Mental Health Analysis

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Looking at Mental Health and Trust

```
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 '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 4.3.3

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

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

```r
# 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` = a1_1,
    `2. local_tv_media` = a1_2,
    `3. trust_media_national_radio_media` = a1_3,
    `4. local_radio_media` = a1_4,
    `5. international_tv_media` = a1_5,
    `6. international_radio_media` = a1_6,
    `7. national_print_media` = a1_7,
    `8. local_print_media` = a1_8,
    `9. word_of_mouth_media` = a1_9,
    `10. govt_comms_media` = a1_10,
    `11. social_media_media` = a1_11,
    `12. internet_media` = a1_12,
    `13. messaging_media` = a1_13,
    mh_problems = c1_6
  ) %>%
  dplyr::mutate_at(
    vars(ends_with("media")), as.numeric
  )
```

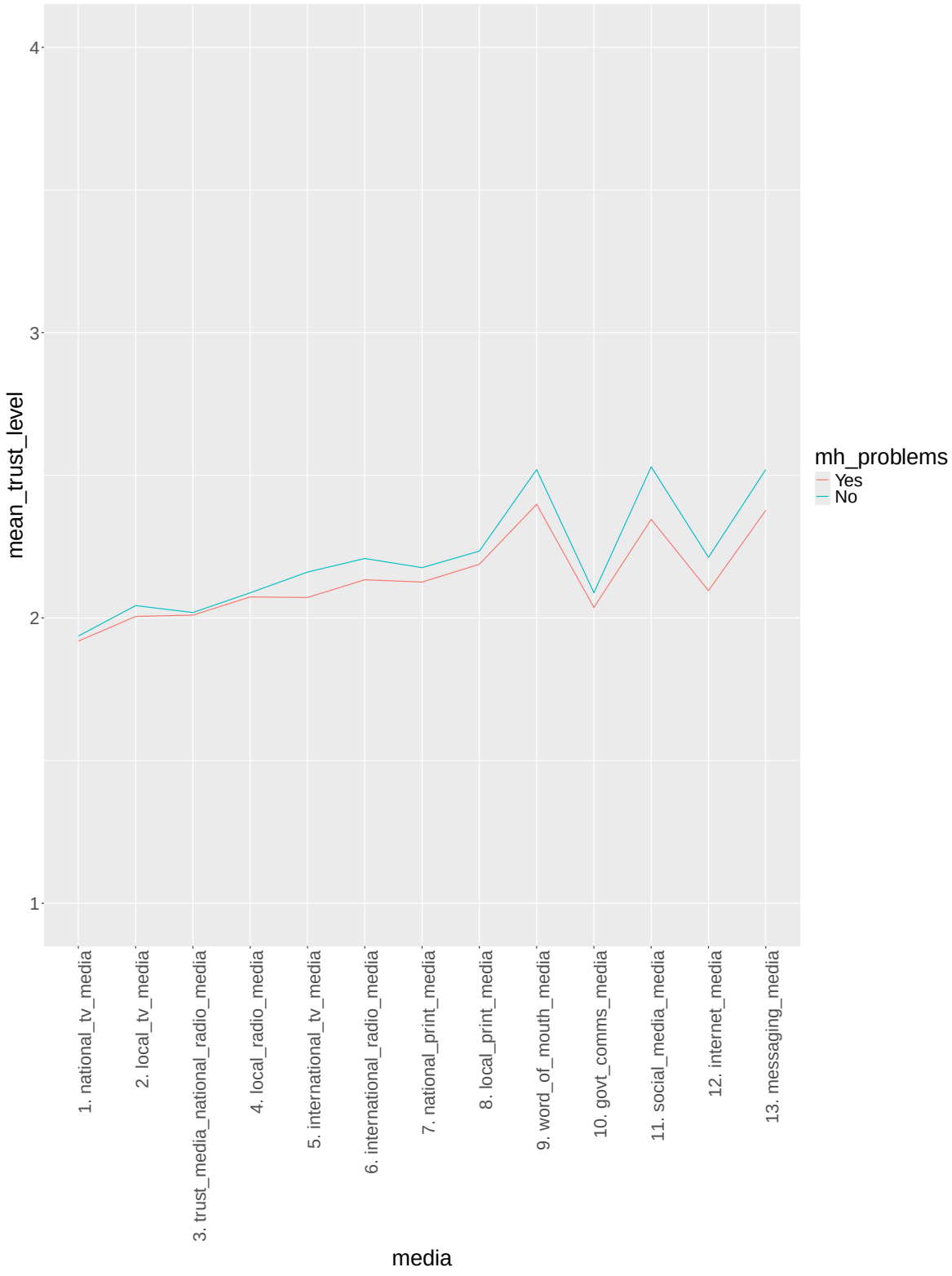
Trust in Media: all age groups, by MH Problems

MH problems associated with slightly lower trust levels

```r
d_long <- d %>%
  dplyr::filter(mh_problems != "Don't know/ Refused") %>%
  dplyr::select(
    age_group, global_region, country, mh_problems,
