906
age_group25-34 years old	0.046801	0.014234	3.288
age_group35-44 years old	0.108446	0.018874	5.746
age_group45-54 years old	0.191387	0.019603	9.763
age_group55+ years	0.335581	0.028998	11.572

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.107				
ag_g25-34yo	0.300	0.019			
ag_g35-44yo	0.361	0.036	0.589		
ag_g45-54yo	0.274	0.054	0.533	0.580	
ag_grp55+yr	0.051	0.047	0.292	0.293	0.696

optimizer (nloptwrap) convergence code: 0 (OK)

boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
193001.6	193111.2	-96488.8	192977.6	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.79478	-0.65422	-0.02996	0.68079	3.00171

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1308	0.3617
	Residual	0.9771	0.9885

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.86139	0.04550	62.895
predictorTRUE	-0.06440	0.01910	-3.372
age_group25-34 years old	0.06609	0.01803	3.665
age_group35-44 years old	0.12391	0.01827	6.782
age_group45-54 years old	0.22067	0.01883	11.717
age_group55+ years	0.37230	0.01707	21.808
predictorTRUE:age_group25-34 years old	-0.06335	0.02494	-2.540
predictorTRUE:age_group35-44 years old	-0.06334	0.02586	-2.449
predictorTRUE:age_group45-54 years old	-0.09662	0.02760	-3.501
predictorTRUE:age_group55+ years	-0.08457	0.02491	-3.395

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.226						
ag_g25-34yo	-0.241	0.564					
ag_g35-44yo	-0.242	0.557	0.603				
ag_g45-54yo	-0.238	0.543	0.588	0.594			

```

ag_grp55+yr -0.265  0.601  0.652  0.662  0.659
pTRUE:_25yo  0.174 -0.760 -0.720 -0.432 -0.421 -0.467
pTRUE:_35yo  0.168 -0.733 -0.421 -0.698 -0.411 -0.457  0.563
pTRUE:_45yo  0.158 -0.689 -0.395 -0.393 -0.667 -0.430  0.528      0.512
pTRUE:_55+y  0.175 -0.764 -0.437 -0.435 -0.426 -0.649  0.585      0.567
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance  Chisq Df Pr(>Chisq)
fit_3     8 193009 193082 -96497   192993
fit_4    12 193002 193111 -96489   192978 15.528  4   0.003722 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```

Warning in checkConv(attr(opt, "derivs"), opt$par, ctrl = control$checkConv, :
Model failed to converge with max|grad| = 0.00480239 (tol = 0.002, component 1)

```

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

```

      AIC      BIC  logLik deviance df.resid
192514.0 192751.5 -96231.0 192462.0     68414

```

```

Scaled residuals:
      Min       1Q   Median       3Q      Max

```

-2.80447 -0.63832 -0.00375 0.67463 3.04482

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.09587	0.3096	
	age_group25-34 years old	0.01244	0.1115	0.44
	age_group35-44 years old	0.02445	0.1564	0.42 0.93
	age_group45-54 years old	0.02025	0.1423	0.41 0.78 0.79
	age_group55+ years	0.04942	0.2223	0.15 0.30 0.34 0.81
Residual		0.96661	0.9832	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.84026	0.03976	71.433
predictorTRUE	-0.05478	0.01920	-2.853
age_group25-34 years old	0.08048	0.02269	3.547
age_group35-44 years old	0.14315	0.02637	5.428
age_group45-54 years old	0.23852	0.02553	9.342
age_group55+ years	0.37746	0.03208	11.766
predictorTRUE:age_group25-34 years old	-0.06573	0.02505	-2.624
predictorTRUE:age_group35-44 years old	-0.06559	0.02617	-2.506
predictorTRUE:age_group45-54 years old	-0.09947	0.02769	-3.593
predictorTRUE:age_group55+ years	-0.08834	0.02521	-3.504

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.260							
ag_g25-34yo	0.007	0.452						
ag_g35-44yo	0.078	0.391	0.740					
ag_g45-54yo	0.047	0.403	0.665	0.688				
ag_grp55+yr	-0.054	0.322	0.436	0.450	0.714			
pTRUE:_25yo	0.200	-0.761	-0.573	-0.305	-0.313	-0.247		
pTRUE:_35yo	0.191	-0.733	-0.332	-0.485	-0.301	-0.236	0.567	
pTRUE:_45yo	0.181	-0.692	-0.315	-0.275	-0.492	-0.232	0.532	0.514
pTRUE:_55+y	0.198	-0.761	-0.344	-0.298	-0.313	-0.356	0.579	0.558
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								

```

pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.535
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.00480239 (tol = 0.002, component 1)

```

Data: d

Models:

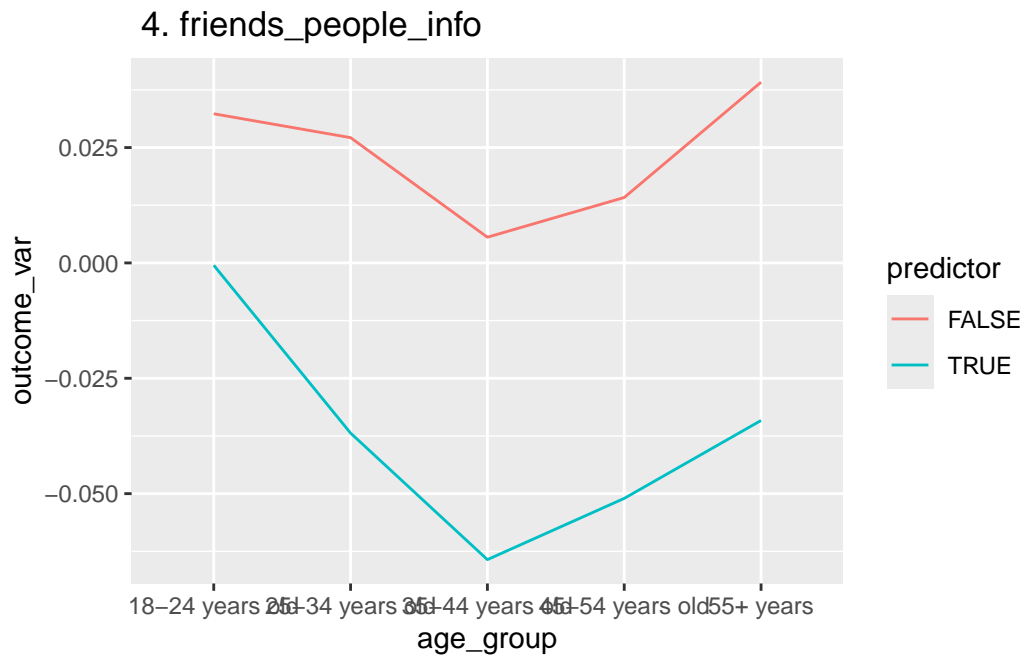
```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	192543	192744	-96249	192499			
fit_4a	26	192514	192751	-96231	192462	36.635	4	2.142e-07 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `groups` argument.



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.0916969	-0.1526283
25-34 years old	-0.0438538	-0.1558653
35-44 years old	-0.0050144	-0.1076119
45-54 years old	0.0755758	-0.0594756
55+ years	0.2083020	0.0834027

=====
Current outcome variable: 6. local_politician_people_info
=====

=====
Predictor variable: lonely
=====

=====
Fit 2: Age Group
=====

=====
Predictor variable: lonely
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
202386.5	202450.7	-101186.3	202372.5	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.5060	-0.7756	-0.0351	0.8105	3.1835

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1087	0.3298
Residual		1.0208	1.0103

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.730053	0.040607	67.231
age_group25-34 years old	-0.004261	0.012555	-0.339
age_group35-44 years old	0.034561	0.013067	2.645
age_group45-54 years old	0.052825	0.013905	3.799
age_group55+ years	0.112871	0.012714	8.878

Correlation of Fixed Effects:

```
(Intr) a_25yo a_35yo a_45yo
ag_g25-34yo -0.181
ag_g35-44yo -0.179  0.566
ag_g45-54yo -0.172  0.535  0.534
ag_grp55+yr -0.193  0.589  0.593  0.584
```

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
194496.1	194569.2	-97240.1	194480.1	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.5382	-0.7808	-0.0297	0.8092	3.2004

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1064	0.3262
	Residual	0.9990	0.9995

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.754023	0.040428	68.121
predictorTRUE	-0.072356	0.008118	-8.913
age_group25-34 years old	-0.006551	0.012647	-0.518
age_group35-44 years old	0.029653	0.013180	2.250
age_group45-54 years old	0.043213	0.014047	3.076
age_group55+ years	0.105765	0.012904	8.197

Correlation of Fixed Effects:

```
(Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.101
ag_g25-34yo -0.186  0.018
ag_g35-44yo -0.186  0.044  0.568
```

```

ag_g45-54yo -0.182  0.070  0.536  0.537
ag_grp55+yr -0.207  0.113  0.589  0.596  0.589

```

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

```

```

      AIC      BIC   logLik deviance df.resid
194277.1 194478.0 -97116.5 194233.1     68418

```

Scaled residuals:

```

      Min       1Q   Median       3Q      Max
-2.5271 -0.7847 -0.0348  0.8021  3.2086

```

Random effects:

```

Groups   Name                      Variance Std.Dev. Corr
country (Intercept)                0.0887301 0.29788
      age_group25-34 years old 0.0009214 0.03036   1.00
      age_group35-44 years old 0.0110007 0.10488   0.59 0.59
      age_group45-54 years old 0.0141393 0.11891   0.36 0.36 0.28
      age_group55+ years      0.0207659 0.14410   0.00 0.00 -0.09 0.85
Residual                        0.9930135 0.99650

```

Number of obs: 68440, groups: country, 70

Fixed effects:

```

              Estimate Std. Error t value
(Intercept)    2.7417090  0.0371956  73.710
predictorTRUE   -0.0679165  0.0081317  -8.352
age_group25-34 years old 0.0006824  0.0131303   0.052
age_group35-44 years old 0.0448418  0.0182651   2.455
age_group45-54 years old 0.0512469  0.0200212   2.560
age_group55+ years    0.1139280  0.0217232   5.245

```

Correlation of Fixed Effects:

```

      (Intr) prTRUE a_25yo a_35yo a_45yo

```

```

predctrTRUE -0.112
ag_g25-34yo  0.070  0.020
ag_g35-44yo  0.241  0.036  0.505
ag_g45-54yo  0.107  0.052  0.430  0.408
ag_grp55+yr -0.130  0.066  0.332  0.204  0.728
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

===== Fit 4: Add Interaction =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
194490.0	194599.6	-97233.0	194466.0	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.5306	-0.7731	-0.0269	0.8191	3.2095

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1062	0.3259
Residual		0.9988	0.9994

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.736858	0.041510	65.933
predictorTRUE	-0.041124	0.019308	-2.130
age_group25-34 years old	0.009276	0.018232	0.509
age_group35-44 years old	0.063922	0.018472	3.461
age_group45-54 years old	0.073205	0.019040	3.845
age_group55+ years	0.114447	0.017259	6.631
predictorTRUE:age_group25-34 years old	-0.028971	0.025216	-1.149
predictorTRUE:age_group35-44 years old	-0.070967	0.026150	-2.714
predictorTRUE:age_group45-54 years old	-0.065679	0.027900	-2.354
predictorTRUE:age_group55+ years	-0.001199	0.025183	-0.048

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y prTRUE:_2yo prTRUE:_3yo
predctrTRUE -0.250
ag_g25-34yo -0.267 0.564
ag_g35-44yo -0.268 0.557 0.603
ag_g45-54yo -0.263 0.543 0.588 0.594
ag_grp55+yr -0.294 0.601 0.652 0.662 0.659
prTRUE:_25yo 0.192 -0.760 -0.720 -0.432 -0.421 -0.467
prTRUE:_35yo 0.187 -0.733 -0.421 -0.698 -0.411 -0.457 0.563
prTRUE:_45yo 0.175 -0.689 -0.395 -0.393 -0.667 -0.430 0.528 0.512
prTRUE:_55+y 0.194 -0.764 -0.437 -0.435 -0.426 -0.649 0.585 0.567
prTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
prTRUE:_25yo
prTRUE:_35yo
prTRUE:_45yo
prTRUE:_55+y 0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	194496	194569	-97240	194480			
fit_4	12	194490	194600	-97233	194466	14.11	4	0.006954 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
194264.8	194502.3	-97106.4	194212.8	68414

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.5244	-0.7867	-0.0342	0.8049	3.2248

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.088667	0.29777	
	age_group25-34 years old	0.004695	0.06852	0.36
	age_group35-44 years old	0.017622	0.13275	0.37 1.00
	age_group45-54 years old	0.014280	0.11950	0.34 0.42 0.42
	age_group55+ years	0.019417	0.13934	0.03 0.06 0.06 0.85
Residual		0.992643	0.99631	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.722410	0.038464	70.779
predictorTRUE	-0.041424	0.019389	-2.136
age_group25-34 years old	0.022386	0.020142	1.111
age_group35-44 years old	0.078876	0.024557	3.212
age_group45-54 years old	0.080759	0.023980	3.368
age_group55+ years	0.124467	0.024405	5.100
predictorTRUE:age_group25-34 years old	-0.029548	0.025257	-1.170
predictorTRUE:age_group35-44 years old	-0.058743	0.026482	-2.218
predictorTRUE:age_group45-54 years old	-0.053748	0.028073	-1.915
predictorTRUE:age_group55+ years	0.003065	0.025413	0.121

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.271							
ag_g25-34yo	-0.135	0.512						
ag_g35-44yo	-0.004	0.424	0.688					
ag_g45-54yo	-0.043	0.434	0.536	0.526				
ag_grp55+yr	-0.209	0.427	0.446	0.386	0.731			
pTRUE:_25yo	0.209	-0.760	-0.653	-0.332	-0.336	-0.329		
pTRUE:_35yo	0.199	-0.732	-0.377	-0.527	-0.320	-0.312	0.566	
pTRUE:_45yo	0.188	-0.689	-0.356	-0.296	-0.532	-0.309	0.527	0.508
pTRUE:_55+y	0.208	-0.762	-0.392	-0.325	-0.340	-0.468	0.580	0.557
pTRUE:_4yo								
predctrTRUE								

```

ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.536
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

Models:

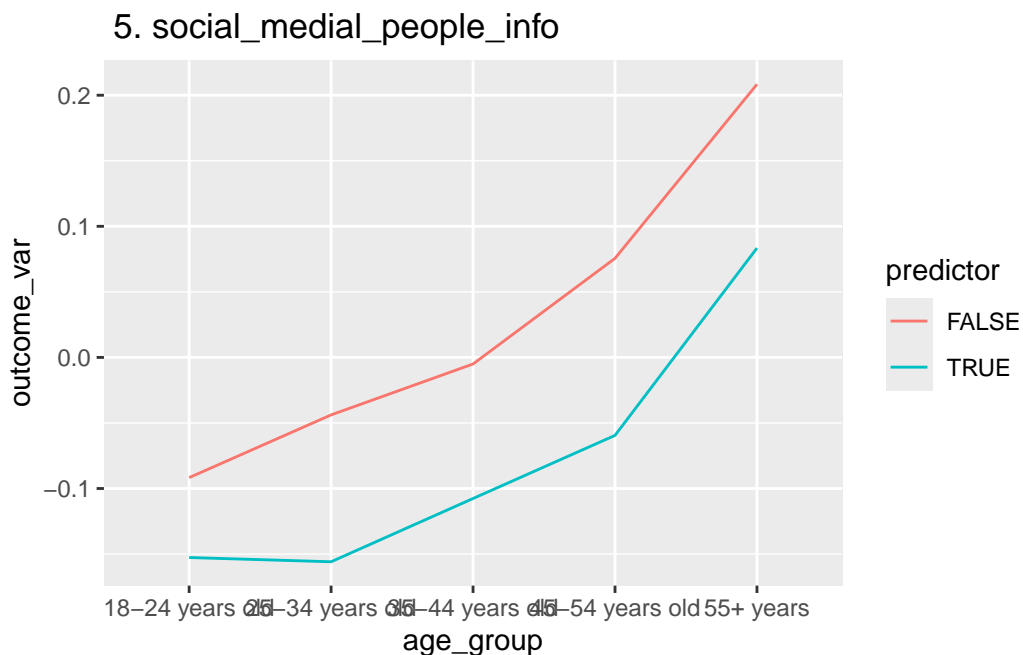
```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npair	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	194277	194478	-97117	194233			
fit_4a	26	194265	194502	-97106	194213	20.281	4	0.0004395 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.0149780	-0.0539715
25-34 years old	-0.0130079	-0.0758095
35-44 years old	0.0340301	-0.0667365
45-54 years old	0.0372111	-0.0581622
55+ years	0.0711112	0.0391639

=====Current outcome variable: 7. govt_pol_leaders_people_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
208273.2	208337.4	-104129.6	208259.2	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1427	-0.7371	-0.1438	0.6917	2.9593

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1025	0.3201
Residual		1.1096	1.0534

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.49297	0.03960	62.961
age_group25-34 years old	0.03789	0.01309	2.894

age_group35-44 years old	0.05137	0.01362	3.770
age_group45-54 years old	0.06647	0.01450	4.585
age_group55+ years	0.07707	0.01325	5.815

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.194		
ag_g35-44yo	-0.191	0.566	
ag_g45-54yo	-0.184	0.535	0.534
ag_grp55+yr	-0.207	0.589	0.593 0.584

=====
Fit 3: Add Predictor
=====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
200104.5	200177.5	-100044.2	200088.5	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1894	-0.7411	-0.1516	0.6800	3.0112

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09963	0.3156
	Residual	1.08445	1.0414

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.502715	0.039331	63.632
predictorTRUE	-0.058768	0.008457	-6.949
age_group25-34 years old	0.037777	0.013176	2.867
age_group35-44 years old	0.049727	0.013732	3.621
age_group45-54 years old	0.062405	0.014635	4.264
age_group55+ years	0.079352	0.013443	5.903

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
--------	--------	--------	--------	--------

```

predctrTRUE -0.108
ag_g25-34yo -0.199  0.018
ag_g35-44yo -0.199  0.044  0.568
ag_g45-54yo -0.195  0.070  0.536  0.537
ag_grp55+yr -0.221  0.113  0.589  0.595  0.589

```

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.014526 (tol = 0.002, component 1)

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
199923.9	200124.9	-99940.0	199879.9	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2439	-0.7372	-0.1420	0.6960	3.0362

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.092672	0.30442	
	age_group25-34 years old	0.005889	0.07674	0.17
	age_group35-44 years old	0.011549	0.10747	0.24 0.67
	age_group45-54 years old	0.017492	0.13226	0.06 0.32 0.45
	age_group55+ years	0.017945	0.13396	-0.18 -0.21 0.08 0.70
Residual		1.078121	1.03833	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.496093	0.038158	65.414
predictorTRUE	-0.058772	0.008476	-6.934
age_group25-34 years old	0.045514	0.016350	2.784
age_group35-44 years old	0.060419	0.019044	3.173
age_group45-54 years old	0.070694	0.021715	3.256

age_group55+ years 0.093878 0.021422 4.382

Correlation of Fixed Effects:

(Intr) prTRUE a_25yo a_35yo a_45yo

predctrTRUE -0.115

ag_g25-34yo -0.084 0.019

ag_g35-44yo -0.004 0.038 0.608

ag_g45-54yo -0.103 0.051 0.441 0.496

ag_grp55+yr -0.278 0.072 0.239 0.331 0.648

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.014526 (tol = 0.002, component 1)

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
200096.7	200206.3	-100036.4	200072.7	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1979	-0.7417	-0.1486	0.6916	3.0130

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09972	0.3158
Residual		1.08420	1.0413

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.50540	0.04059	61.723
predictorTRUE	-0.06369	0.02012	-3.166
age_group25-34 years old	0.04527	0.01900	2.383
age_group35-44 years old	0.05816	0.01925	3.022
age_group45-54 years old	0.06702	0.01984	3.379
age_group55+ years	0.06002	0.01798	3.338
predictorTRUE:age_group25-34 years old	-0.01554	0.02627	-0.591

```

predictorTRUE:age_group35-44 years old -0.02050    0.02725  -0.752
predictorTRUE:age_group45-54 years old -0.01469    0.02907  -0.505
predictorTRUE:age_group55+ years      0.06178    0.02624   2.354

```

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.267
ag_g25-34yo -0.285  0.564
ag_g35-44yo -0.285  0.557  0.603
ag_g45-54yo -0.281  0.543  0.588  0.594
ag_grp55+yr -0.313  0.601  0.652  0.662  0.659
pTRUE:_25yo  0.205 -0.760 -0.720 -0.432 -0.421 -0.467
pTRUE:_35yo  0.199 -0.733 -0.421 -0.698 -0.411 -0.457  0.563
pTRUE:_45yo  0.187 -0.689 -0.395 -0.393 -0.667 -0.430  0.528      0.512
pTRUE:_55+y  0.207 -0.764 -0.437 -0.435 -0.426 -0.649  0.585      0.567
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

```

fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3     8 200104 200178 -100044   200088
fit_4    12 200097 200206 -100036   200073 15.72  4   0.003419 **
---

```

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00267772 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (age_group | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
199919.0	200156.5	-99933.5	199867.0	68414

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2545	-0.7465	-0.1428	0.6952	3.0495

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.092830	0.30468	
	age_group25-34 years old	0.005695	0.07547	0.17
	age_group35-44 years old	0.011230	0.10597	0.24 0.66
	age_group45-54 years old	0.017374	0.13181	0.05 0.31 0.44
	age_group55+ years	0.018793	0.13709	-0.17 -0.18 0.12 0.72
	Residual	1.077927	1.03823	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.50025	0.03946	63.356
predictorTRUE	-0.06648	0.02021	-3.290
age_group25-34 years old	0.05333	0.02128	2.507
age_group35-44 years old	0.06417	0.02328	2.757
age_group45-54 years old	0.07077	0.02552	2.773
age_group55+ years	0.07232	0.02487	2.907
predictorTRUE:age_group25-34 years old	-0.01736	0.02640	-0.658
predictorTRUE:age_group35-44 years old	-0.01074	0.02755	-0.390
predictorTRUE:age_group45-54 years old	-0.00407	0.02937	-0.139
predictorTRUE:age_group55+ years	0.06059	0.02648	2.288

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.275							
ag_g25-34yo	-0.204	0.506						
ag_g35-44yo	-0.132	0.465	0.615					
ag_g45-54yo	-0.200	0.425	0.501	0.540				
ag_grp55+yr	-0.343	0.437	0.389	0.452	0.678			
pTRUE:_25yo	0.211	-0.759	-0.644	-0.361	-0.329	-0.335		
pTRUE:_35yo	0.203	-0.731	-0.374	-0.580	-0.316	-0.323	0.561	

```

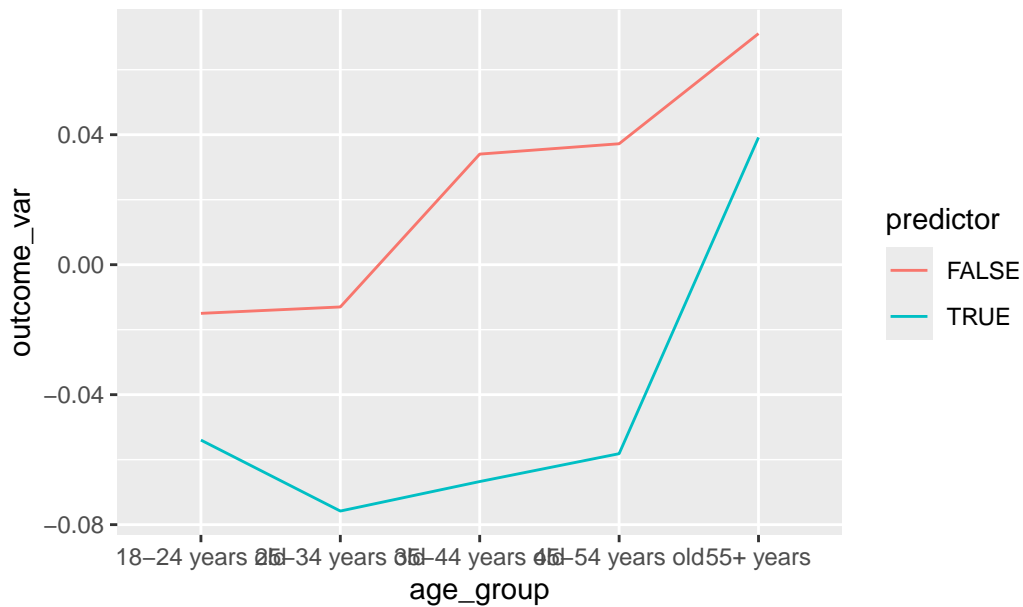
pTRUE:_45yo  0.190 -0.688 -0.349 -0.322 -0.521 -0.310  0.525      0.506
pTRUE:_55+y  0.212 -0.762 -0.389 -0.358 -0.332 -0.481  0.577      0.558
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.531
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.00267772 (tol = 0.002, component 1)

Data: d
Models:
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a   22 199924 200125 -99940   199880
fit_4a   26 199919 200156 -99933   199867 12.924  4    0.01166 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

```

6. local_politician_people_info



====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.0144983	-0.0756301
25-34 years old	0.0254793	-0.0479805
35-44 years old	0.0333246	-0.0426737
45-54 years old	0.0386412	-0.0319258
55+ years	0.0273923	0.0321996

====Current outcome variable: 8. journalists_people_info =====

====Predictor variable: lonely =====

==== Fit 2: Age Group =====

====Predictor variable: lonely =====
 Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
204197.9	204262.0	-102091.9	204183.9	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.37321	-0.77341	-0.07775	0.71257	3.02976

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1018	0.3191
Residual		1.0474	1.0234

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.54439	0.03940	64.582
age_group25-34 years old	0.03039	0.01272	2.390
age_group35-44 years old	0.06486	0.01324	4.900
age_group45-54 years old	0.10315	0.01408	7.324
age_group55+ years	0.18844	0.01288	14.633

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.189			
ag_g35-44yo	-0.187	0.566		
ag_g45-54yo	-0.180	0.535	0.534	
ag_grp55+yr	-0.202	0.589	0.593	0.584

==== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
195900.6	195973.7	-97942.3	195884.6	68432

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.40802	-0.75801	-0.07571	0.68113	3.02927

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09832	0.3136
Residual		1.01980	1.0098

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.578848	0.038998	66.128
predictorTRUE	-0.101748	0.008201	-12.406
age_group25-34 years old	0.025676	0.012778	2.009
age_group35-44 years old	0.060015	0.013317	4.507
age_group45-54 years old	0.090609	0.014192	6.385
age_group55+ years	0.179588	0.013036	13.776

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.105				
ag_g25-34yo	-0.195	0.018			
ag_g35-44yo	-0.195	0.044	0.568		
ag_g45-54yo	-0.190	0.070	0.536	0.537	
ag_grp55+yr	-0.217	0.113	0.589	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
195729.6	195930.6	-97842.8	195685.6	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-2.43397 -0.76794 -0.08097 0.69587 3.08046

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.084816	0.29123	
	age_group25-34 years old	0.005084	0.07130	0.35
	age_group35-44 years old	0.012461	0.11163	0.32 0.98
	age_group45-54 years old	0.004855	0.06968	0.24 0.22 0.41
	age_group55+ years	0.020639	0.14366	0.03 -0.08 0.12 0.95
Residual		1.014644	1.00730	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.570345	0.036534	70.355
predictorTRUE	-0.099670	0.008219	-12.127
age_group25-34 years old	0.031667	0.015557	2.036
age_group35-44 years old	0.068570	0.019050	3.599
age_group45-54 years old	0.098873	0.016658	5.936
age_group55+ years	0.186415	0.021959	8.489

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.116				
ag_g25-34yo	0.002	0.020			
ag_g35-44yo	0.060	0.037	0.723		
ag_g45-54yo	-0.072	0.066	0.460	0.484	
ag_grp55+yr	-0.119	0.066	0.271	0.324	0.685

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
195898.6	196008.2	-97937.3	195874.6	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.40767	-0.76404	-0.07258	0.67518	3.01198

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.09803	0.3131
Residual		1.01965	1.0098

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.54970	0.04013	63.540
predictorTRUE	-0.04843	0.01951	-2.482
age_group25-34 years old	0.05900	0.01842	3.203
age_group35-44 years old	0.09943	0.01866	5.328
age_group45-54 years old	0.12439	0.01924	6.466
age_group55+ years	0.20953	0.01744	12.016
predictorTRUE:age_group25-34 years old	-0.06242	0.02548	-2.450
predictorTRUE:age_group35-44 years old	-0.07742	0.02642	-2.930
predictorTRUE:age_group45-54 years old	-0.06563	0.02819	-2.328
predictorTRUE:age_group55+ years	-0.05485	0.02544	-2.156

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.262							
ag_g25-34yo	-0.279	0.564						
ag_g35-44yo	-0.280	0.557	0.603					
ag_g45-54yo	-0.275	0.543	0.588	0.594				
ag_grp55+yr	-0.307	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.201	-0.760	-0.720	-0.432	-0.421	-0.467		
pTRUE:_35yo	0.195	-0.733	-0.421	-0.698	-0.411	-0.457	0.563	
pTRUE:_45yo	0.183	-0.689	-0.395	-0.393	-0.667	-0.430	0.528	0.512
pTRUE:_55+y	0.203	-0.764	-0.437	-0.435	-0.426	-0.649	0.585	0.567
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								

pTRUE:_55+y 0.533

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	195901	195974	-97942	195885			
fit_4	12	195899	196008	-97937	195875	9.9866	4	0.04065 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	195728.6	195966.0	-97838.3	195676.6	68414

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.43370	-0.77018	-0.08071	0.69096	3.07055

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.084633	0.29092	
	age_group25-34 years old	0.004890	0.06993	0.36
	age_group35-44 years old	0.012243	0.11065	0.32 0.98
	age_group45-54 years old	0.004753	0.06894	0.23 0.21 0.40
	age_group55+ years	0.020607	0.14355	0.03 -0.09 0.12 0.95
Residual		1.014519	1.00723	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.54296	0.03775	67.367

predictorTRUE	-0.04920	0.01957	-2.513
age_group25-34 years old	0.06437	0.02038	3.158
age_group35-44 years old	0.10536	0.02306	4.569
age_group45-54 years old	0.13166	0.02110	6.240
age_group55+ years	0.21324	0.02492	8.558
predictorTRUE:age_group25-34 years old	-0.06184	0.02554	-2.421
predictorTRUE:age_group35-44 years old	-0.07236	0.02670	-2.710
predictorTRUE:age_group45-54 years old	-0.06487	0.02823	-2.298
predictorTRUE:age_group55+ years	-0.04846	0.02570	-1.885

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.279							
ag_g25-34yo	-0.140	0.511						
ag_g35-44yo	-0.079	0.456	0.685					
ag_g45-54yo	-0.191	0.496	0.533	0.541				
ag_grp55+yr	-0.211	0.422	0.398	0.427	0.691			
pTRUE:_25yo	0.214	-0.760	-0.651	-0.356	-0.384	-0.324		
pTRUE:_35yo	0.205	-0.732	-0.377	-0.566	-0.367	-0.311	0.567	
pTRUE:_45yo	0.196	-0.690	-0.359	-0.322	-0.610	-0.308	0.528	0.509
pTRUE:_55+y	0.213	-0.761	-0.391	-0.349	-0.387	-0.465	0.578	0.558
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y								0.535

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

Data: d

Models:

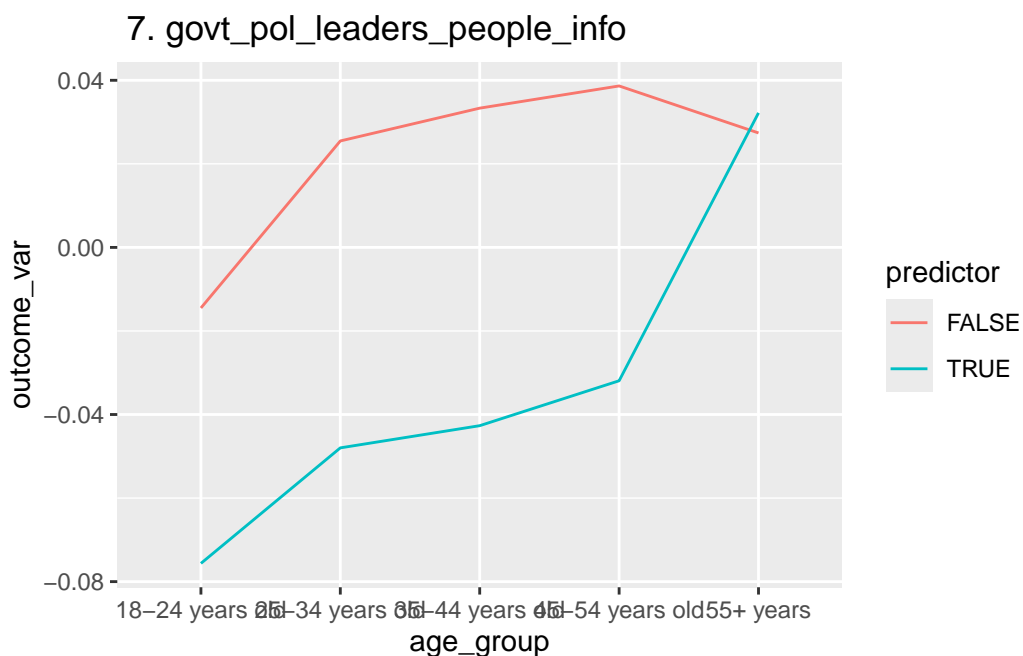
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	195730	195931	-97843	195686			
fit_4a	26	195729	195966	-97838	195677	9.0656	4	0.05948 .

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.0488887	-0.0939245
25-34 years old	-0.0011426	-0.1012202
35-44 years old	0.0279418	-0.0814109
45-54 years old	0.0437178	-0.0536664
55+ years	0.1177538	0.0299449

=====Current outcome variable: 9. ngos_people_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

```

=====Predictor variable:  lonely =====
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
208604.2	208668.4	-104295.1	208590.2	70676

```

Scaled residuals:
    Min       1Q   Median       3Q      Max
-2.2509 -0.7602 -0.1014  0.6111  3.0726

```

```

Random effects:
 Groups   Name      Variance Std.Dev.
country  (Intercept)  0.119    0.3449
Residual                1.115    1.0558
Number of obs: 70683, groups:  country, 70

```

```

Fixed effects:
              Estimate Std. Error t value
(Intercept)      2.44444    0.04247  57.560
age_group25-34 years old  0.01847    0.01312   1.408
age_group35-44 years old  0.05115    0.01366   3.746
age_group45-54 years old  0.10916    0.01453   7.513
age_group55+ years      0.19255    0.01329  14.493

```

```

Correlation of Fixed Effects:
      (Intr) a_25yo a_35yo a_45yo
ag_g25-34yo -0.181
ag_g35-44yo -0.179  0.566
ag_g45-54yo -0.172  0.535  0.534
ag_grp55+yr -0.193  0.589  0.593  0.584

```

```

===== Fit 3: Add Predictor =====

```

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
200095.1	200168.2	-100039.5	200079.1	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.28811	-0.75212	-0.09731	0.59310	3.09449

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1143	0.3381
Residual		1.0842	1.0412

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.477857	0.041908	59.126
predictorTRUE	-0.119989	0.008457	-14.189
age_group25-34 years old	0.024254	0.013175	1.841
age_group35-44 years old	0.050981	0.013731	3.713
age_group45-54 years old	0.105273	0.014633	7.194
age_group55+ years	0.190277	0.013442	14.155

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.101				
ag_g25-34yo	-0.187	0.018			
ag_g35-44yo	-0.187	0.044	0.568		
ag_g45-54yo	-0.183	0.070	0.536	0.537	
ag_grp55+yr	-0.208	0.113	0.589	0.596	0.589

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00424573 (tol = 0.002, component 1)

=====
Fit 3a: Add Random Slope for Predictor
=====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
199760.6	199961.5	-99858.3	199716.6	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3956	-0.7446	-0.1099	0.5967	3.0943