    ends_with("media")
  ) %>%
  tidyr::pivot_longer(
    cols = ends_with("media"),
    values_to = "trust_level",
    names_to = "media"
  ) %>%
  dplyr::filter(
```

```
    trust_level != 5     ## Don't know / refused has become 5, so remove
  )


d_long %>%
  dplyr::group_by(
    mh_problems, media
  ) %>%
  dplyr::summarise(
    mean_trust_level = mean(trust_level)
  ) %>%
  ggplot2::ggplot(
    aes(x = media, y = mean_trust_level, group = mh_problems, color = mh_problems)
  ) +
  geom_line() +
  theme(
    axis.text.x = element_text(angle = 90, hjust = 1),
    text=element_text(size=25)
    ) +
  ylim(1, 4)
```

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

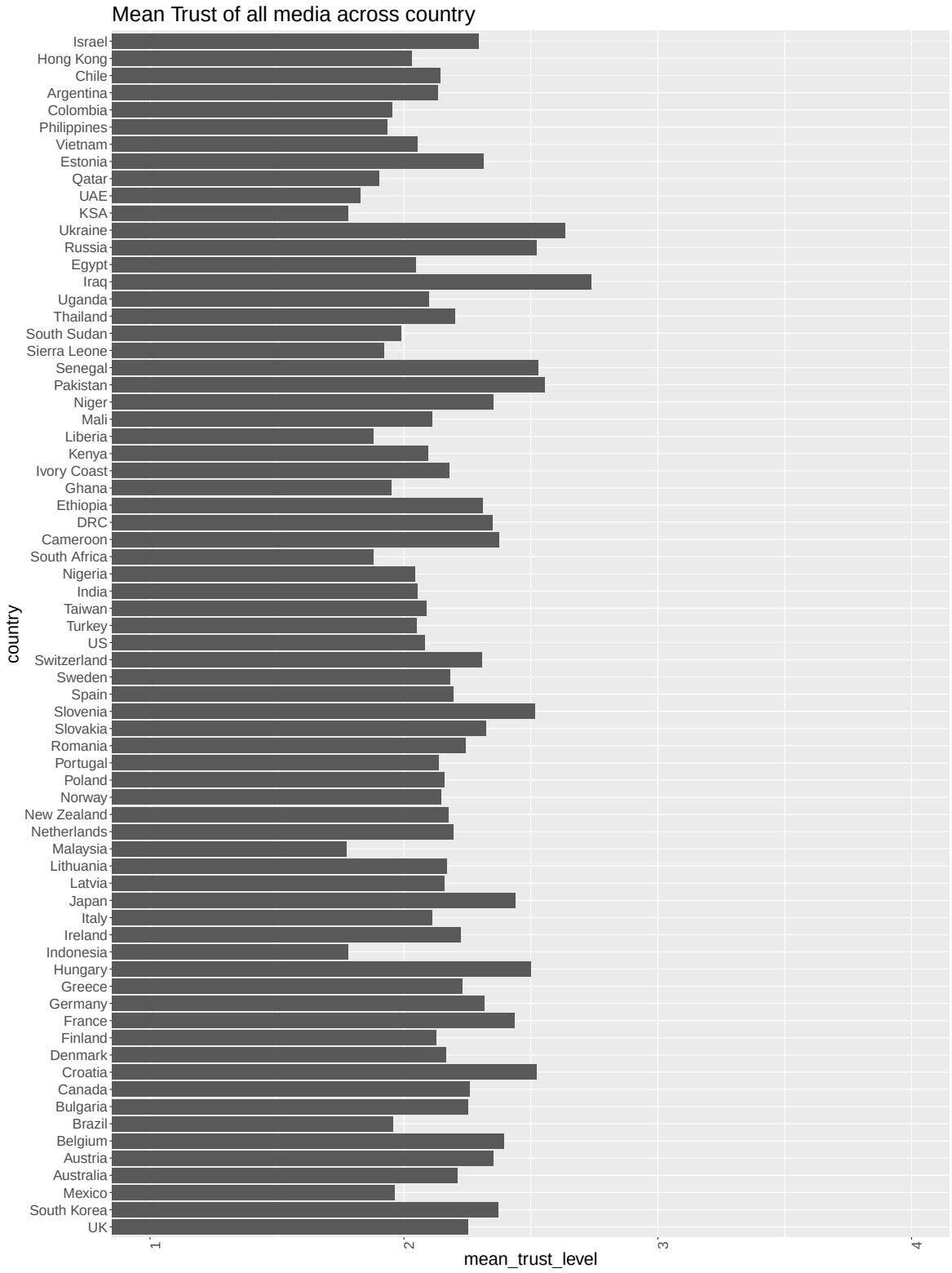

mean_trust_level
4
3
2
1
1. national_tv_media
2. local_tv_media
3. trust_media_national_radio_media
4. local_radio_media
5. international_tv_media
6. international_radio_media
7. national_print_media
8. local_print_media
9. word_of_mouth_media
10. govt_comms_media
11. social_media_media
12. internet_media
13. messaging_media
media
mh_problems
Yes
No

Trust in media by country

Hard to see, but there are a lot of between country differences, however there appear to be some consistent patterns. Word of mouth tends to be high, social media tend to be low.

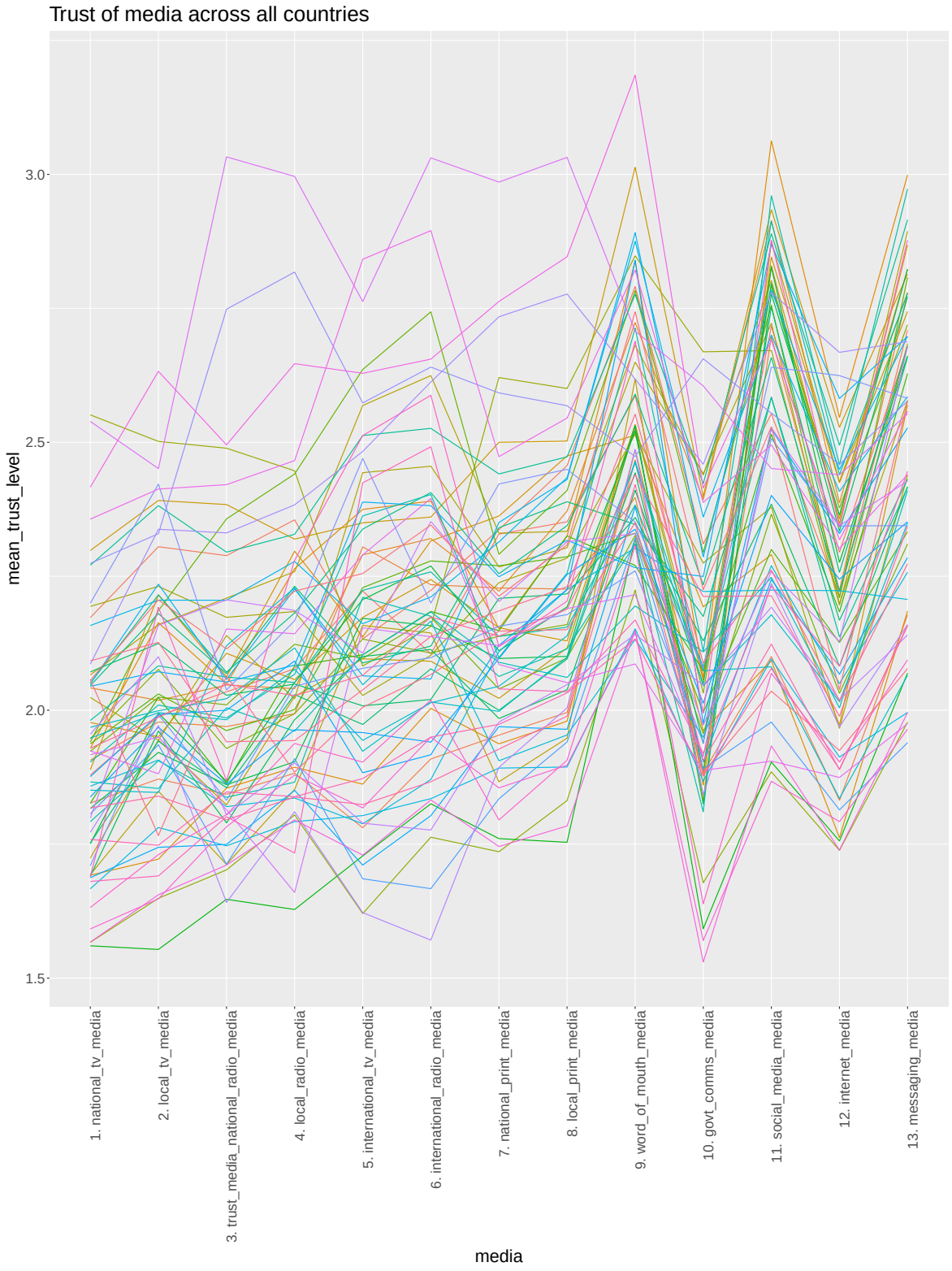
```
d_long <- d %>%
  dplyr::filter(mh_problems != "Don't know/ Refused") %>%
  dplyr::select(
    age_group, global_region, country, mh_problems,
    ends_with("media")
  ) %>%
  tidyr::pivot_longer(
    cols = ends_with("media"),
    values_to = "trust_level",
    names_to = "media"
  ) %>%
  dplyr::filter(
    trust_level != 5    ## Don't know / refused has become 5, so remove
  ) %>%
  dplyr::group_by(country) %>%
  dplyr::group_by(
    country
  ) %>%
  dplyr::mutate(
    mean_trust_level = mean(trust_level)
  ) %>%
  dplyr::ungroup() %>%
  dplyr::mutate(mean_trust_residualized = trust_level - mean_trust_level )




d_long  %>%
  dplyr::group_by(country) %>%
  dplyr::summarise(mean_trust_level = mean(trust_level )) %>%
  ggplot2::ggplot(
    aes(x = country, y = mean_trust_level)
  ) +
  geom_bar(stat = "identity") +
  theme(axis.text.x = element_text(angle = 90, hjust = 1)) +
  ggtitle("Mean Trust of all media across country") +
  coord_flip(ylim = c(1, 4)) +
```

```
  theme(
    axis.text.x = element_text(angle = 90, hjust = 1),
    text = element_text(size=20)
  )
```


Mean Trust of all media across country
Israel
Hong Kong
Chile
Argentina
Colombia
Philippines
Vietnam
Estonia
Qatar
UAE
KSA
Ukraine
Russia
Egypt
Iraq
Uganda
Thailand
South Sudan
Sierra Leone
Senegal