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.090384	0.30064	
	age_group25-34 years old	0.009985	0.09992	0.13
	age_group35-44 years old	0.014778	0.12156	0.23 0.86
	age_group45-54 years old	0.014800	0.12166	0.31 0.53 0.43
	age_group55+ years	0.041055	0.20262	0.23 0.25 0.18 0.91
Residual		1.075302	1.03697	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.460784	0.037764	65.163
predictorTRUE	-0.117044	0.008468	-13.822
age_group25-34 years old	0.036798	0.018190	2.023
age_group35-44 years old	0.067657	0.020271	3.338
age_group45-54 years old	0.119435	0.020871	5.723
age_group55+ years	0.190964	0.028136	6.787

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.117				
ag_g25-34yo	-0.087	0.021			
ag_g35-44yo	0.004	0.037	0.716		
ag_g45-54yo	0.051	0.056	0.544	0.492	
ag_grp55+yr	0.073	0.053	0.364	0.318	0.759

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.00424573 (tol = 0.002, component 1)

==== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
200101.5	200211.1	-100038.8	200077.5	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.28481	-0.75720	-0.09806	0.59471	3.09365

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1143	0.3381
Residual		1.0841	1.0412

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.477e+00	4.309e-02	57.487
predictorTRUE	-1.183e-01	2.012e-02	-5.879
age_group25-34 years old	2.941e-02	1.899e-02	1.548
age_group35-44 years old	5.119e-02	1.924e-02	2.660
age_group45-54 years old	1.116e-01	1.984e-02	5.627
age_group55+ years	1.868e-01	1.798e-02	10.391
predictorTRUE:age_group25-34 years old	-1.027e-02	2.627e-02	-0.391
predictorTRUE:age_group35-44 years old	-5.916e-06	2.724e-02	0.000
predictorTRUE:age_group45-54 years old	-1.636e-02	2.907e-02	-0.563
predictorTRUE:age_group55+ years	1.327e-02	2.624e-02	0.506

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.251							
ag_g25-34yo	-0.268	0.564						
ag_g35-44yo	-0.269	0.557	0.603					
ag_g45-54yo	-0.264	0.543	0.588	0.594				
ag_grp55+yr	-0.295	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.193	-0.760	-0.720	-0.432	-0.421	-0.467		
pTRUE:_35yo	0.187	-0.733	-0.421	-0.698	-0.411	-0.457	0.563	
pTRUE:_45yo	0.176	-0.689	-0.395	-0.393	-0.667	-0.430	0.528	0.512
pTRUE:_55+y	0.195	-0.764	-0.437	-0.435	-0.426	-0.649	0.585	0.567
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								

```

ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3   8 200095 200168 -100040   200079
fit_4  12 200102 200211 -100039   200078 1.5541  4      0.817

```

```

Warning in checkConv(attr(opt, "derivs"), opt$par, ctrl = control$checkConv, :
Model failed to converge with max|grad| = 0.0050887 (tol = 0.002, component 1)

```

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

```

      AIC      BIC  logLik deviance df.resid
199765.3 200002.7 -99856.6 199713.3     68414

```

```

Scaled residuals:
      Min       1Q   Median       3Q      Max
-2.3913 -0.7448 -0.1063  0.5978  3.0962

```

```

Random effects:
Groups   Name                                Variance Std.Dev. Corr
country (Intercept)                        0.090385 0.30064
      age_group25-34 years old 0.009916 0.09958 0.13
      age_group35-44 years old 0.014893 0.12204 0.23 0.86
      age_group45-54 years old 0.014635 0.12098 0.31 0.52 0.43
      age_group55+ years      0.041581 0.20391 0.24 0.25 0.19 0.92
Residual                                1.075246 1.03694
Number of obs: 68440, groups:  country, 70

```

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.463606	0.039052	63.085
predictorTRUE	-0.122396	0.020231	-6.050
age_group25-34 years old	0.041127	0.022757	1.807
age_group35-44 years old	0.063281	0.024417	2.592
age_group45-54 years old	0.121762	0.024770	4.916
age_group55+ years	0.179971	0.030787	5.846
predictorTRUE:age_group25-34 years old	-0.009496	0.026450	-0.359
predictorTRUE:age_group35-44 years old	0.009015	0.027547	0.327
predictorTRUE:age_group45-54 years old	-0.008530	0.029183	-0.292
predictorTRUE:age_group55+ years	0.029858	0.026549	1.125

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.279							
ag_g25-34yo	-0.200	0.476						
ag_g35-44yo	-0.118	0.444	0.687					
ag_g45-54yo	-0.078	0.438	0.574	0.540				
ag_grp55+yr	-0.024	0.353	0.435	0.401	0.747			
pTRUE:_25yo	0.214	-0.761	-0.602	-0.345	-0.338	-0.271		
pTRUE:_35yo	0.206	-0.732	-0.352	-0.553	-0.325	-0.260	0.566	
pTRUE:_45yo	0.195	-0.691	-0.332	-0.311	-0.536	-0.256	0.530	0.509
pTRUE:_55+y	0.213	-0.762	-0.363	-0.339	-0.341	-0.389	0.580	0.557
pTRUE:_4yo								

predctrTRUE

ag_g25-34yo

ag_g35-44yo

ag_g45-54yo

ag_grp55+yr

pTRUE:_25yo

pTRUE:_35yo

pTRUE:_45yo

pTRUE:_55+y 0.536

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.0050887 (tol = 0.002, component 1)

Data: d

Models:

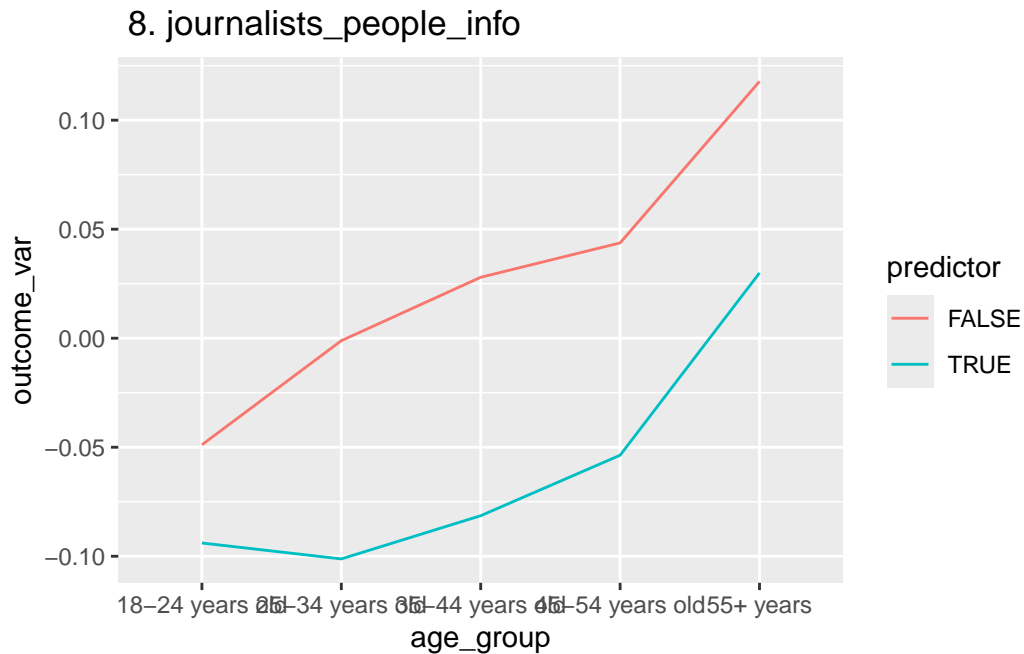
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

npair AIC BIC logLik deviance Chisq Df Pr(>Chisq)

```
fit_3a    22 199761 199962 -99858    199717
fit_4a    26 199765 200003 -99857    199713 3.3243  4      0.5051
```

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.0151290	-0.1290867
25-34 years old	0.0021617	-0.1143162
35-44 years old	0.0116739	-0.0884034
45-54 years old	0.0623099	-0.0541622
55+ years	0.1257522	0.0375190

====Current outcome variable: 10. int_authority_people_info =====

====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====
Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
214446.8	214511.0	-107216.4	214432.8	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0408	-0.7306	-0.2069	0.5836	2.9462

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.08175	0.2859
Residual		1.21125	1.1006

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.26122	0.03579	63.179
age_group25-34 years old	0.04168	0.01368	3.048
age_group35-44 years old	0.11083	0.01423	7.787
age_group45-54 years old	0.17463	0.01514	11.531
age_group55+ years	0.24876	0.01384	17.969

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.224			
ag_g35-44yo	-0.221	0.566		
ag_g45-54yo	-0.213	0.535	0.534	
ag_grp55+yr	-0.239	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
205724.8	205797.9	-102854.4	205708.8	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0785	-0.7238	-0.1975	0.5844	3.0676

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07855	0.2803
Residual		1.17765	1.0852

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.286903	0.035446	64.517
predictorTRUE	-0.110485	0.008812	-12.538
age_group25-34 years old	0.046498	0.013730	3.386
age_group35-44 years old	0.109273	0.014309	7.637
age_group45-54 years old	0.175116	0.015249	11.484
age_group55+ years	0.249667	0.014005	17.827

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.125				
ag_g25-34yo	-0.230	0.018			
ag_g35-44yo	-0.230	0.044	0.568		
ag_g45-54yo	-0.225	0.070	0.536	0.536	
ag_grp55+yr	-0.256	0.114	0.589	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
205384.2	205585.1	-102670.1	205340.2	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2694	-0.7292	-0.1909	0.5885	3.0305

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.054861	0.23422	
	age_group25-34 years old	0.007881	0.08877	0.28
	age_group35-44 years old	0.019475	0.13955	0.24 1.00
	age_group45-54 years old	0.022211	0.14903	0.12 0.59 0.59
	age_group55+ years	0.055509	0.23560	0.11 0.47 0.47 0.96
Residual		1.168158	1.08081	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.271967	0.030491	74.512
predictorTRUE	-0.110455	0.008828	-12.512
age_group25-34 years old	0.061087	0.017624	3.466
age_group35-44 years old	0.125725	0.022246	5.652
age_group45-54 years old	0.190920	0.023655	8.071
age_group55+ years	0.261855	0.031791	8.237

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.152			
ag_g25-34yo	-0.074	0.024		
ag_g35-44yo	-0.025	0.037	0.762	
ag_g45-54yo	-0.096	0.053	0.559	0.576
ag_grp55+yr	-0.049	0.050	0.466	0.491 0.816

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

==== Fit 4: Add Interaction =====


```

ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npars	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	205725	205798	-102854	205709			
fit_4	12	205721	205831	-102849	205697	11.736	4	0.01943 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00344993 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	205371.4	205608.9	-102659.7	205319.4	68414

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.2591	-0.7265	-0.1916	0.5885	3.0420

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.055112	0.23476	
	age_group25-34 years old	0.007967	0.08926	0.25
	age_group35-44 years old	0.019922	0.14115	0.22 0.98

```

age_group45-54 years old 0.024584 0.15679 0.09 0.68 0.60
age_group55+ years      0.060312 0.24559 0.08 0.62 0.49 0.96
Residual                1.167739 1.08062
Number of obs: 68440, groups: country, 70

```

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.29988	0.03226	71.299
predictorTRUE	-0.16283	0.02107	-7.727
age_group25-34 years old	0.04541	0.02271	2.000
age_group35-44 years old	0.10175	0.02646	3.845
age_group45-54 years old	0.15535	0.02809	5.529
age_group55+ years	0.21342	0.03518	6.067
predictorTRUE:age_group25-34 years old	0.02686	0.02744	0.979
predictorTRUE:age_group35-44 years old	0.04319	0.02873	1.503
predictorTRUE:age_group45-54 years old	0.07212	0.03043	2.370
predictorTRUE:age_group55+ years	0.11071	0.02767	4.001

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.351
ag_g25-34yo -0.237 0.494
ag_g35-44yo -0.173 0.428 0.711
ag_g45-54yo -0.228 0.402 0.605 0.597
ag_grp55+yr -0.165 0.322 0.551 0.530 0.802
pTRUE:_25yo 0.271 -0.761 -0.629 -0.335 -0.312 -0.249
pTRUE:_35yo 0.258 -0.733 -0.364 -0.531 -0.298 -0.237 0.568
pTRUE:_45yo 0.245 -0.691 -0.344 -0.299 -0.492 -0.233 0.528 0.510
pTRUE:_55+y 0.267 -0.762 -0.375 -0.325 -0.312 -0.353 0.581 0.558
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.536

```

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.00344993 (tol = 0.002, component 1)

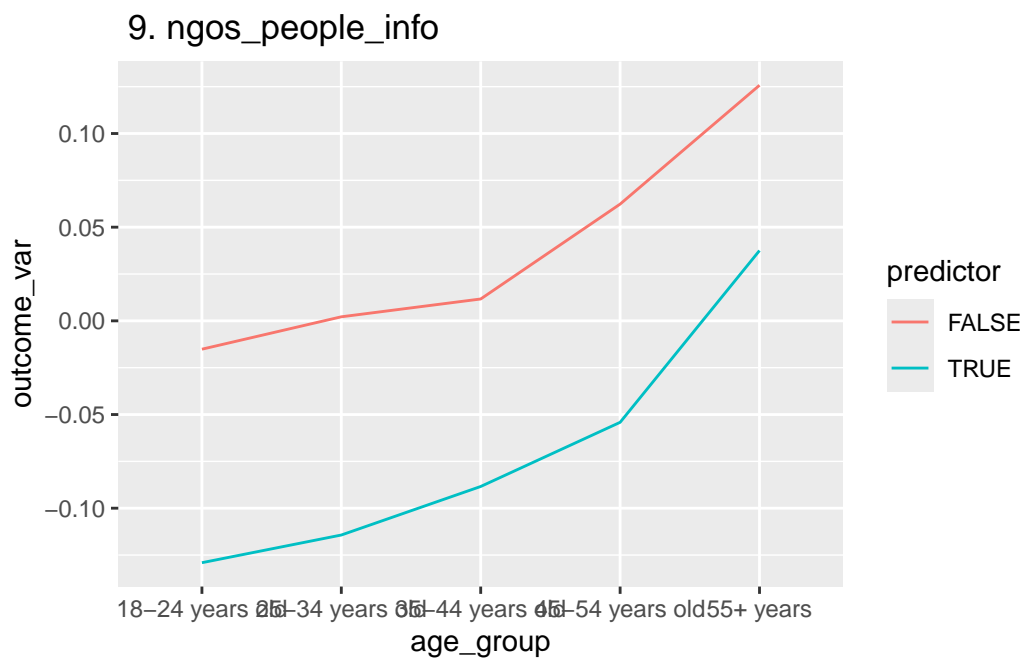
Data: d

Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a   22 205384 205585 -102670   205340
fit_4a   26 205371 205609 -102660   205319 20.753  4 0.0003545 ***
```

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.0372973	-0.1803048
25-34 years old	-0.0159500	-0.1316696
35-44 years old	0.0283152	-0.0741429
45-54 years old	0.0717086	-0.0036333

|55+ years | 0.1253782| 0.0777498|

=====Current outcome variable: 11. employer_colleague_people_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
208588.7	208652.8	-104287.4	208574.7	70154

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2068	-0.7165	-0.1977	0.6386	2.8629

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07898	0.281
	Residual	1.13961	1.068

Number of obs: 70161, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.59402	0.03516	73.778
age_group25-34 years old	-0.07905	0.01334	-5.927
age_group35-44 years old	-0.07387	0.01388	-5.324
age_group45-54 years old	-0.03303	0.01476	-2.238
age_group55+ years	0.19868	0.01349	14.723

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.223			
ag_g35-44yo	-0.220	0.567		
ag_g45-54yo	-0.212	0.536	0.535	
ag_grp55+yr	-0.237	0.590	0.595	0.585

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
200406.3	200479.3	-100195.2	200390.3	67910

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2258	-0.7244	-0.1797	0.6230	2.9430

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07718	0.2778
	Residual	1.11433	1.0556

Number of obs: 67918, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.614660	0.035094	74.504
predictorTRUE	-0.073043	0.008611	-8.482
age_group25-34 years old	-0.085367	0.013432	-6.355
age_group35-44 years old	-0.077412	0.013994	-5.532
age_group45-54 years old	-0.040696	0.014913	-2.729
age_group55+ years	0.196295	0.013698	14.330

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.124				
ag_g25-34yo	-0.228	0.019			
ag_g35-44yo	-0.229	0.045	0.569		
ag_g45-54yo	-0.223	0.072	0.538	0.538	
ag_grp55+yr	-0.254	0.116	0.590	0.597	0.591

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.0339742 (tol = 0.002, component 1)

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
199909.6	200110.4	-99932.8	199865.6	67896

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2943	-0.6941	-0.1840	0.5992	2.9450

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.06444	0.2539	
	age_group25-34 years old	0.01163	0.1078	-0.07
	age_group35-44 years old	0.01774	0.1332	-0.09 0.83
	age_group45-54 years old	0.02232	0.1494	-0.13 0.63 0.59
	age_group55+ years	0.06763	0.2600	0.09 0.45 0.29 0.68
Residual		1.10148	1.0495	

Number of obs: 67918, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.600706	0.032620	79.728
predictorTRUE	-0.065780	0.008612	-7.638
age_group25-34 years old	-0.079608	0.019066	-4.175
age_group35-44 years old	-0.068897	0.021538	-3.199
age_group45-54 years old	-0.027153	0.023545	-1.153
age_group55+ years	0.164451	0.034477	4.770

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.139				
ag_g25-34yo	-0.240	0.022			
ag_g35-44yo	-0.244	0.038	0.709		
ag_g45-54yo	-0.263	0.053	0.592	0.577	
ag_grp55+yr	-0.043	0.045	0.457	0.361	0.626

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.0339742 (tol = 0.002, component 1)

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
200413.0	200522.5	-100194.5	200389.0	67906

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.2270	-0.7235	-0.1773	0.6243	2.9400

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07712	0.2777
	Residual	1.11431	1.0556

Number of obs: 67918, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.610118	0.036541	71.430
predictorTRUE	-0.064808	0.020529	-3.157
age_group25-34 years old	-0.083834	0.019404	-4.321
age_group35-44 years old	-0.066330	0.019645	-3.376
age_group45-54 years old	-0.040228	0.020239	-1.988
age_group55+ years	0.202715	0.018346	11.049
predictorTRUE:age_group25-34 years old	-0.002269	0.026788	-0.085
predictorTRUE:age_group35-44 years old	-0.023434	0.027765	-0.844
predictorTRUE:age_group45-54 years old	0.002859	0.029623	0.097
predictorTRUE:age_group55+ years	-0.014458	0.026738	-0.541

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.304							
ag_g25-34yo	-0.324	0.567						
ag_g35-44yo	-0.325	0.560	0.606					
ag_g45-54yo	-0.320	0.546	0.591	0.597				
ag_grp55+yr	-0.357	0.604	0.655	0.665	0.662			