Pakistan
Niger
Mali
Liberia
Kenya
Ivory Coast
Ghana
Ethiopia
DRC
Cameroon
South Africa
Nigeria
India
Taiwan
Turkey
US
Switzerland
Sweden
Spain
Slovenia
Slovakia
Romania
Portugal
Poland
Norway
New Zealand
Netherlands
Malaysia
Lithuania
Latvia
Japan
Italy
Ireland
Indonesia
Hungary
Greece
Germany
France
Finland
Denmark
Croatia
Canada
Bulgaria
Brazil
Belgium
Austria
Australia
Mexico
South Korea
UK
country
1
2
3
4
mean_trust_level

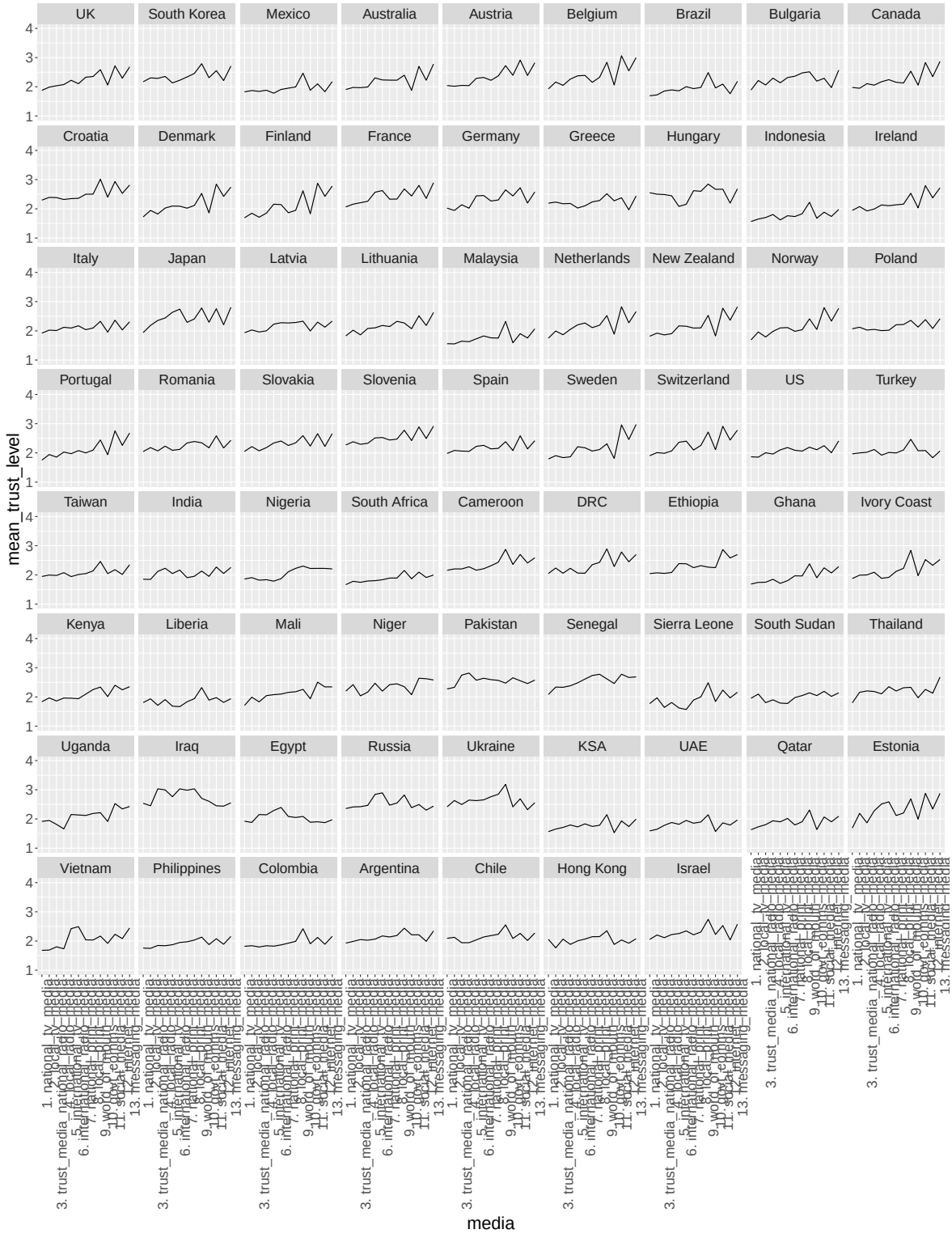
```r
d_long %>%
  dplyr::group_by(
    country, media
  ) %>%
  dplyr::summarise(
    mean_trust_level = mean(trust_level)
  ) %>%
  ggplot2::ggplot(
    aes(x = media, y = mean_trust_level, group = country, color = country)
  ) +
  geom_line() +
  theme(
    axis.text.x = element_text(angle = 90, hjust = 1),
    legend.position = "none",
    text = element_text(size=20)
  ) +
  ggtitle(
    "Trust of media across all countries"
  )
```

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


Trust of media across all countries
mean_trust_level
3.0
2.5
2.0
1.5
1. national_tv_media
2. local_tv_media
3. trust_media_national_radio_media
4. local_radio_media
5. international_tv_media
6. international_radio_media
7. national_print_media
8. local_print_media
9. word_of_mouth_media
10. govt_comms_media
11. social_media_media
12. internet_media
13. messaging_media
media

```r
d_long %>%
  dplyr::group_by(
    country, media
  ) %>%
  dplyr::summarise(
    mean_trust_level = mean(trust_level)
  ) %>%
  ggplot2::ggplot(
    aes(x = media, y = mean_trust_level, group = country)
  ) +
  geom_line() +
 theme(
    axis.text.x = element_text(angle = 90, hjust = 1),
    legend.position = "none",
    text = element_text(size=20)
  ) +
  ylim(1, 4) +
  facet_wrap(~country) +
  ggtitle(
    "Trust of media across all countries"
  )
```

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


Trust of media across all countries
UK
South Korea
Mexico
Australia
Austria
Belgium
Brazil
Bulgaria
Canada
Croatia
Denmark
Finland
France
Germany
Greece
Hungary
Indonesia
Ireland
Italy
Japan
Latvia
Lithuania
Malaysia
Netherlands
New Zealand
Norway
Poland
Portugal
Romania
Slovakia
Slovenia
Spain
Sweden
Switzerland
US
Turkey
Taiwan
India
Nigeria
South Africa
Cameroon
DRC
Ethiopia
Ghana
Ivory Coast
Kenya
Liberia
Mali
Niger
Pakistan
Senegal
Sierra Leone
South Sudan
Thailand
Uganda
Iraq
Egypt
Russia
Ukraine
KSA
UAE
Qatar
Estonia
Vietnam
Philippines
Colombia
Argentina
Chile
Hong Kong
Israel
mean_trust_level
1
2
3
4
1. national_tv_media
3. trust_media_national_radio
5. international_radio
6. international_print_media
7. national_online_media
9. word_of_mouth
11. social_media
13. messaging_media
media