```

pTRUE:_25yo  0.234 -0.760 -0.721 -0.435 -0.424 -0.470
pTRUE:_35yo  0.227 -0.734 -0.424 -0.699 -0.413 -0.459  0.565
pTRUE:_45yo  0.213 -0.690 -0.397 -0.396 -0.667 -0.432  0.529      0.513
pTRUE:_55+y  0.236 -0.765 -0.439 -0.437 -0.428 -0.649  0.586      0.568
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.534

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3    8 200406 200479 -100195   200390
fit_4   12 200413 200522 -100194   200389 1.3438  4      0.8539

```

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00543903 (tol = 0.002, component 1)

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

```

      AIC      BIC  logLik deviance df.resid
199914.9 200152.2 -99931.5 199862.9      67892

```

```

Scaled residuals:
      Min       1Q   Median       3Q      Max
-2.2916 -0.6955 -0.1814  0.6034  2.9533

```

Random effects:


```
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.00543903 (tol = 0.002, component 1)
```

Data: d

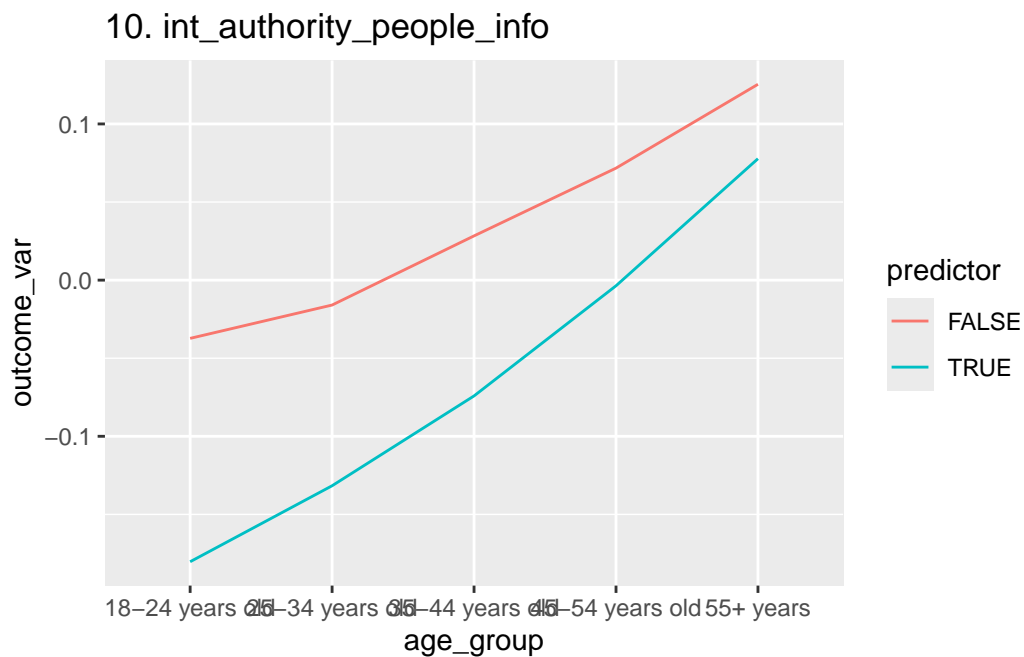
Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	np	par	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	199910	200110	-99933	199866				
fit_4a	26	199915	200152	-99931	199863	2.7042	4	0.6085	

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



Warning: Removed 10 rows containing missing values or values outside the scale range (`geom_line()`).

=====
=====Predictor variable: lonely=====

age_group	FALSE TRUE
:----- -----	
18-24 years old	NA NA
25-34 years old	NA NA
35-44 years old	NA NA
45-54 years old	NA NA
55+ years	NA NA

=====
Current outcome variable: 12. family_doc_people_info
=====

=====
Predictor variable: lonely
=====

=====
Fit 2: Age Group
=====

=====
Predictor variable: lonely
=====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
200662.1	200726.2	-100324.0	200648.1	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1234	-0.7578	-0.1708	0.4498	3.4082

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07005	0.2647
Residual		0.99660	0.9983

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.20080	0.03307	66.544
age_group25-34 years old	-0.03231	0.01241	-2.605
age_group35-44 years old	-0.05410	0.01291	-4.190
age_group45-54 years old	-0.05768	0.01374	-4.199
age_group55+ years	-0.10120	0.01256	-8.059

Correlation of Fixed Effects:

```
(Intr) a_25yo a_35yo a_45yo
ag_g25-34yo -0.220
ag_g35-44yo -0.217  0.566
ag_g45-54yo -0.209  0.535  0.534
ag_grp55+yr -0.234  0.589  0.593  0.584
```

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
191760.7	191833.8	-95872.4	191744.7	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1698	-0.7660	-0.1543	0.4364	3.5354

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06454	0.2540
Residual		0.96029	0.9799

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.222336	0.032117	69.195
predictorTRUE	-0.092037	0.007957	-11.566
age_group25-34 years old	-0.033088	0.012399	-2.669
age_group35-44 years old	-0.056950	0.012921	-4.407
age_group45-54 years old	-0.061040	0.013770	-4.433
age_group55+ years	-0.099877	0.012647	-7.897

Correlation of Fixed Effects:

```
(Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.124
ag_g25-34yo -0.230  0.018
ag_g35-44yo -0.230  0.044  0.568
ag_g45-54yo -0.224  0.070  0.536  0.536
```

ag_grp55+yr -0.255 0.114 0.589 0.595 0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	191643.6	191844.5	-95799.8	191599.6	68418

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-2.1840	-0.7675	-0.1477	0.4358	3.5063

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0759035	0.27551	
	age_group25-34 years old	0.0001048	0.01024	-1.00
	age_group35-44 years old	0.0065818	0.08113	-0.29 0.29
	age_group45-54 years old	0.0071163	0.08436	-0.31 0.31 0.56
	age_group55+ years	0.0230195	0.15172	-0.52 0.52 0.41 0.84
Residual		0.9562424	0.97788	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.233117	0.034611	64.521
predictorTRUE	-0.095121	0.007976	-11.926
age_group25-34 years old	-0.037359	0.012473	-2.995
age_group35-44 years old	-0.063897	0.016300	-3.920
age_group45-54 years old	-0.069013	0.017166	-4.020
age_group55+ years	-0.089165	0.022337	-3.992

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.118				

```

ag_g25-34yo -0.308  0.019
ag_g35-44yo -0.342  0.040  0.469
ag_g45-54yo -0.343  0.060  0.450  0.547
ag_grp55+yr -0.535  0.062  0.373  0.468  0.669
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

===== Fit 4: Add Interaction =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
191750.3	191859.9	-95863.1	191726.3	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1958	-0.7745	-0.1455	0.4400	3.5383

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06504	0.2550
Residual		0.96002	0.9798

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.242805	0.033564	66.821
predictorTRUE	-0.129304	0.018929	-6.831
age_group25-34 years old	-0.036956	0.017874	-2.068
age_group35-44 years old	-0.076928	0.018109	-4.248
age_group45-54 years old	-0.087101	0.018665	-4.667
age_group55+ years	-0.135198	0.016916	-7.992
predictorTRUE:age_group25-34 years old	0.004336	0.024722	0.175
predictorTRUE:age_group35-44 years old	0.036726	0.025637	1.433
predictorTRUE:age_group45-54 years old	0.052338	0.027353	1.913
predictorTRUE:age_group55+ years	0.086909	0.024688	3.520

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y prTRUE:_2yo prTRUE:_3yo
predctrTRUE -0.304
ag_g25-34yo -0.324 0.564
ag_g35-44yo -0.325 0.557 0.603
ag_g45-54yo -0.319 0.543 0.588 0.594
ag_grp55+yr -0.357 0.601 0.652 0.662 0.659
prTRUE:_25yo 0.233 -0.760 -0.720 -0.432 -0.421 -0.467
prTRUE:_35yo 0.226 -0.733 -0.421 -0.698 -0.411 -0.457 0.563
prTRUE:_45yo 0.213 -0.689 -0.395 -0.393 -0.667 -0.430 0.528 0.512
prTRUE:_55+y 0.235 -0.764 -0.437 -0.435 -0.426 -0.649 0.585 0.567
prTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
prTRUE:_25yo
prTRUE:_35yo
prTRUE:_45yo
prTRUE:_55+y 0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npars	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	191761	191834	-95872	191745			
fit_4	12	191750	191860	-95863	191726	18.451	4	0.001007 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.0039984 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
191615.2	191852.7	-95781.6	191563.2	68414

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.1751	-0.7606	-0.1441	0.4325	3.5253

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.078963	0.28100	
	age_group25-34 years old	0.009112	0.09546	-0.31
	age_group35-44 years old	0.014997	0.12246	-0.35 0.81
	age_group45-54 years old	0.009974	0.09987	-0.35 0.55 0.77
	age_group55+ years	0.026314	0.16221	-0.53 0.40 0.55 0.86
Residual		0.955182	0.97733	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.25883	0.03658	61.751
predictorTRUE	-0.13963	0.01911	-7.308
age_group25-34 years old	-0.04684	0.02159	-2.170
age_group35-44 years old	-0.09175	0.02360	-3.887
age_group45-54 years old	-0.10222	0.02247	-4.549
age_group55+ years	-0.13102	0.02618	-5.005
predictorTRUE:age_group25-34 years old	0.01046	0.02496	0.419
predictorTRUE:age_group35-44 years old	0.05016	0.02601	1.929
predictorTRUE:age_group45-54 years old	0.06462	0.02753	2.347
predictorTRUE:age_group55+ years	0.09305	0.02502	3.719

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.281							
ag_g25-34yo	-0.415	0.473						
ag_g35-44yo	-0.443	0.435	0.676					
ag_g45-54yo	-0.429	0.455	0.586	0.656				
ag_grp55+yr	-0.580	0.392	0.526	0.594	0.710			
pTRUE:_25yo	0.216	-0.761	-0.599	-0.337	-0.351	-0.301		
pTRUE:_35yo	0.207	-0.734	-0.348	-0.539	-0.340	-0.290	0.565	
pTRUE:_45yo	0.197	-0.691	-0.331	-0.307	-0.559	-0.283	0.528	0.514
pTRUE:_55+y	0.215	-0.763	-0.361	-0.333	-0.353	-0.429	0.581	0.562
pTRUE:_4yo								
predctrTRUE								

```

ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.535
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.0039984 (tol = 0.002, component 1)

```

Data: d

Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

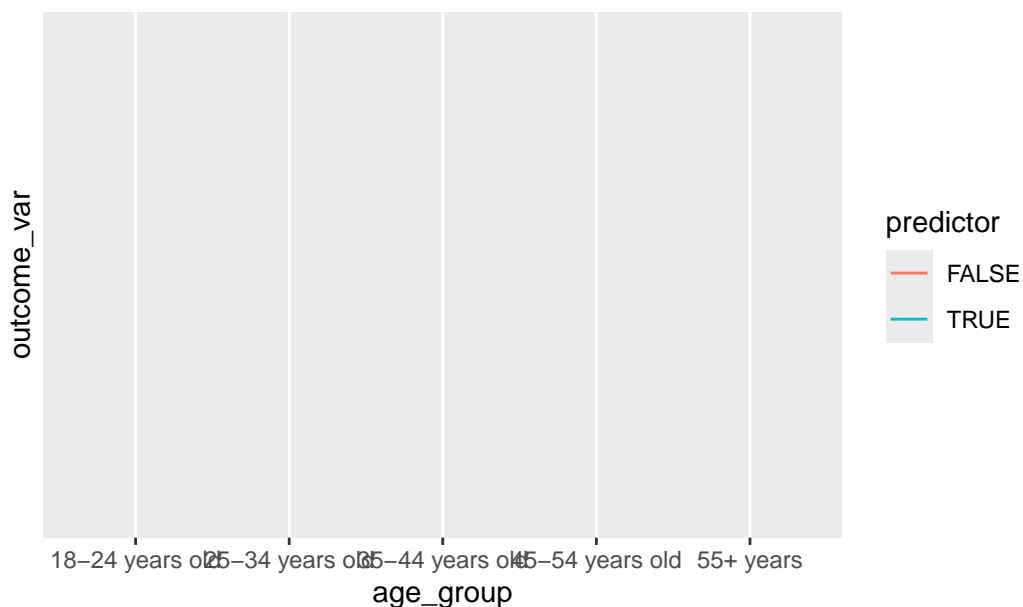
```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	np	par	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	191644	191845	-95800	191600				
fit_4a	26	191615	191853	-95782	191563	36.335	4	2.469e-07	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.

11. employer_colleague_people_info



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	0.1101049	-0.0154852
25-34 years old	0.0735066	-0.0480550
35-44 years old	0.0345785	-0.0544311
45-54 years old	0.0263183	-0.0479268
55+ years	-0.0205796	-0.0605352

=====Current outcome variable: 13. scientist_people_info =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
208455.4	208519.6	-104220.7	208441.4	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8881	-0.7899	-0.1456	0.5466	3.1843

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06185	0.2487
Residual		1.11302	1.0550

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.11611	0.03142	67.340
age_group25-34 years old	0.03895	0.01311	2.971

age_group35-44 years old	0.07455	0.01364	5.464
age_group45-54 years old	0.08650	0.01452	5.959
age_group55+ years	0.10553	0.01327	7.953

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.245		
ag_g35-44yo	-0.242	0.566	
ag_g45-54yo	-0.232	0.535	0.534
ag_grp55+yr	-0.261	0.589	0.593 0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
199374.0	199447.1	-99679.0	199358.0	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9539	-0.8074	-0.1362	0.5281	3.2473

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06119	0.2474
	Residual	1.07346	1.0361

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.124925	0.031569	67.310
predictorTRUE	-0.080261	0.008413	-9.540
age_group25-34 years old	0.039345	0.013109	3.001
age_group35-44 years old	0.075107	0.013661	5.498
age_group45-54 years old	0.091140	0.014557	6.261
age_group55+ years	0.113024	0.013369	8.454

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
--------	--------	--------	--------	--------

```

predctrTRUE -0.134
ag_g25-34yo -0.247  0.018
ag_g35-44yo -0.247  0.044  0.568
ag_g45-54yo -0.241  0.070  0.536  0.536
ag_grp55+yr -0.274  0.114  0.589  0.595  0.589

```

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
199171.4	199372.3	-99563.7	199127.4	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0900	-0.8000	-0.1221	0.5127	3.2165

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0450799	0.21232	
	age_group25-34 years old	0.0006364	0.02523	1.00
	age_group35-44 years old	0.0055156	0.07427	0.28 0.28
	age_group45-54 years old	0.0123120	0.11096	0.43 0.43 0.50
	age_group55+ years	0.0314955	0.17747	0.15 0.15 0.33 0.93
Residual		1.0676266	1.03326	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.12759	0.02772	76.742
predictorTRUE	-0.08413	0.00843	-9.980
age_group25-34 years old	0.03983	0.01343	2.967
age_group35-44 years old	0.07789	0.01637	4.759
age_group45-54 years old	0.09264	0.01972	4.697
age_group55+ years	0.12101	0.02529	4.784

Correlation of Fixed Effects:
 (Intr) prTRUE a_25yo a_35yo a_45yo
 predctrTRUE -0.156
 ag_g25-34yo -0.068 0.021
 ag_g35-44yo -0.100 0.043 0.494
 ag_g45-54yo 0.059 0.055 0.448 0.517
 ag_grp55+yr -0.044 0.057 0.327 0.406 0.751
 optimizer (nloptwrap) convergence code: 0 (OK)
 boundary (singular) fit: see help('isSingular')

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
199367.7	199477.3	-99671.9	199343.7	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9383	-0.8075	-0.1366	0.5316	3.2643

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.06129	0.2476
	Residual	1.07323	1.0360

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.144860	0.033112	64.777
predictorTRUE	-0.116607	0.020013	-5.826
age_group25-34 years old	0.033527	0.018898	1.774
age_group35-44 years old	0.056120	0.019146	2.931
age_group45-54 years old	0.067100	0.019733	3.400
age_group55+ years	0.078883	0.017883	4.411
predictorTRUE:age_group25-34 years old	0.008386	0.026139	0.321
predictorTRUE:age_group35-44 years old	0.034698	0.027106	1.280

```

predictorTRUE:age_group45-54 years old 0.047408 0.028921 1.639
predictorTRUE:age_group55+ years 0.083907 0.026103 3.214

```

Correlation of Fixed Effects:

```

(Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.325
ag_g25-34yo -0.347 0.564
ag_g35-44yo -0.348 0.557 0.603
ag_g45-54yo -0.342 0.543 0.588 0.594
ag_grp55+yr -0.382 0.601 0.652 0.662 0.659
pTRUE:_25yo 0.250 -0.760 -0.720 -0.432 -0.421 -0.467
pTRUE:_35yo 0.243 -0.733 -0.421 -0.698 -0.411 -0.457 0.563
pTRUE:_45yo 0.228 -0.689 -0.395 -0.393 -0.667 -0.430 0.528 0.512
pTRUE:_55+y 0.252 -0.764 -0.437 -0.435 -0.426 -0.649 0.585 0.567
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.533

```

=====
Fit 4: LRT to Get P-Value for Interaction
=====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	199374	199447	-99679	199358			
fit_4	12	199368	199477	-99672	199344	14.338	4	0.006291 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
199158.8	199396.3	-99553.4	199106.8	68414

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.0690	-0.8040	-0.1216	0.5220	3.2166

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.0446742	0.21136	
	age_group25-34 years old	0.0006468	0.02543	1.00
	age_group35-44 years old	0.0055766	0.07468	0.29 0.29
	age_group45-54 years old	0.0127942	0.11311	0.43 0.43 0.52
	age_group55+ years	0.0323351	0.17982	0.15 0.15 0.35 0.93
Residual		1.0672960	1.03310	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.149817	0.029322	73.317
predictorTRUE	-0.126140	0.019995	-6.309
age_group25-34 years old	0.034077	0.019110	1.783
age_group35-44 years old	0.058474	0.021194	2.759
age_group45-54 years old	0.064263	0.023934	2.685
age_group55+ years	0.079402	0.028224	2.813
predictorTRUE:age_group25-34 years old	0.008382	0.026095	0.321
predictorTRUE:age_group35-44 years old	0.035715	0.027266	1.310
predictorTRUE:age_group45-54 years old	0.058087	0.028956	2.006
predictorTRUE:age_group55+ years	0.100799	0.026316	3.830

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.367							
ag_g25-34yo	-0.249	0.555						
ag_g35-44yo	-0.252	0.504	0.556					
ag_g45-54yo	-0.111	0.448	0.514	0.566				
ag_grp55+yr	-0.167	0.381	0.420	0.482	0.744			
pTRUE:_25yo	0.282	-0.757	-0.711	-0.391	-0.347	-0.293		
pTRUE:_35yo	0.271	-0.729	-0.410	-0.631	-0.335	-0.282	0.557	
pTRUE:_45yo	0.255	-0.688	-0.386	-0.353	-0.549	-0.276	0.525	0.508


```
pTRUE:_55+y  0.279 -0.760 -0.422 -0.383 -0.347 -0.418  0.575      0.555
pTRUE:_4yo
```

```
predctrTRUE
```

```
ag_g25-34yo
```

```
ag_g35-44yo
```

```
ag_g45-54yo
```

```
ag_grp55+yr
```

```
pTRUE:_25yo
```

```
pTRUE:_35yo
```

```
pTRUE:_45yo
```

```
pTRUE:_55+y  0.533
```

```
optimizer (nloptwrap) convergence code: 0 (OK)
```

```
boundary (singular) fit: see help('isSingular')
```

```
Data: d
```

```
Models:
```

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

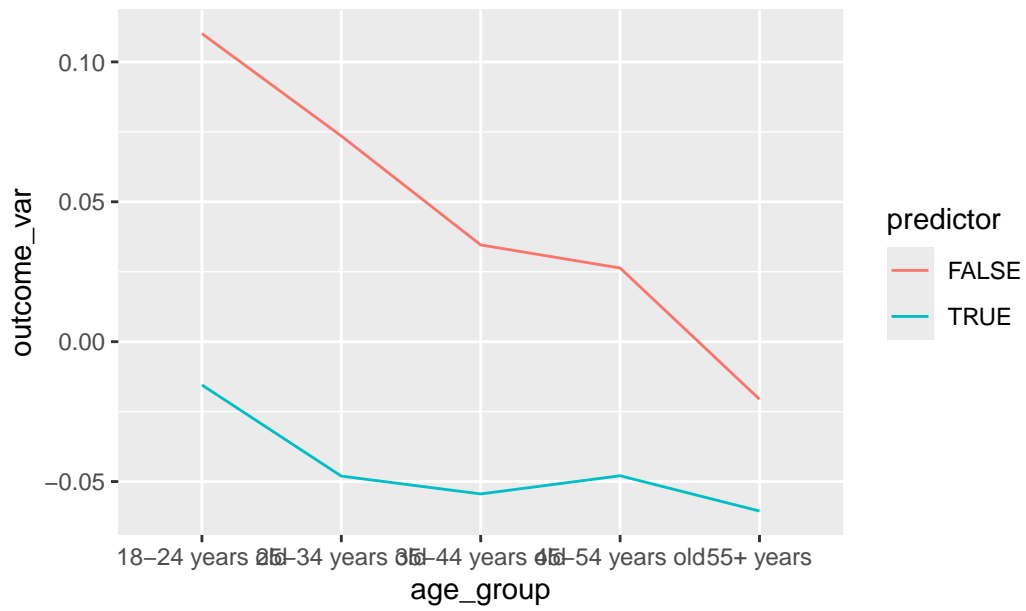
	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	199171	199372	-99564	199127			
fit_4a	26	199159	199396	-99553	199107	20.566	4	0.000386 ***

```
---
```

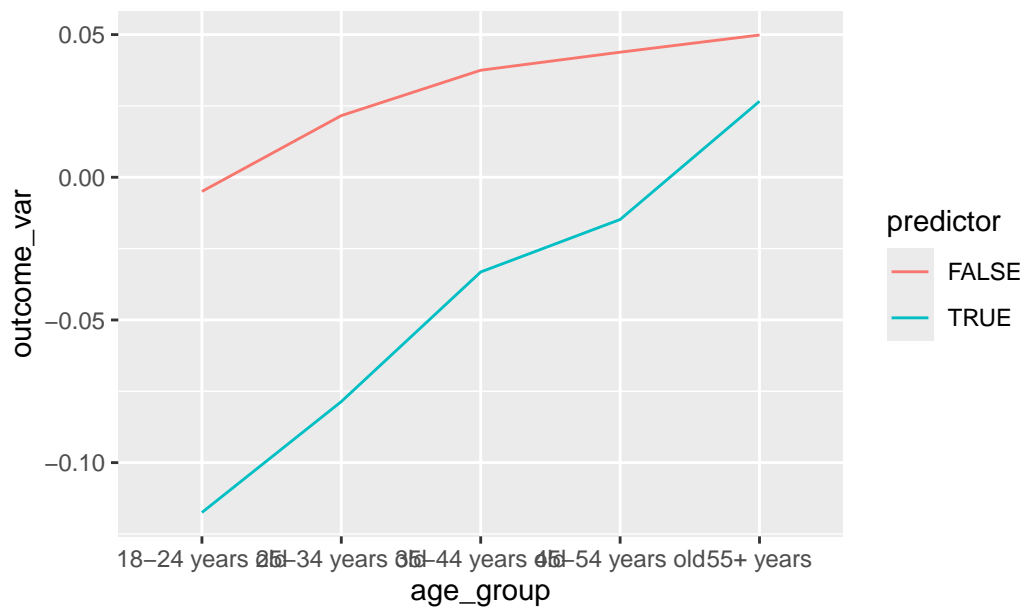
```
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.
```

12. family_doc_people_info



13. scientist_people_info



=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	-0.0049666	-0.1174661
25-34 years old	0.0216130	-0.0786091
35-44 years old	0.0375090	-0.0331897
45-54 years old	0.0438347	-0.0148016
55+ years	0.0498485	0.0266306

Which Organizations Would you Trust to act in your interests:

Higher score = LESS TRUST

```
d %>% dplyr::select(
  country, ends_with("trust")
) %>%
  dplyr::group_by(country) %>%
  dplyr::summarise_all(
    mean, na.rm = TRUE
  ) %>% knitr::kable(digits = 2)
```

country	1. government_trust	2. health_authorities_trust	3. int_orgs_trust
Argentina	2.63	2.61	2.04
Australia	2.25	2.04	2.41
Austria	2.56	2.16	2.42
Belgium	2.38	2.14	2.42
Brazil	2.28	2.27	1.84
Bulgaria	2.47	2.36	2.51
Cameroon	2.43	2.55	2.28
Canada	2.27	2.04	2.34
Chile	2.45	2.42	2.07
Colombia	2.32	2.33	1.98
Croatia	2.57	2.16	2.50
DRC	2.38	2.58	2.28
Denmark	2.10	1.76	2.12
Egypt	1.92	1.93	1.89
Estonia	2.41	2.21	2.06
Ethiopia	2.20	2.19	2.00
Finland	2.22	1.74	2.17

country	1. government_trust	2. health_authorities_trust	3. int_orgs_trust
France	2.64	2.42	2.50
Germany	2.62	2.32	2.50
Ghana	1.99	2.17	1.90
Greece	2.73	2.32	2.56
Hong Kong	2.26	2.18	1.93
Hungary	2.84	2.29	2.28
India	1.75	1.91	2.11
Indonesia	1.71	1.65	1.73
Iraq	2.93	2.84	2.56
Ireland	2.23	1.92	2.09
Israel	2.51	2.15	1.92
Italy	2.42	2.14	2.34
Ivory Coast	2.04	2.17	2.06
Japan	2.67	2.49	2.66
KSA	1.36	1.58	1.73
Kenya	1.93	2.12	1.98
Latvia	2.61	2.42	2.79
Liberia	2.00	2.26	2.05
Lithuania	2.28	2.14	2.43
Malaysia	1.92	1.78	2.04
Mali	1.81	1.95	1.92
Mexico	2.23	1.87	1.91
Netherlands	2.18	2.06	2.31
New Zealand	2.06	1.92	2.31
Niger	1.85	2.00	1.83
Nigeria	2.26	2.21	2.05
Norway	2.06	1.73	2.07
Pakistan	2.55	2.65	2.53
Philippines	1.83	1.85	1.76
Poland	2.90	2.38	2.34
Portugal	2.03	1.66	1.78
Qatar	1.59	1.67	1.79
Romania	2.42	2.25	2.33
Russia	2.40	2.56	2.45
Senegal	2.56	2.59	2.16
Sierra Leone	2.00	2.21	2.00
Slovakia	2.47	2.20	2.58
Slovenia	2.66	2.32	2.65
South Africa	1.99	2.10	1.82
South Korea	2.47	2.25	2.47
South Sudan	2.25	2.36	2.04

country	1. government_trust	2. health_authorities_trust	3. int_orgs_trust
Spain	2.48	1.99	2.26
Sweden	2.15	1.87	2.11
Switzerland	2.18	2.05	2.29
Taiwan	2.35	2.22	2.30
Thailand	2.03	1.93	1.59
Turkey	2.18	1.88	2.06
UAE	1.49	1.66	1.81
UK	2.53	2.18	2.43
US	2.26	2.10	2.30
Uganda	1.78	1.91	1.82
Ukraine	2.50	2.58	2.33
Vietnam	NaN	NaN	1.51

Mental Health

```
RunModels(ending = "trust", predictor = "mh_problems")
```

```
=====Current outcome variable: 1. government_trust =====
```

```
=====Predictor variable: mh_problems =====
```

```
===== Fit 2: Age Group =====
```

```
=====Predictor variable: mh_problems =====
```

```
Linear mixed model fit by maximum likelihood ['lmerMod']
```

```
Formula: outcome_var ~ age_group + (1 | country)
```

```
Data: d
```

```

      AIC      BIC    logLik deviance df.resid
203694.9 203759.0 -101840.4  203680.9     69676

```

```
Scaled residuals:
```

```

      Min      1Q  Median      3Q      Max
-1.8666 -0.7405 -0.2059  0.6091  3.5412

```

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1074	0.3277
Residual		1.0838	1.0411

Number of obs: 69683, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.24602	0.04073	55.145
age_group25-34 years old	0.02866	0.01303	2.201
age_group35-44 years old	0.03803	0.01356	2.805
age_group45-54 years old	0.03526	0.01443	2.443
age_group55+ years	-0.03046	0.01319	-2.310

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.187			
ag_g35-44yo	-0.185	0.565		
ag_g45-54yo	-0.178	0.534	0.533	
ag_grp55+yr	-0.200	0.588	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
193951.9	194024.9	-96968.0	193935.9	67127

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9140	-0.7694	-0.2016	0.6268	3.6276

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1064	0.3262
Residual		1.0472	1.0233

Number of obs: 67135, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.220932	0.040730	54.529
predictorTRUE	-0.020074	0.008839	-2.271
age_group25-34 years old	0.035378	0.013083	2.704
age_group35-44 years old	0.045861	0.013635	3.363
age_group45-54 years old	0.046998	0.014521	3.237
age_group55+ years	-0.012145	0.013347	-0.910

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.085				
ag_g25-34yo	-0.190	0.013			
ag_g35-44yo	-0.190	0.034	0.567		
ag_g45-54yo	-0.184	0.053	0.536	0.536	
ag_grp55+yr	-0.210	0.110	0.588	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
193654.0	193854.5	-96805.0	193610.0	67113

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9493	-0.7685	-0.2105	0.6281	3.6261

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.09898	0.3146	
	age_group25-34 years old	0.01361	0.1167	0.09
	age_group35-44 years old	0.02264	0.1505	0.04 1.00
	age_group45-54 years old	0.02398	0.1549	-0.12 0.64 0.65
	age_group55+ years	0.03508	0.1873	-0.21 0.35 0.36 0.80
Residual		1.03882	1.0192	

Number of obs: 67135, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.210707	0.039579	55.856
predictorTRUE	-0.020825	0.008875	-2.346
age_group25-34 years old	0.050754	0.019598	2.590
age_group35-44 years old	0.062449	0.023020	2.713
age_group45-54 years old	0.057848	0.023916	2.419
age_group55+ years	0.008946	0.026723	0.335

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.094				
ag_g25-34yo	-0.086	0.020			
ag_g35-44yo	-0.101	0.031	0.822		
ag_g45-54yo	-0.218	0.041	0.606	0.617	
ag_grp55+yr	-0.290	0.056	0.434	0.436	0.725

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

=====
===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
193952.6	194061.9	-96964.3	193928.6	67123

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9190	-0.7662	-0.1968	0.6286	3.6285

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1065	0.3264
Residual		1.0471	1.0233

Number of obs: 67135, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.220664	0.041451	53.573
predictorTRUE	-0.018943	0.020384	-0.929
age_group25-34 years old	0.046353	0.016819	2.756
age_group35-44 years old	0.047067	0.017288	2.723
age_group45-54 years old	0.050585	0.018100	2.795
age_group55+ years	-0.020430	0.016291	-1.254
predictorTRUE:age_group25-34 years old	-0.028911	0.026663	-1.084
predictorTRUE:age_group35-44 years old	-0.003656	0.027820	-0.131
predictorTRUE:age_group45-54 years old	-0.012184	0.029853	-0.408
predictorTRUE:age_group55+ years	0.038573	0.027574	1.399

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.202							
ag_g25-34yo	-0.243	0.487						
ag_g35-44yo	-0.243	0.479	0.585					
ag_g45-54yo	-0.237	0.464	0.563	0.567				
ag_grp55+yr	-0.268	0.520	0.630	0.638	0.633			
pTRUE:_25yo	0.152	-0.753	-0.628	-0.365	-0.352	-0.394		
pTRUE:_35yo	0.148	-0.724	-0.359	-0.613	-0.343	-0.386	0.553	
pTRUE:_45yo	0.139	-0.678	-0.335	-0.332	-0.593	-0.365	0.516	0.498
pTRUE:_55+y	0.152	-0.738	-0.363	-0.360	-0.351	-0.558	0.559	0.539
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.506							

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	193952	194025	-96968	193936			
fit_4	12	193953	194062	-96964	193929	7.3861	4	0.1168

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

	AIC	BIC	logLik	deviance	df.resid
	193657.5	193894.4	-96802.7	193605.5	67109

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-1.9471	-0.7725	-0.2119	0.6275	3.6148

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.09898	0.3146	
	age_group25-34 years old	0.01348	0.1161	0.09
	age_group35-44 years old	0.02273	0.1508	0.04 1.00
	age_group45-54 years old	0.02400	0.1549	-0.12 0.64 0.65
	age_group55+ years	0.03513	0.1874	-0.21 0.36 0.37 0.81
Residual		1.03875	1.0192	

Number of obs: 67135, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.2081169	0.0403751	54.690
predictorTRUE	-0.0146464	0.0208164	-0.704
age_group25-34 years old	0.0631865	0.0224040	2.820
age_group35-44 years old	0.0626313	0.0255309	2.453
age_group45-54 years old	0.0638084	0.0263803	2.419
age_group55+ years	0.0052712	0.0284996	0.185
predictorTRUE:age_group25-34 years old	-0.0323299	0.0270738	-1.194
predictorTRUE:age_group35-44 years old	0.0008833	0.0284206	0.031
predictorTRUE:age_group45-54 years old	-0.0172702	0.0303940	-0.568
predictorTRUE:age_group55+ years	0.0192028	0.0280738	0.684

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
--------	--------	--------	--------	--------	--------	------------	------------

```

predctrTRUE -0.218
ag_g25-34yo -0.159  0.387
ag_g35-44yo -0.161  0.345  0.781
ag_g45-54yo -0.264  0.334  0.608  0.619
ag_grp55+yr -0.325  0.310  0.479  0.479  0.724
pTRUE:_25yo  0.166 -0.760 -0.488 -0.268 -0.255 -0.236
pTRUE:_35yo  0.160 -0.733 -0.286 -0.429 -0.246 -0.227  0.570
pTRUE:_45yo  0.150 -0.684 -0.265 -0.238 -0.418 -0.219  0.523      0.505
pTRUE:_55+y  0.162 -0.741 -0.288 -0.257 -0.252 -0.339  0.563      0.543
      pTRUE:_4yo

```

```

predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.514
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

Models:

```

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3a   22 193654 193855 -96805   193610
fit_4a   26 193657 193894 -96803   193605 4.5436  4      0.3374

```

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

Warning: Removed 10 rows containing missing values or values outside the scale range
(`geom_line()`).