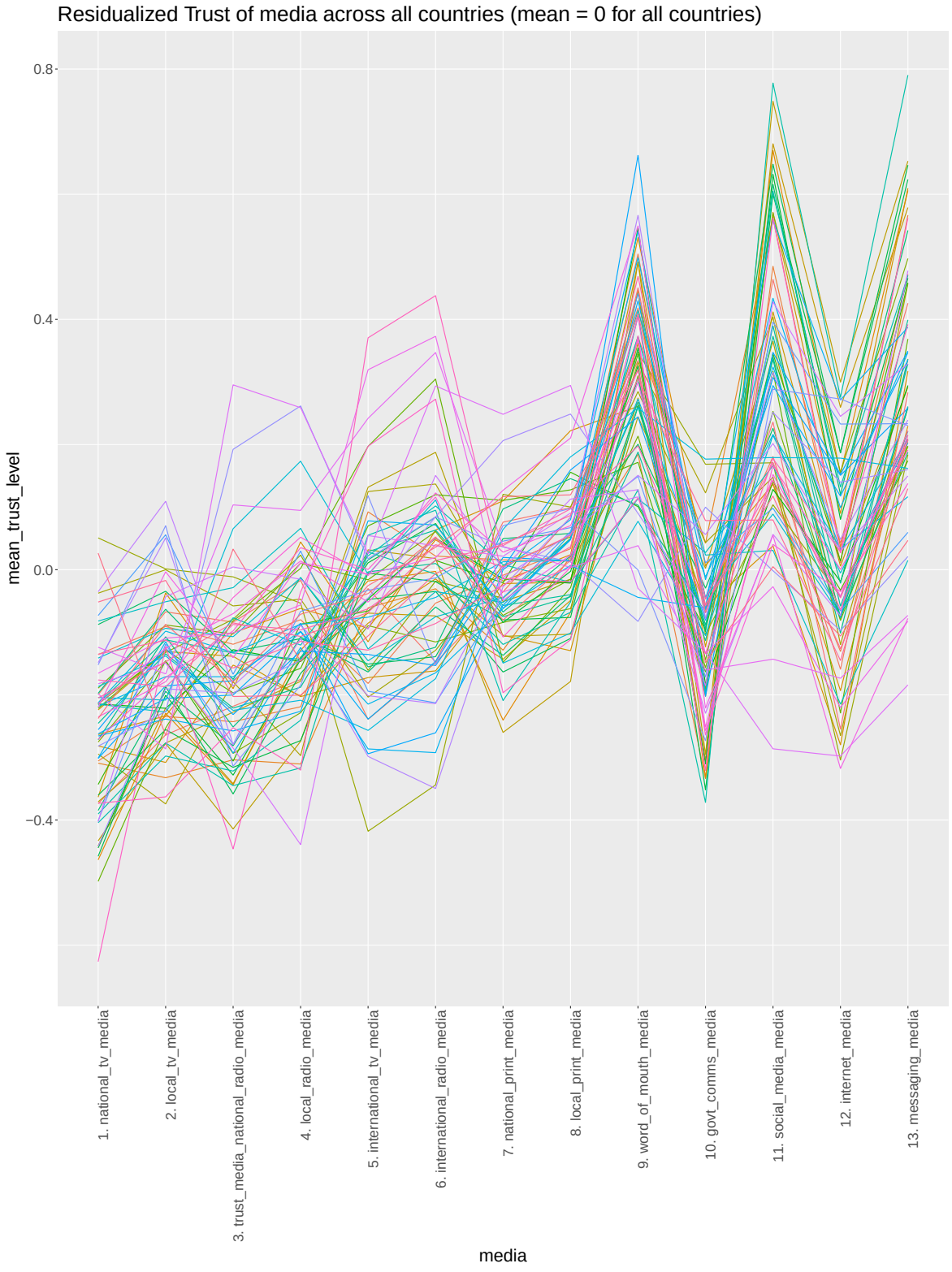
Look at within country variation from the average

Different countries have different baseline levels of trust (as seen above). We residualize trust by subtracting the mean of all trust scores for a country from the trust score.

This removes a large amount of noise from the graph, and the patterns become clearer.

```
d_long %>%
  dplyr::group_by(
    country, media
  ) %>%
  dplyr::summarise(
    mean_trust_level = mean(mean_trust_residualized)
  ) %>%
  ggplot2::ggplot(
    aes(x = media, y = mean_trust_level, group = country, color = country)
  ) +
  geom_line() +
  theme(
    axis.text.x = element_text(angle = 90, hjust = 1),
    legend.position = "none",
    text = element_text(size=20)
  ) +
  ggtitle(
    "Residualized Trust of media across all countries (mean = 0 for all countries)"
  )
```

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

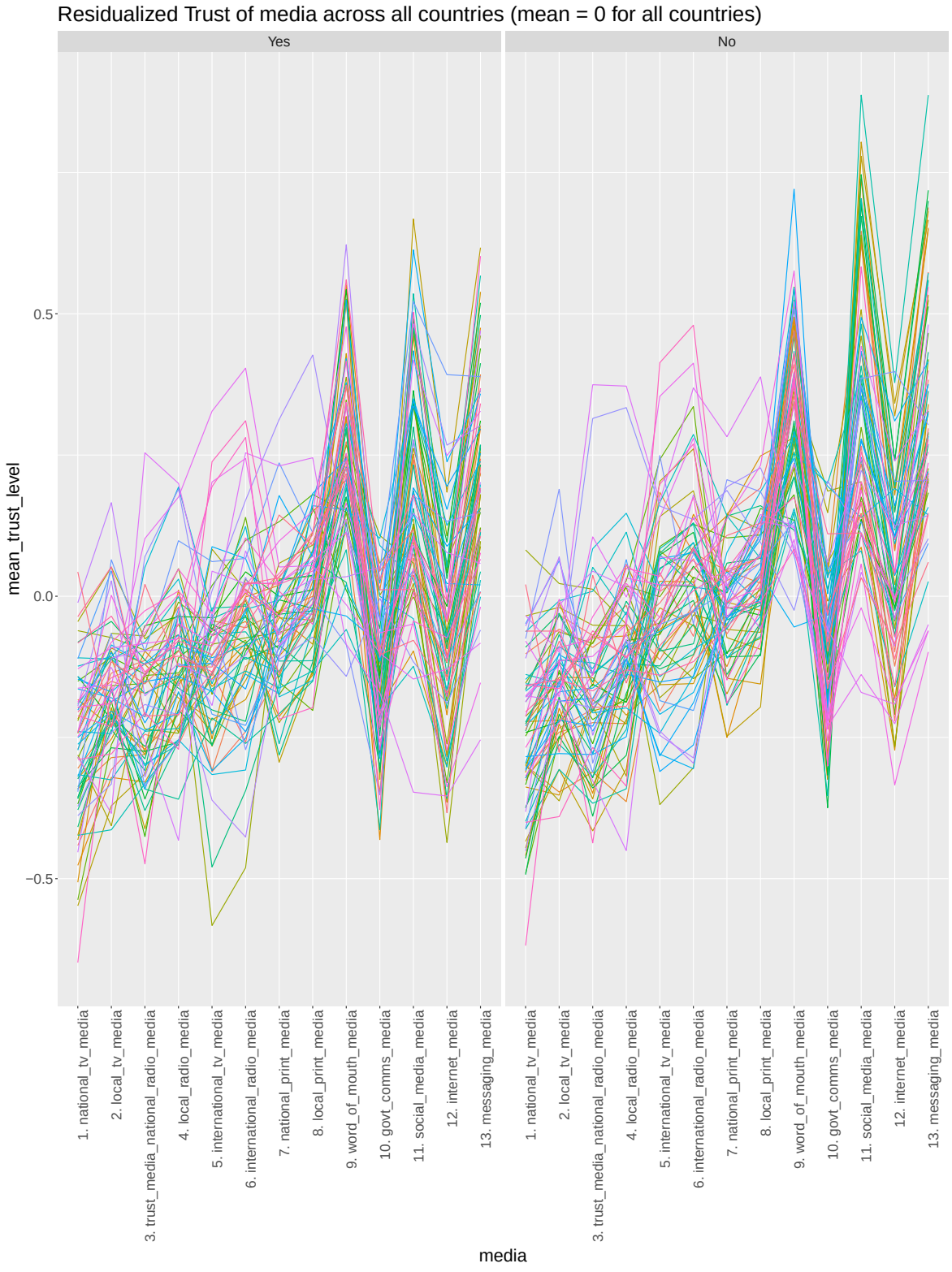

Residualized Trust of media across all countries (mean = 0 for all countries)
mean_trust_level
0.8
0.4
0.0
−0.4
1. national_tv_media
2. local_tv_media
3. trust_media_national_radio_media
4. local_radio_media
5. international_tv_media
6. international_radio_media
7. national_print_media
8. local_print_media
9. word_of_mouth_media
10. govt_comms_media
11. social_media_media
12. internet_media
13. messaging_media
media

Mental Health Problems and trust by country

Using residualized trust scores, we can see that there is a consistent pattern that people who report mental health problems also report lower trust (and because we residualized on country we know that this is not a between country effect.)

```
d_long %>%
  dplyr::group_by(
    country, media, mh_problems
  ) %>%
  dplyr::summarise(
    mean_trust_level = mean(mean_trust_residualized)
  ) %>%
  ggplot2::ggplot(
    aes(x = media, y = mean_trust_level, group = country, color = country)
  ) +
  geom_line() +
  theme(
    axis.text.x = element_text(angle = 90, hjust = 1),
    legend.position = "none",
    text = element_text(size=20)
  ) +
  ggtitle(
    "Residualized Trust of media across all countries (mean = 0 for all countries)"
  ) +
  facet_grid(. ~ mh_problems)
```

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

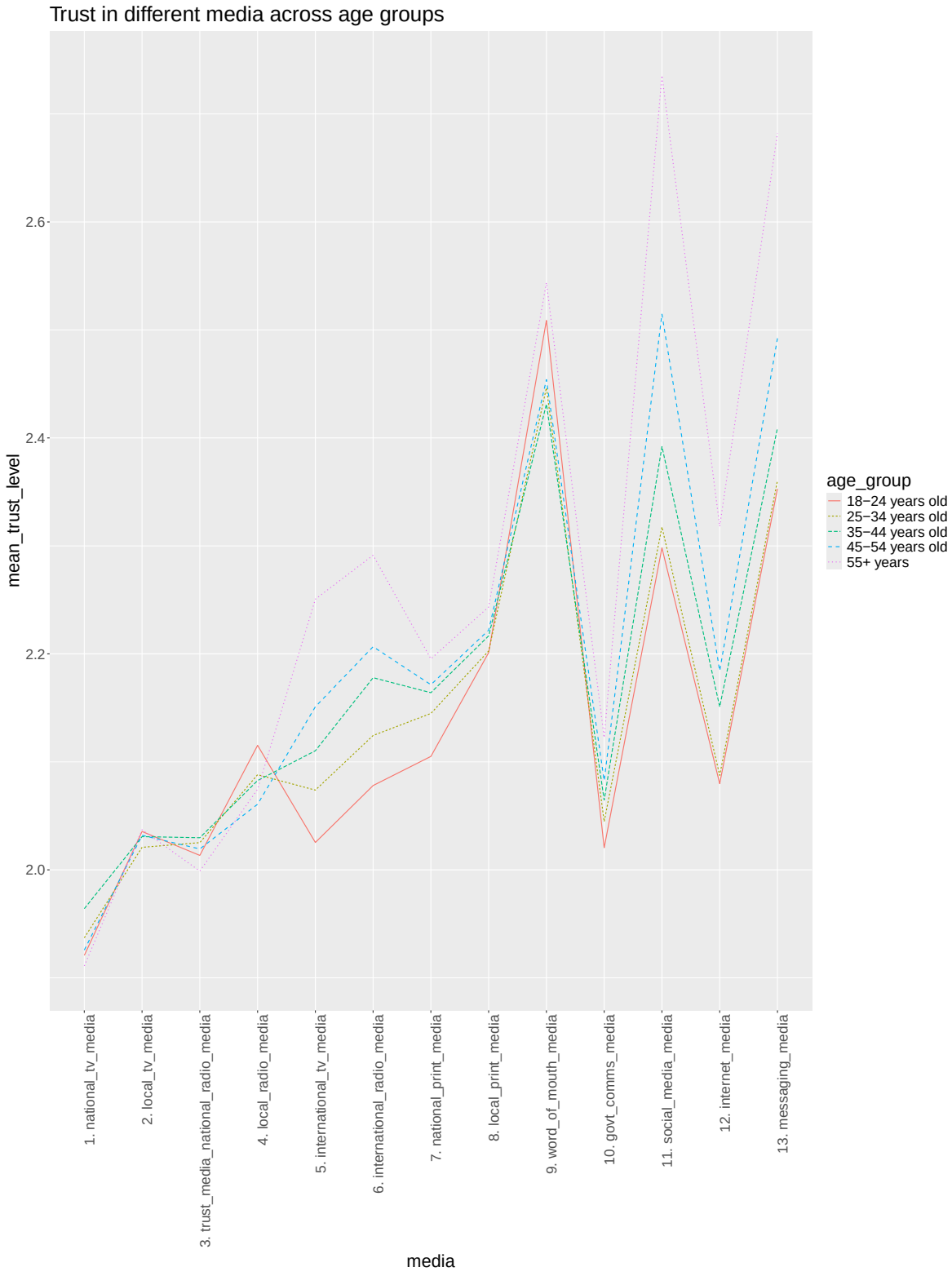

Residualized Trust of media across all countries (mean = 0 for all countries)
Yes
No
mean_trust_level
0.5
0.0
−0.5
1. national_tv_media
2. local_tv_media
3. trust_media_national_radio_media
4. local_radio_media
5. international_tv_media
6. international_radio_media
7. national_print_media
8. local_print_media
9. word_of_mouth_media
10. govt_comms_media
11. social_media_media