=====Predictor variable: mh_problems =====

```

|age_group      | FALSE| TRUE|
|:-----|-----:|-----:|

```

18-24 years old	NA	NA
25-34 years old	NA	NA
35-44 years old	NA	NA
45-54 years old	NA	NA
55+ years		NA

=====Current outcome variable: 2. health_authorities_trust =====

=====Predictor variable: mh_problems =====

===== Fit 2: Age Group =====

=====Predictor variable: mh_problems =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
199418.2	199482.3	-99702.1	199404.2	69676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8253	-0.7797	-0.1698	0.6225	3.4479

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07467	0.2733
Residual		1.01963	1.0098

Number of obs: 69683, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.152940	0.034332	62.710
age_group25-34 years old	0.008569	0.012633	0.678
age_group35-44 years old	0.013501	0.013150	1.027
age_group45-54 years old	0.015370	0.013998	1.098
age_group55+ years	-0.062245	0.012790	-4.867

Correlation of Fixed Effects:

(Intr) a_25yo a_35yo a_45yo

```

ag_g25-34yo -0.216
ag_g35-44yo -0.213  0.565
ag_g45-54yo -0.205  0.534  0.533
ag_grp55+yr -0.230  0.588  0.593  0.584

```

===== Fit 3: Add Predictor =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (1 | country)
Data: d

```

	AIC	BIC	logLik	deviance	df.resid
	189308.3	189381.2	-94646.2	189292.3	67127

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-1.8950	-0.7891	-0.1510	0.6179	3.5303

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0762	0.2760
	Residual	0.9775	0.9887

Number of obs: 67135, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.133613	0.034826	61.265
predictorTRUE	-0.035637	0.008538	-4.174
age_group25-34 years old	0.011812	0.012640	0.934
age_group35-44 years old	0.013680	0.013172	1.038
age_group45-54 years old	0.025935	0.014028	1.849
age_group55+ years	-0.044783	0.012892	-3.474

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.096				
ag_g25-34yo	-0.215	0.013			
ag_g35-44yo	-0.214	0.034	0.567		
ag_g45-54yo	-0.208	0.053	0.536	0.536	
ag_grp55+yr	-0.238	0.110	0.588	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
189113.0	189313.5	-94534.5	189069.0	67113

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9138	-0.7819	-0.1683	0.6036	3.5864

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.07666	0.27688	
	age_group25-34 years old	0.00860	0.09273	-0.19
	age_group35-44 years old	0.01776	0.13327	-0.20 0.97
	age_group45-54 years old	0.01436	0.11983	-0.14 0.53 0.65
	age_group55+ years	0.03124	0.17675	-0.23 0.38 0.58 0.90
Residual		0.97157	0.98568	

Number of obs: 67135, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.12479	0.03511	60.511
predictorTRUE	-0.03793	0.00858	-4.421
age_group25-34 years old	0.02482	0.01724	1.439
age_group35-44 years old	0.02677	0.02109	1.269
age_group45-54 years old	0.03599	0.02044	1.761
age_group55+ years	-0.02939	0.02529	-1.162

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.102				
ag_g25-34yo	-0.296	0.020			
ag_g35-44yo	-0.294	0.032	0.773		

```

ag_g45-54yo -0.251  0.046  0.544  0.609
ag_grp55+yr -0.312  0.056  0.454  0.578  0.759
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

===== Fit 4: Add Interaction =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

```

AIC	BIC	logLik	deviance	df.resid
189305.3	189414.7	-94640.6	189281.3	67123

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8945	-0.7927	-0.1532	0.6202	3.5409

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07598	0.2756
Residual		0.97734	0.9886

Number of obs: 67135, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.141386	0.035554	60.229
predictorTRUE	-0.053682	0.019693	-2.726
age_group25-34 years old	0.016266	0.016248	1.001
age_group35-44 years old	0.007787	0.016701	0.466
age_group45-54 years old	0.014313	0.017485	0.819
age_group55+ years	-0.062526	0.015736	-3.973
predictorTRUE:age_group25-34 years old	-0.013276	0.025759	-0.515
predictorTRUE:age_group35-44 years old	0.012968	0.026877	0.483
predictorTRUE:age_group45-54 years old	0.030198	0.028841	1.047
predictorTRUE:age_group55+ years	0.063363	0.026639	2.379

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.228						

```

ag_g25-34yo -0.274 0.487
ag_g35-44yo -0.273 0.479 0.585
ag_g45-54yo -0.267 0.464 0.563 0.566
ag_grp55+yr -0.302 0.520 0.630 0.638 0.633
pTRUE:_25yo 0.172 -0.753 -0.628 -0.365 -0.352 -0.394
pTRUE:_35yo 0.167 -0.724 -0.359 -0.613 -0.343 -0.386 0.553
pTRUE:_45yo 0.157 -0.678 -0.335 -0.332 -0.593 -0.365 0.516 0.498
pTRUE:_55+y 0.171 -0.738 -0.363 -0.360 -0.351 -0.558 0.559 0.539
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.506

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3     8 189308 189381 -94646   189292
fit_4    12 189305 189415 -94641   189281 11.015  4    0.0264 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

boundary (singular) fit: see help('isSingular')

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

```

      AIC      BIC  logLik deviance df.resid
189137.7 189374.7 -94542.8 189085.7     67109

```


Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9262	-0.7828	-0.1713	0.6010	3.5569

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	7.328e-02	0.270705	
	age_group25-34 years old	2.265e-06	0.001505	1.00
	age_group35-44 years old	5.371e-03	0.073284	0.02 0.02
	age_group45-54 years old	1.000e-02	0.100001	-0.03 -0.03 0.30
	age_group55+ years	2.678e-02	0.163650	-0.17 -0.17 0.48 0.90
Residual		9.723e-01	0.986055	

Number of obs: 67135, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.144106	0.035053	61.167
predictorTRUE	-0.056034	0.019754	-2.837
age_group25-34 years old	0.015074	0.016249	0.928
age_group35-44 years old	0.005494	0.019030	0.289
age_group45-54 years old	0.013256	0.021340	0.621
age_group55+ years	-0.058577	0.025437	-2.303
predictorTRUE:age_group25-34 years old	-0.014690	0.025726	-0.571
predictorTRUE:age_group35-44 years old	0.020638	0.027115	0.761
predictorTRUE:age_group45-54 years old	0.028985	0.029021	0.999
predictorTRUE:age_group55+ years	0.050761	0.026857	1.890

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.233							
ag_g25-34yo	-0.269	0.485						
ag_g35-44yo	-0.239	0.426	0.516					
ag_g45-54yo	-0.239	0.383	0.462	0.492				
ag_grp55+yr	-0.310	0.321	0.383	0.514	0.717			
pTRUE:_25yo	0.175	-0.750	-0.628	-0.323	-0.290	-0.241		
pTRUE:_35yo	0.170	-0.722	-0.355	-0.542	-0.280	-0.236	0.547	
pTRUE:_45yo	0.160	-0.678	-0.332	-0.292	-0.489	-0.229	0.512	0.491
pTRUE:_55+y	0.171	-0.736	-0.356	-0.313	-0.287	-0.352	0.551	0.534
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								

```

ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.508
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

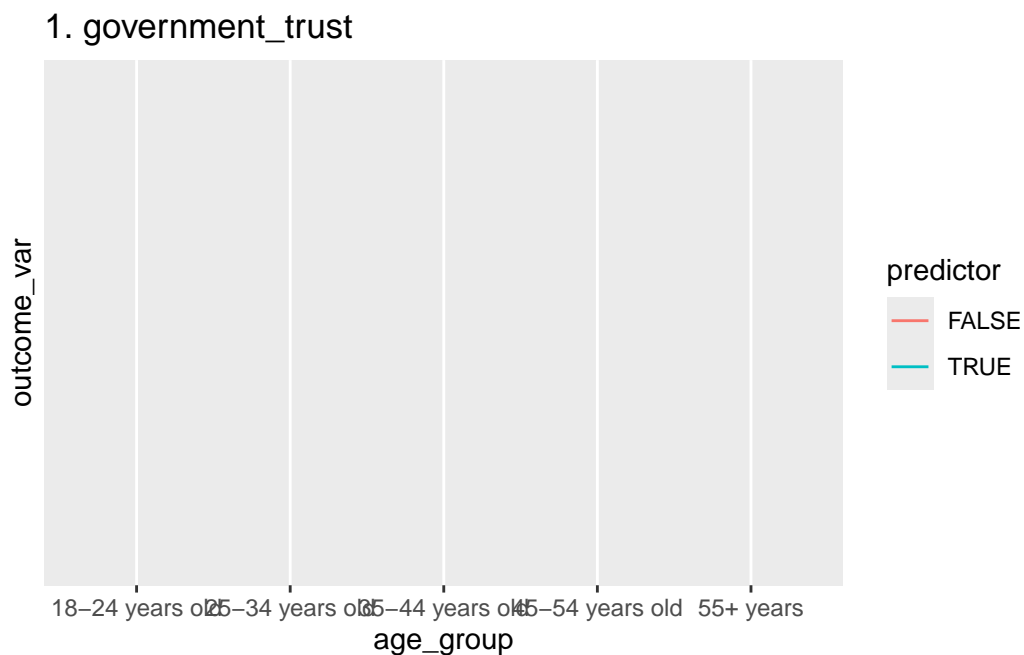
Models:

```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	189113	189313	-94534	189069			
fit_4a	26	189138	189375	-94543	189086	0	4	1

`summarise()` has grouped output by 'age_group'. You can override using the `groups` argument.



Warning: Removed 10 rows containing missing values or values outside the scale range (`geom_line()`).

=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
18-24 years old	NA	NA
25-34 years old	NA	NA
35-44 years old	NA	NA
45-54 years old	NA	NA
55+ years	NA	NA

=====Current outcome variable: 3. int_orgs_trust =====

=====Predictor variable: mh_problems =====

===== Fit 2: Age Group =====

=====Predictor variable: mh_problems =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
205715.7	205779.8	-102850.8	205701.7	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7431	-0.7826	-0.1355	0.5452	3.3273

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07477	0.2734
Residual		1.07047	1.0346

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.116845	0.034178	61.935
age_group25-34 years old	0.008712	0.012857	0.678

age_group35-44 years old	0.040626	0.013380	3.036
age_group45-54 years old	0.077506	0.014237	5.444
age_group55+ years	0.084488	0.013015	6.492

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.221			
ag_g35-44yo	-0.218	0.566		
ag_g45-54yo	-0.210	0.535	0.534	
ag_grp55+yr	-0.235	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
195680.8	195753.9	-97832.4	195664.8	68127

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7613	-0.7871	-0.1417	0.5643	3.3809

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07166	0.2677
	Residual	1.02994	1.0149

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.110978	0.033711	62.620
predictorTRUE	-0.068082	0.008703	-7.823
age_group25-34 years old	0.013906	0.012883	1.079
age_group35-44 years old	0.040272	0.013423	3.000
age_group45-54 years old	0.084151	0.014287	5.890
age_group55+ years	0.095969	0.013134	7.307

Correlation of Fixed Effects:

(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
--------	--------	--------	--------	--------

```

predctrTRUE -0.100
ag_g25-34yo -0.227  0.013
ag_g35-44yo -0.226  0.034  0.568
ag_g45-54yo -0.219  0.051  0.537  0.537
ag_grp55+yr -0.250  0.108  0.589  0.596  0.589

```

```

Warning in checkConv(attr(opt, "derivs"), opt$par, ctrl = control$checkConv, :
Model failed to converge with max|grad| = 0.0502373 (tol = 0.002, component 1)

```

===== Fit 3a: Add Random Slope for Predictor =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

```

```

      AIC      BIC   logLik deviance df.resid
195409.9 195610.7 -97682.9 195365.9     68113

```

Scaled residuals:

```

      Min      1Q  Median      3Q      Max
-1.9418 -0.7865 -0.1329  0.5552  3.4023

```

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.04983	0.2232	
	age_group25-34 years old	0.01096	0.1047	0.21
	age_group35-44 years old	0.02394	0.1547	0.13 0.99
	age_group45-54 years old	0.03023	0.1739	0.01 0.71 0.75
	age_group55+ years	0.04683	0.2164	-0.01 0.63 0.68 0.90
Residual		1.02242	1.0111	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.083278	0.028941	71.984
predictorTRUE	-0.064493	0.008744	-7.376
age_group25-34 years old	0.039517	0.018271	2.163
age_group35-44 years old	0.068530	0.023145	2.961
age_group45-54 years old	0.106854	0.025442	4.200

age_group55+ years 0.112529 0.029344 3.835

Correlation of Fixed Effects:

```
(Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.126
ag_g25-34yo -0.076  0.020
ag_g35-44yo -0.075  0.030  0.805
ag_g45-54yo -0.152  0.037  0.629  0.684
ag_grp55+yr -0.148  0.048  0.584  0.646  0.809
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.0502373 (tol = 0.002, component 1)
```

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
195686.4	195796.0	-97831.2	195662.4	68123

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7577	-0.7865	-0.1381	0.5644	3.3792

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07173	0.2678
	Residual	1.02991	1.0148

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.115414	0.034544	61.239
predictorTRUE	-0.078838	0.020110	-3.920
age_group25-34 years old	0.006700	0.016529	0.405
age_group35-44 years old	0.042648	0.016987	2.511
age_group45-54 years old	0.078660	0.017787	4.422
age_group55+ years	0.087979	0.016014	5.494
predictorTRUE:age_group25-34 years old	0.018277	0.026283	0.695

```

predictorTRUE:age_group35-44 years old -0.009037    0.027423   -0.330
predictorTRUE:age_group45-54 years old  0.014093    0.029405    0.479
predictorTRUE:age_group55+ years      0.027056    0.027180    0.995

```

Correlation of Fixed Effects:

```

      (Intr) prTRUE a_25yo a_35yo a_45yo a_55+y pTRUE:_2yo pTRUE:_3yo
predctrTRUE -0.238
ag_g25-34yo -0.287  0.485
ag_g35-44yo -0.286  0.478  0.585
ag_g45-54yo -0.279  0.462  0.563  0.566
ag_grp55+yr -0.316  0.518  0.630  0.638  0.632
pTRUE:_25yo  0.179 -0.753 -0.626 -0.364 -0.351 -0.393
pTRUE:_35yo  0.174 -0.725 -0.358 -0.611 -0.342 -0.385  0.554
pTRUE:_45yo  0.164 -0.680 -0.335 -0.332 -0.591 -0.364  0.517      0.499
pTRUE:_55+y  0.178 -0.739 -0.362 -0.359 -0.350 -0.557  0.560      0.540
      pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.507

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

```

fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3     8 195681 195754 -97832   195665
fit_4    12 195686 195796 -97831   195662 2.4146  4      0.66

```

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
195441.1	195678.4	-97694.5	195389.1	68109

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9377	-0.7893	-0.1385	0.5513	3.3988

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.047895	0.21885	
	age_group25-34 years old	0.002072	0.04552	1.00
	age_group35-44 years old	0.009541	0.09768	0.58 0.58
	age_group45-54 years old	0.019135	0.13833	0.22 0.22 0.57
	age_group55+ years	0.033895	0.18411	0.17 0.17 0.52 0.86
Residual		1.023161	1.01151	

Number of obs: 68135, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.101243	0.029220	71.911
predictorTRUE	-0.074121	0.020098	-3.688
age_group25-34 years old	0.019101	0.017354	1.101
age_group35-44 years old	0.055799	0.020677	2.699
age_group45-54 years old	0.088308	0.024310	3.633
age_group55+ years	0.093263	0.027439	3.399
predictorTRUE:age_group25-34 years old	0.009615	0.026228	0.367
predictorTRUE:age_group35-44 years old	-0.005972	0.027618	-0.216
predictorTRUE:age_group45-54 years old	0.013250	0.029636	0.447
predictorTRUE:age_group55+ years	0.019340	0.027349	0.707

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.281							
ag_g25-34yo	-0.039	0.458						
ag_g35-44yo	0.013	0.394	0.556					
ag_g45-54yo	-0.104	0.338	0.433	0.556				
ag_grp55+yr	-0.090	0.300	0.384	0.536	0.737			
pTRUE:_25yo	0.211	-0.748	-0.595	-0.299	-0.255	-0.225		
pTRUE:_35yo	0.205	-0.722	-0.335	-0.504	-0.248	-0.220	0.547	
pTRUE:_45yo	0.191	-0.677	-0.311	-0.269	-0.433	-0.211	0.508	0.493
pTRUE:_55+y	0.207	-0.735	-0.336	-0.290	-0.253	-0.332	0.550	0.533


```

pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.505
optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

```

Data: d

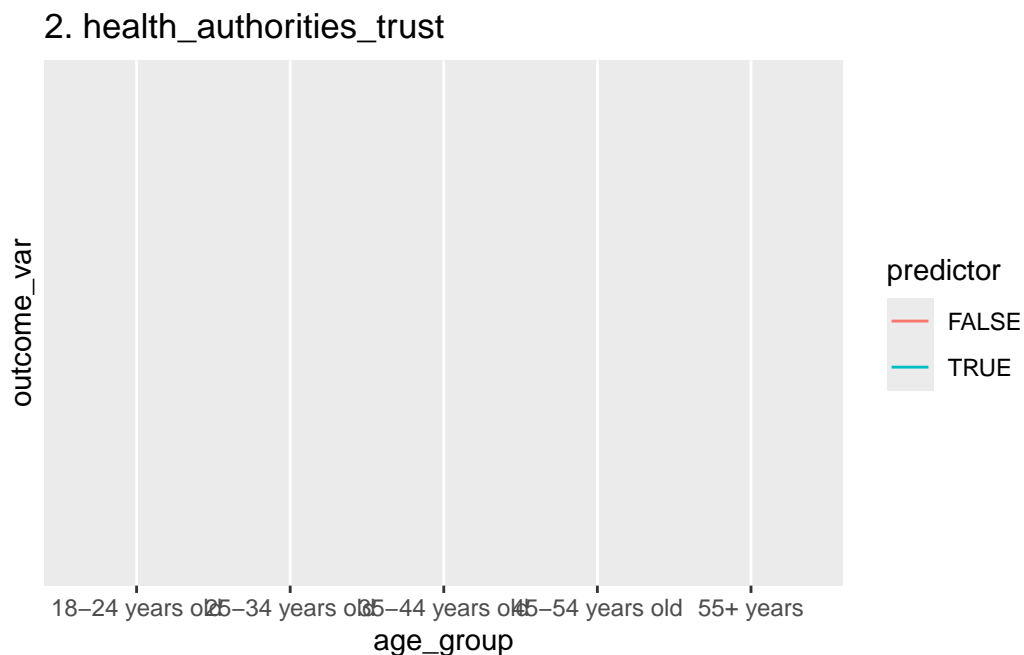
Models:

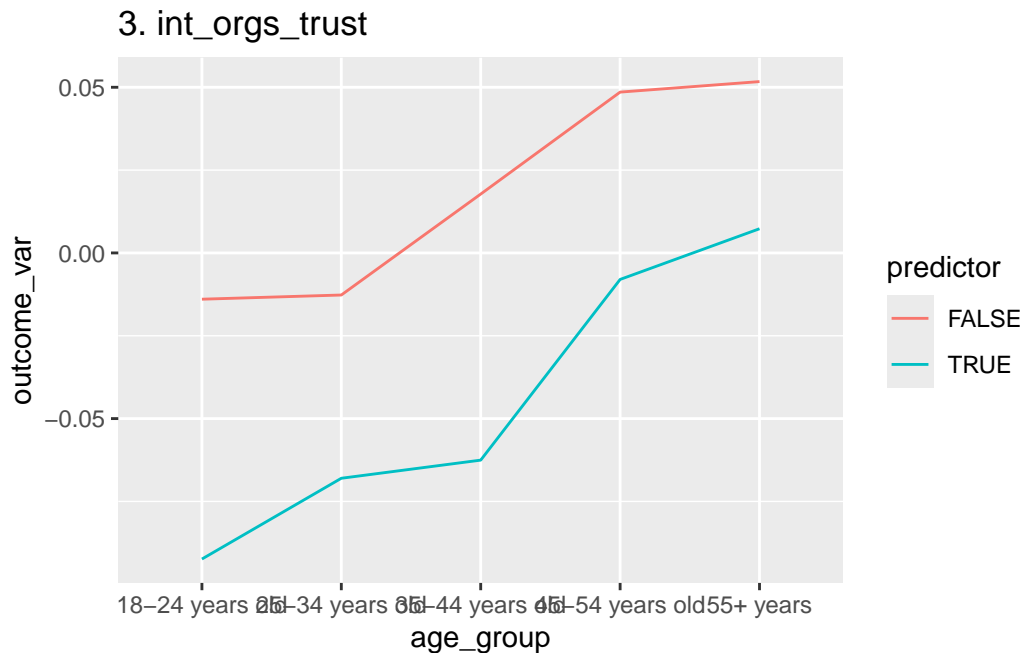
```
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
```

```
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)
```

	npair	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	195410	195611	-97683	195366			
fit_4a	26	195441	195678	-97695	195389	0	4	1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.





=====Predictor variable: mh_problems =====

age_group	FALSE	TRUE
:-----:	-----:	-----:
18-24 years old	-0.0139625	-0.0923904
25-34 years old	-0.0127027	-0.0680102
35-44 years old	0.0177605	-0.0625357
45-54 years old	0.0485390	-0.0079975
55+ years	0.0517104	0.0073026

Which Organizations Would you Trust to act in your interests: Mental Health

```
RunModels(ending = "trust", predictor = "lonely")
```

=====Current outcome variable: 1. government_trust =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
203694.9	203759.0	-101840.4	203680.9	69676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8666	-0.7405	-0.2059	0.6091	3.5412

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1074	0.3277
Residual		1.0838	1.0411

Number of obs: 69683, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.24602	0.04073	55.145
age_group25-34 years old	0.02866	0.01303	2.201
age_group35-44 years old	0.03803	0.01356	2.805
age_group45-54 years old	0.03526	0.01443	2.443
age_group55+ years	-0.03046	0.01319	-2.310

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.187		
ag_g35-44yo	-0.185	0.565	
ag_g45-54yo	-0.178	0.534	0.533
ag_grp55+yr	-0.200	0.588	0.593

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor + age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
195038.5	195111.5	-97511.3	195022.5	67432

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9297	-0.7601	-0.1962	0.6222	3.5684

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1055	0.3248
	Residual	1.0504	1.0249

Number of obs: 67440, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.247182	0.040628	55.311
predictorTRUE	-0.056365	0.008381	-6.726
age_group25-34 years old	0.030404	0.013060	2.328
age_group35-44 years old	0.038836	0.013614	2.853
age_group45-54 years old	0.038194	0.014516	2.631
age_group55+ years	-0.024357	0.013329	-1.827

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.104				
ag_g25-34yo	-0.191	0.018			
ag_g35-44yo	-0.191	0.044	0.567		
ag_g45-54yo	-0.187	0.071	0.535	0.536	
ag_grp55+yr	-0.213	0.115	0.588	0.595	0.589

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
 Model failed to converge with max|grad| = 0.00309439 (tol = 0.002, component 1)

===== Fit 3a: Add Random Slope for Predictor =====

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor + age_group + (age_group | country)
Data: d

      AIC      BIC   logLik deviance df.resid
194751.1 194951.7 -97353.5 194707.1     67418

Scaled residuals:
      Min       1Q   Median       3Q      Max
-1.9736 -0.7634 -0.2057  0.6295  3.5739

Random effects:
Groups      Name              Variance Std.Dev. Corr
country (Intercept)          0.10119  0.3181
          age_group25-34 years old 0.01442  0.1201    0.05
          age_group35-44 years old 0.01964  0.1401    0.01  0.93
          age_group45-54 years old 0.02169  0.1473   -0.14  0.50  0.67
          age_group55+ years      0.03183  0.1784   -0.21  0.20  0.35  0.79
Residual                    1.04213  1.0208
Number of obs: 67440, groups:  country, 69

Fixed effects:
              Estimate Std. Error t value
(Intercept)    2.239050   0.040039  55.922
predictorTRUE  -0.056764   0.008397  -6.760
age_group25-34 years old  0.043274   0.019918   2.173
age_group35-44 years old  0.052875   0.022019   2.401
age_group45-54 years old  0.047409   0.023204   2.043
age_group55+ years    -0.005115   0.025828  -0.198

Correlation of Fixed Effects:
      (Intr) prTRUE a_25yo a_35yo a_45yo
predctrTRUE -0.111
ag_g25-34yo -0.110  0.020
ag_g35-44yo -0.130  0.037  0.783
ag_g45-54yo -0.232  0.052  0.529  0.627
ag_grp55+yr -0.289  0.061  0.346  0.438  0.711
optimizer (nloptwrap) convergence code: 0 (OK)
Model failed to converge with max|grad| = 0.00309439 (tol = 0.002, component 1)

```

===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
195021.1	195130.5	-97498.5	194997.1	67428

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9528	-0.7565	-0.1972	0.6341	3.5664

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.1056	0.3249
Residual		1.0501	1.0247

Number of obs: 67440, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.24887	0.04184	53.745
predictorTRUE	-0.05933	0.01993	-2.977
age_group25-34 years old	0.04506	0.01890	2.384
age_group35-44 years old	0.05953	0.01914	3.110
age_group45-54 years old	0.02602	0.01972	1.319
age_group55+ years	-0.04303	0.01787	-2.408
predictorTRUE:age_group25-34 years old	-0.02966	0.02605	-1.139
predictorTRUE:age_group35-44 years old	-0.04806	0.02700	-1.780
predictorTRUE:age_group45-54 years old	0.03137	0.02882	1.089
predictorTRUE:age_group55+ years	0.06073	0.02599	2.337

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.258							
ag_g25-34yo	-0.275	0.566						
ag_g35-44yo	-0.275	0.559	0.603					
ag_g45-54yo	-0.271	0.545	0.588	0.595				
ag_grp55+yr	-0.303	0.604	0.652	0.663	0.661			
pTRUE:_25yo	0.198	-0.759	-0.722	-0.434	-0.423	-0.469		
pTRUE:_35yo	0.193	-0.733	-0.423	-0.701	-0.412	-0.459	0.563	
pTRUE:_45yo	0.181	-0.689	-0.396	-0.395	-0.669	-0.432	0.528	0.512

```

pTRUE:_55+y  0.200 -0.765 -0.438 -0.436 -0.428 -0.651  0.585      0.567
pTRUE:_4yo
predctrTRUE
ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y  0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

```

Data: d
Models:
fit_3: outcome_var ~ predictor + age_group + (1 | country)
fit_4: outcome_var ~ predictor * age_group + (1 | country)
      npar    AIC    BIC logLik deviance Chisq Df Pr(>Chisq)
fit_3     8 195039 195112 -97511   195023
fit_4    12 195021 195131 -97499   194997 25.462  4  4.061e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```

Warning in checkConv(attr(opt, "derivs"), opt$par, ctrl = control$checkConv, :
Model failed to converge with max|grad| = 0.00375252 (tol = 0.002, component 1)

```

```

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (age_group | country)
Data: d

```

```

      AIC      BIC  logLik deviance df.resid
194739.5 194976.6 -97343.7 194687.5     67414

```

```

Scaled residuals:
      Min       1Q   Median       3Q      Max
-1.9757 -0.7697 -0.2026  0.6270  3.5737

```

```

Random effects:
Groups   Name              Variance Std.Dev. Corr

```


Model failed to converge with max|grad| = 0.00375252 (tol = 0.002, component 1)

Data: d

Models:

fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	194751	194952	-97354	194707			
fit_4a	26	194739	194977	-97344	194687	19.573	4	0.0006062 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the
`.groups` argument.

Warning: Removed 10 rows containing missing values or values outside the scale range
(`geom_line()`).

====Predictor variable: lonely====

age_group	FALSE	TRUE
18-24 years old	NA	NA
25-34 years old	NA	NA
35-44 years old	NA	NA
45-54 years old	NA	NA
55+ years	NA	NA

====Current outcome variable: 2. health_authorities_trust====

====Predictor variable: lonely====

==== Fit 2: Age Group =====

====Predictor variable: lonely====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
199418.2	199482.3	-99702.1	199404.2	69676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.8253	-0.7797	-0.1698	0.6225	3.4479

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07467	0.2733
Residual		1.01963	1.0098

Number of obs: 69683, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.152940	0.034332	62.710
age_group25-34 years old	0.008569	0.012633	0.678
age_group35-44 years old	0.013501	0.013150	1.027
age_group45-54 years old	0.015370	0.013998	1.098
age_group55+ years	-0.062245	0.012790	-4.867

Correlation of Fixed Effects:

(Intr)	a_25yo	a_35yo	a_45yo	
ag_g25-34yo	-0.216			
ag_g35-44yo	-0.213	0.565		
ag_g45-54yo	-0.205	0.534	0.533	
ag_grp55+yr	-0.230	0.588	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
190272.1	190345.0	-95128.0	190256.1	67432

Scaled residuals:

Min	1Q	Median	3Q	Max
-----	----	--------	----	-----

-1.9007 -0.7781 -0.1593 0.6235 3.5075

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.0764	0.2764
Residual		0.9790	0.9895

Number of obs: 67440, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.154937	0.034938	61.678
predictorTRUE	-0.057741	0.008090	-7.137
age_group25-34 years old	0.005693	0.012608	0.452
age_group35-44 years old	0.011004	0.013142	0.837
age_group45-54 years old	0.015512	0.014012	1.107
age_group55+ years	-0.056072	0.012866	-4.358

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.117				
ag_g25-34yo	-0.214	0.018			
ag_g35-44yo	-0.215	0.045	0.567		
ag_g45-54yo	-0.210	0.071	0.535	0.536	
ag_grp55+yr	-0.239	0.115	0.588	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
190093.3	190293.9	-95024.6	190049.3	67418

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9368	-0.7621	-0.1681	0.6075	3.5474

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	7.606e-02	0.275785	
	age_group25-34 years old	2.678e-06	0.001636	-1.00
	age_group35-44 years old	5.356e-03	0.073185	-0.05 0.05
	age_group45-54 years old	9.297e-03	0.096423	-0.05 0.05 0.24
	age_group55+ years	2.773e-02	0.166530	-0.21 0.21 0.47 0.91
Residual		9.738e-01	0.986824	

Number of obs: 67440, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.158706	0.034915	61.828
predictorTRUE	-0.060677	0.008106	-7.485
age_group25-34 years old	0.004008	0.012606	0.318
age_group35-44 years old	0.010700	0.015937	0.671
age_group45-54 years old	0.013942	0.018291	0.762
age_group55+ years	-0.054184	0.024008	-2.257

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.120				
ag_g25-34yo	-0.231	0.021			
ag_g35-44yo	-0.207	0.042	0.470		
ag_g45-54yo	-0.197	0.059	0.413	0.430	
ag_grp55+yr	-0.287	0.058	0.315	0.477	0.725

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

=====
===== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
Formula: outcome_var ~ predictor * age_group + (1 | country)
Data: d

AIC	BIC	logLik	deviance	df.resid
190252.2	190361.7	-95114.1	190228.2	67428

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9187	-0.7949	-0.1492	0.6170	3.5350

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07634	0.2763
Residual		0.97861	0.9892

Number of obs: 67440, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.16250	0.03622	59.701
predictorTRUE	-0.07135	0.01924	-3.709
age_group25-34 years old	0.01425	0.01824	0.781
age_group35-44 years old	0.02492	0.01848	1.348
age_group45-54 years old	-0.00765	0.01904	-0.402
age_group55+ years	-0.07970	0.01725	-4.620
predictorTRUE:age_group25-34 years old	-0.01841	0.02515	-0.732
predictorTRUE:age_group35-44 years old	-0.03525	0.02607	-1.352
predictorTRUE:age_group45-54 years old	0.05573	0.02782	2.003
predictorTRUE:age_group55+ years	0.06793	0.02509	2.707

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.288							
ag_g25-34yo	-0.306	0.566						
ag_g35-44yo	-0.307	0.559	0.603					
ag_g45-54yo	-0.302	0.546	0.588	0.595				
ag_grp55+yr	-0.338	0.604	0.652	0.663	0.661			
pTRUE:_25yo	0.221	-0.759	-0.722	-0.434	-0.423	-0.469		
pTRUE:_35yo	0.215	-0.733	-0.423	-0.701	-0.412	-0.459	0.563	
pTRUE:_45yo	0.202	-0.689	-0.396	-0.395	-0.669	-0.432	0.528	0.512
pTRUE:_55+y	0.223	-0.765	-0.438	-0.436	-0.428	-0.651	0.585	0.567
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y								0.533

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	190272	190345	-95128	190256			
fit_4	12	190252	190362	-95114	190228	27.836	4	1.347e-05 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Warning in checkConv(attr(opt, "derivs"), opt\$par, ctrl = control\$checkConv, :
Model failed to converge with max|grad| = 0.00821633 (tol = 0.002, component 1)

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	190054.3	190291.4	-95001.2	190002.3	67414

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-1.9250	-0.7686	-0.1672	0.5941	3.5769

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.079156	0.28135	
	age_group25-34 years old	0.008521	0.09231	-0.22
	age_group35-44 years old	0.016958	0.13022	-0.23 0.96
	age_group45-54 years old	0.013145	0.11465	-0.15 0.48 0.64
	age_group55+ years	0.031560	0.17765	-0.27 0.37 0.59 0.91
Residual		0.972708	0.98626	

Number of obs: 67440, groups: country, 69

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.1563382	0.0369515	58.356

predictorTRUE	-0.0737993	0.0193862	-3.807
age_group25-34 years old	0.0235245	0.0216866	1.085
age_group35-44 years old	0.0310405	0.0245299	1.265
age_group45-54 years old	-0.0002474	0.0238332	-0.010
age_group55+ years	-0.0672789	0.0279145	-2.410
predictorTRUE:age_group25-34 years old	-0.0171544	0.0252917	-0.678
predictorTRUE:age_group35-44 years old	-0.0262837	0.0263959	-0.996
predictorTRUE:age_group45-54 years old	0.0569853	0.0280085	2.035
predictorTRUE:age_group55+ years	0.0626285	0.0254124	2.464

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.284							
ag_g25-34yo	-0.373	0.481						
ag_g35-44yo	-0.375	0.429	0.723					
ag_g45-54yo	-0.332	0.439	0.563	0.614				
ag_grp55+yr	-0.398	0.376	0.503	0.611	0.748			
pTRUE:_25yo	0.219	-0.761	-0.610	-0.335	-0.340	-0.289		
pTRUE:_35yo	0.209	-0.735	-0.354	-0.529	-0.324	-0.279	0.570	
pTRUE:_45yo	0.199	-0.689	-0.336	-0.301	-0.539	-0.272	0.528	0.509
pTRUE:_55+y	0.217	-0.763	-0.367	-0.328	-0.341	-0.411	0.580	0.564
pTRUE:_4yo								

predctrTRUE

ag_g25-34yo

ag_g35-44yo

ag_g45-54yo

ag_grp55+yr

pTRUE:_25yo

pTRUE:_35yo

pTRUE:_45yo

pTRUE:_55+y 0.535

optimizer (nloptwrap) convergence code: 0 (OK)

Model failed to converge with max|grad| = 0.00821633 (tol = 0.002, component 1)

Data: d

Models:

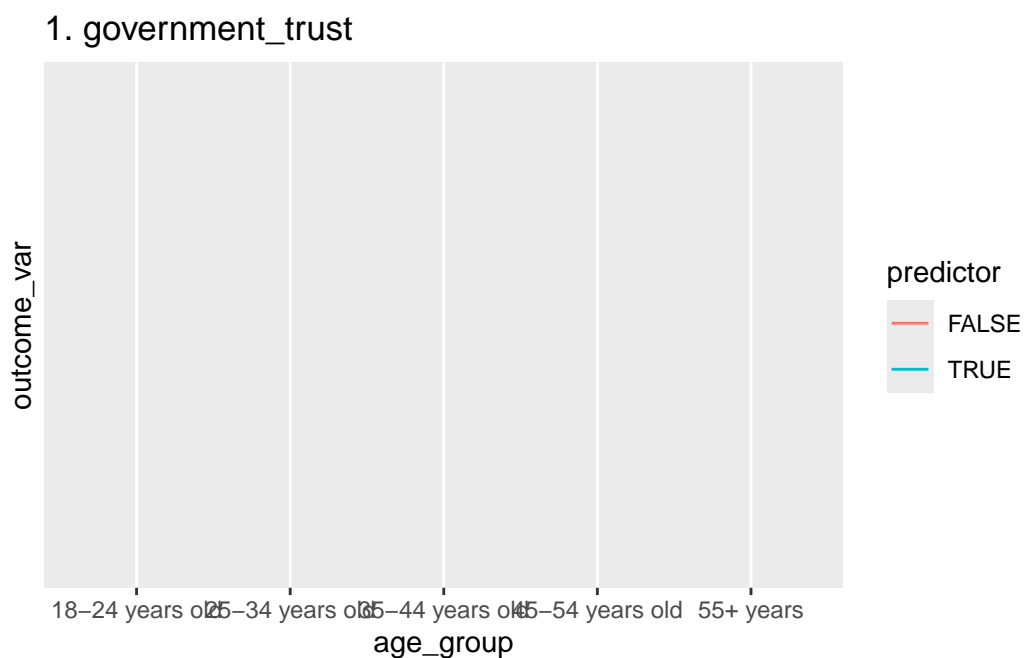
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)

fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

	npar	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3a	22	190093	190294	-95025	190049			
fit_4a	26	190054	190291	-95001	190002	46.968	4	1.548e-09 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

`summarise()` has grouped output by 'age_group'. You can override using the `.groups` argument.



Warning: Removed 10 rows containing missing values or values outside the scale range (`geom_line()`).

=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	NA	NA
25-34 years old	NA	NA
35-44 years old	NA	NA
45-54 years old	NA	NA
55+ years	NA	NA

=====Current outcome variable: 3. int_orgs_trust =====

=====Predictor variable: lonely =====

===== Fit 2: Age Group =====

=====Predictor variable: lonely =====
 Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
205715.7	205779.8	-102850.8	205701.7	70676

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7431	-0.7826	-0.1355	0.5452	3.3273

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07477	0.2734
Residual		1.07047	1.0346

Number of obs: 70683, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.116845	0.034178	61.935
age_group25-34 years old	0.008712	0.012857	0.678
age_group35-44 years old	0.040626	0.013380	3.036
age_group45-54 years old	0.077506	0.014237	5.444
age_group55+ years	0.084488	0.013015	6.492

Correlation of Fixed Effects:

	(Intr)	a_25yo	a_35yo	a_45yo
ag_g25-34yo	-0.221			
ag_g35-44yo	-0.218	0.566		
ag_g45-54yo	-0.210	0.535	0.534	
ag_grp55+yr	-0.235	0.589	0.593	0.584

===== Fit 3: Add Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (1 | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
196617.7	196690.8	-98300.9	196601.7	68432

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7490	-0.7911	-0.1374	0.5578	3.3749

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07089	0.2663
Residual		1.03089	1.0153

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.134155	0.033621	63.478
predictorTRUE	-0.092376	0.008245	-11.204
age_group25-34 years old	0.008850	0.012846	0.689
age_group35-44 years old	0.037705	0.013388	2.816
age_group45-54 years old	0.077938	0.014267	5.463
age_group55+ years	0.085532	0.013104	6.527

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.123				
ag_g25-34yo	-0.227	0.018			
ag_g35-44yo	-0.227	0.044	0.568		
ag_g45-54yo	-0.222	0.070	0.536	0.536	
ag_grp55+yr	-0.253	0.114	0.589	0.595	0.589

boundary (singular) fit: see help('isSingular')

===== Fit 3a: Add Random Slope for Predictor =====

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor + age_group + (age_group | country)

Data: d

AIC	BIC	logLik	deviance	df.resid
196359.6	196560.6	-98157.8	196315.6	68418

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.9366	-0.7875	-0.1318	0.5499	3.3770

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.049463	0.22240	
	age_group25-34 years old	0.001635	0.04044	1.00
	age_group35-44 years old	0.009793	0.09896	0.52 0.52
	age_group45-54 years old	0.020311	0.14252	0.15 0.15 0.62
	age_group55+ years	0.034753	0.18642	0.12 0.12 0.54 0.84
Residual		1.023864	1.01186	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.119880	0.028747	73.741
predictorTRUE	-0.088838	0.008262	-10.753
age_group25-34 years old	0.016911	0.013692	1.235
age_group35-44 years old	0.052461	0.017930	2.926
age_group45-54 years old	0.086502	0.022249	3.888
age_group55+ years	0.087938	0.026072	3.373

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo
predctrTRUE	-0.149				
ag_g25-34yo	0.079	0.021			
ag_g35-44yo	0.118	0.039	0.516		
ag_g45-54yo	-0.064	0.049	0.357	0.573	
ag_grp55+yr	-0.048	0.055	0.308	0.523	0.737

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

==== Fit 4: Add Interaction =====

Linear mixed model fit by maximum likelihood ['lmerMod']
 Formula: outcome_var ~ predictor * age_group + (1 | country)
 Data: d

AIC	BIC	logLik	deviance	df.resid
196619.1	196728.7	-98297.5	196595.1	68428

Scaled residuals:

Min	1Q	Median	3Q	Max
-1.7444	-0.7883	-0.1337	0.5604	3.3740

Random effects:

Groups	Name	Variance	Std.Dev.
country	(Intercept)	0.07099	0.2664
	Residual	1.03079	1.0153

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.13280	0.03502	60.909
predictorTRUE	-0.08983	0.01961	-4.580
age_group25-34 years old	0.01796	0.01852	0.970
age_group35-44 years old	0.05130	0.01876	2.734
age_group45-54 years old	0.06831	0.01934	3.532
age_group55+ years	0.08170	0.01753	4.661
predictorTRUE:age_group25-34 years old	-0.01817	0.02562	-0.709
predictorTRUE:age_group35-44 years old	-0.03068	0.02657	-1.155
predictorTRUE:age_group45-54 years old	0.02724	0.02834	0.961
predictorTRUE:age_group55+ years	0.01507	0.02558	0.589

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.302							
ag_g25-34yo	-0.322	0.564						
ag_g35-44yo	-0.322	0.557	0.603					
ag_g45-54yo	-0.317	0.543	0.588	0.594				
ag_grp55+y	-0.354	0.601	0.652	0.662	0.659			
pTRUE:_25yo	0.232	-0.760	-0.720	-0.432	-0.421	-0.467		
pTRUE:_35yo	0.225	-0.733	-0.421	-0.698	-0.411	-0.457	0.563	
pTRUE:_45yo	0.211	-0.689	-0.395	-0.393	-0.667	-0.430	0.528	0.512
pTRUE:_55+y	0.234	-0.764	-0.437	-0.435	-0.426	-0.649	0.585	0.567
								pTRUE:_4yo
predctrTRUE								

```

ag_g25-34yo
ag_g35-44yo
ag_g45-54yo
ag_grp55+yr
pTRUE:_25yo
pTRUE:_35yo
pTRUE:_45yo
pTRUE:_55+y 0.533

```

===== Fit 4: LRT to Get P-Value for Interaction =====

Data: d

Models:

fit_3: outcome_var ~ predictor + age_group + (1 | country)

fit_4: outcome_var ~ predictor * age_group + (1 | country)

	npars	AIC	BIC	logLik	deviance	Chisq	Df	Pr(>Chisq)
fit_3	8	196618	196691	-98301	196602			
fit_4	12	196619	196729	-98298	196595	6.641	4	0.1561

boundary (singular) fit: see help('isSingular')

Linear mixed model fit by maximum likelihood ['lmerMod']

Formula: outcome_var ~ predictor * age_group + (age_group | country)

Data: d

	AIC	BIC	logLik	deviance	df.resid
	196331.4	196568.9	-98139.7	196279.4	68414

Scaled residuals:

	Min	1Q	Median	3Q	Max
	-1.9350	-0.7881	-0.1204	0.5466	3.3883

Random effects:

Groups	Name	Variance	Std.Dev.	Corr
country	(Intercept)	0.05199	0.2280	
	age_group25-34 years old	0.01043	0.1021	0.15
	age_group35-44 years old	0.02436	0.1561	0.08 1.00
	age_group45-54 years old	0.03540	0.1882	-0.09 0.78 0.79
	age_group55+ years	0.05106	0.2260	-0.08 0.70 0.71 0.89
Residual		1.02294	1.0114	

Number of obs: 68440, groups: country, 70

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	2.10725	0.03110	67.758
predictorTRUE	-0.09236	0.01977	-4.673
age_group25-34 years old	0.04385	0.02243	1.954
age_group35-44 years old	0.07386	0.02673	2.763
age_group45-54 years old	0.08327	0.02987	2.788
age_group55+ years	0.09042	0.03259	2.775
predictorTRUE:age_group25-34 years old	-0.01958	0.02571	-0.761
predictorTRUE:age_group35-44 years old	-0.01730	0.02690	-0.643
predictorTRUE:age_group45-54 years old	0.04244	0.02867	1.480
predictorTRUE:age_group55+ years	0.02856	0.02592	1.102

Correlation of Fixed Effects:

	(Intr)	prTRUE	a_25yo	a_35yo	a_45yo	a_55+y	pTRUE:_2yo	pTRUE:_3yo
predctrTRUE	-0.342							
ag_g25-34yo	-0.243	0.468						
ag_g35-44yo	-0.218	0.398	0.749					
ag_g45-54yo	-0.298	0.356	0.647	0.697				
ag_grp55+yr	-0.276	0.326	0.614	0.667	0.795			
pTRUE:_25yo	0.264	-0.761	-0.596	-0.312	-0.276	-0.252		
pTRUE:_35yo	0.251	-0.735	-0.345	-0.492	-0.264	-0.241	0.570	
pTRUE:_45yo	0.235	-0.690	-0.323	-0.276	-0.435	-0.231	0.527	0.511
pTRUE:_55+y	0.260	-0.763	-0.357	-0.303	-0.275	-0.358	0.581	0.562
pTRUE:_4yo								
predctrTRUE								
ag_g25-34yo								
ag_g35-44yo								
ag_g45-54yo								
ag_grp55+yr								
pTRUE:_25yo								
pTRUE:_35yo								
pTRUE:_45yo								
pTRUE:_55+y	0.533							

optimizer (nloptwrap) convergence code: 0 (OK)
boundary (singular) fit: see help('isSingular')

Data: d

Models:

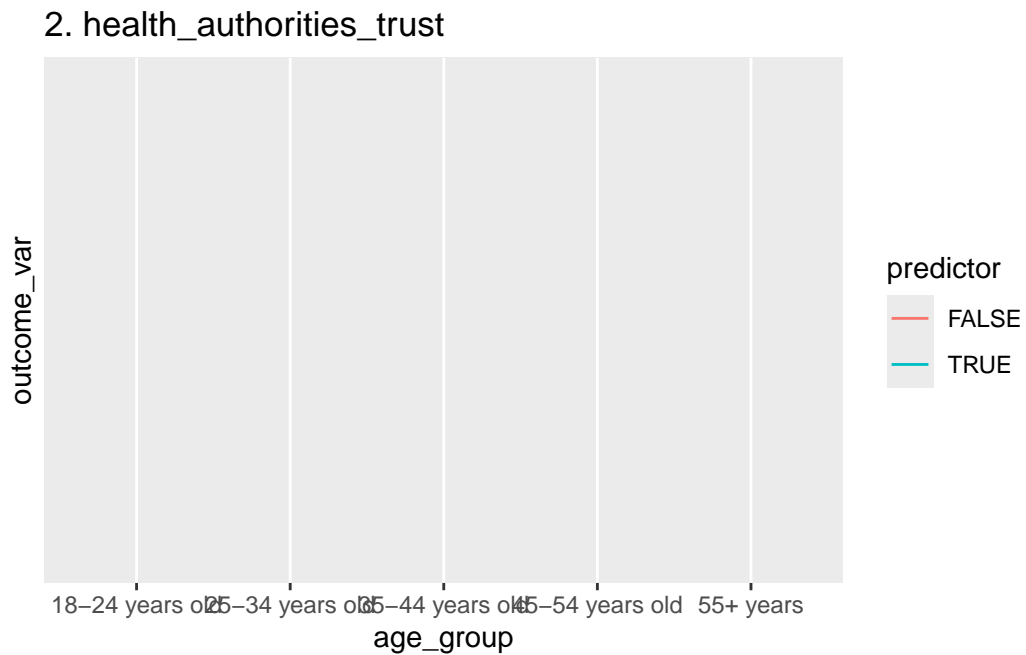
fit_3a: outcome_var ~ predictor + age_group + (age_group | country)
fit_4a: outcome_var ~ predictor * age_group + (age_group | country)

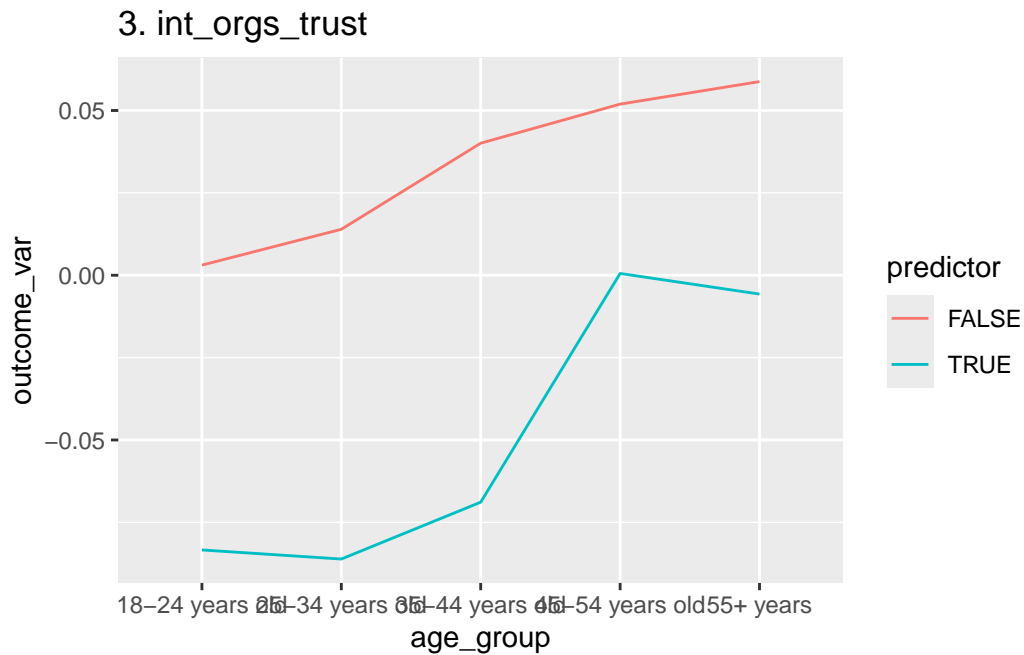
```

      npar    AIC    BIC logLik deviance  Chisq Df Pr(>Chisq)
fit_3a   22 196360 196561 -98158   196316
fit_4a   26 196331 196569 -98140   196279 36.206  4 2.625e-07 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

`summarise()` has grouped output by 'age_group'. You can override using the `groups` argument.





=====Predictor variable: lonely =====

age_group	FALSE	TRUE
18-24 years old	0.0030756	-0.0833843
25-34 years old	0.0139413	-0.0861424
35-44 years old	0.0400772	-0.0688886
45-54 years old	0.0519413	0.0005355
55+ years	0.0587739	-0.0057151

Optimism

Note: Lower score = more optimistic

```
d %>% dplyr::select(
  country, ends_with("optimism")
) %>%
  dplyr::group_by(country) %>%
```



```
dplyr::summarise_all(
  mean, na.rm = TRUE
) %>% knitr::kable(digits = 2)
```

country	financial_optimism	economy_optimism	health_optimism
Argentina	2.61	2.68	2.61
Australia	2.74	2.81	2.74
Austria	2.98	3.20	2.98
Belgium	2.87	3.21	2.87
Brazil	2.16	2.43	2.16
Bulgaria	2.81	3.08	2.81
Cameroon	2.16	2.27	2.16
Canada	2.74	2.95	2.74
Chile	2.70	2.84	2.70
Colombia	2.54	2.66	2.54
Croatia	2.74	3.08	2.74
DRC	1.64	2.02	1.64
Denmark	2.70	2.92	2.70
Egypt	2.21	2.10	2.21
Estonia	2.77	3.15	2.77
Ethiopia	2.42	2.74	2.42
Finland	2.77	3.05	2.77
France	2.87	2.93	2.87
Germany	2.94	3.08	2.94
Ghana	1.93	2.30	1.93
Greece	2.78	2.99	2.78
Hong Kong	2.67	2.70	2.67
Hungary	2.83	3.04	2.83
India	2.26	2.19	2.26
Indonesia	2.28	2.38	2.28
Iraq	2.55	2.71	2.55
Ireland	2.74	2.93	2.74
Israel	2.63	2.94	2.63
Italy	2.82	2.96	2.82
Ivory Coast	1.77	2.14	1.77
Japan	3.02	3.14	3.02
KSA	1.94	2.03	1.94
Kenya	1.90	2.07	1.90
Latvia	2.74	2.99	2.74
Liberia	1.53	1.71	1.53
Lithuania	2.68	2.92	2.68

country	financial_optimism	economy_optimism	health_optimism
Malaysia	2.55	2.72	2.55
Mali	1.55	1.57	1.55
Mexico	2.15	2.45	2.15
Netherlands	2.93	3.21	2.93
New Zealand	2.60	2.81	2.60
Niger	1.54	1.46	1.54
Nigeria	1.87	2.21	1.87
Norway	2.69	3.08	2.69
Pakistan	2.59	2.69	2.59
Philippines	2.43	2.51	2.43
Poland	2.81	2.83	2.81
Portugal	2.86	3.07	2.86
Qatar	2.01	1.95	2.01
Romania	2.67	2.97	2.67
Russia	2.56	2.77	2.56
Senegal	1.80	2.11	1.80
Sierra Leone	1.81	2.08	1.81
Slovakia	2.74	3.01	2.74
Slovenia	2.88	3.16	2.88
South Africa	2.38	2.41	2.38
South Korea	2.85	2.81	2.85
South Sudan	1.71	2.10	1.71
Spain	2.70	2.92	2.70
Sweden	2.71	2.95	2.71
Switzerland	2.75	3.02	2.75
Taiwan	2.74	2.87	2.74
Thailand	2.34	2.39	2.34
Turkey	2.66	2.70	2.66
UAE	1.92	1.85	1.92
UK	2.71	2.81	2.71
US	2.18	2.23	2.18
Uganda	1.99	2.14	1.99
Ukraine	2.57	2.81	2.57
Vietnam	2.26	2.38	2.26