12. internet_media
13. messaging_media
media

Age and Trust

Younger people tend to be the least trusting of some media (International TV, International radio, national print media, govt communication, social media, internet, messaging apps) but the most trusting of local radio and word of mouth.

```
d_long %>%
  dplyr::filter(age_group != "Don't know/ Prefer not to say") %>%
  dplyr::group_by(
    age_group, media
  ) %>%
  dplyr::summarise(
    mean_trust_level = mean(trust_level)
  ) %>%
  ggplot2::ggplot(
    aes(x = media, y = mean_trust_level, group = age_group, color = age_group)
  ) +
  geom_line(aes(linetype = age_group)) +
  theme(
    axis.text.x = element_text(angle = 90, hjust = 1),
    text = element_text(size=20)
  ) +
  ggtitle(
    "Trust in different media across age groups"
  )
```

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


Trust in different media across age groups
mean_trust_level
2.6
2.4
2.2
2.0
1. national_tv_media
2. local_tv_media
3. trust_media_national_radio_media
4. local_radio_media
5. international_tv_media
6. international_radio_media
7. national_print_media
8. local_print_media
9. word_of_mouth_media
10. govt_comms_media
11. social_media_media
12. internet_media
13. messaging_media
media
age_group
18−24 years old
25−34 years old
35−44 years old
45−54 years old
55+ years

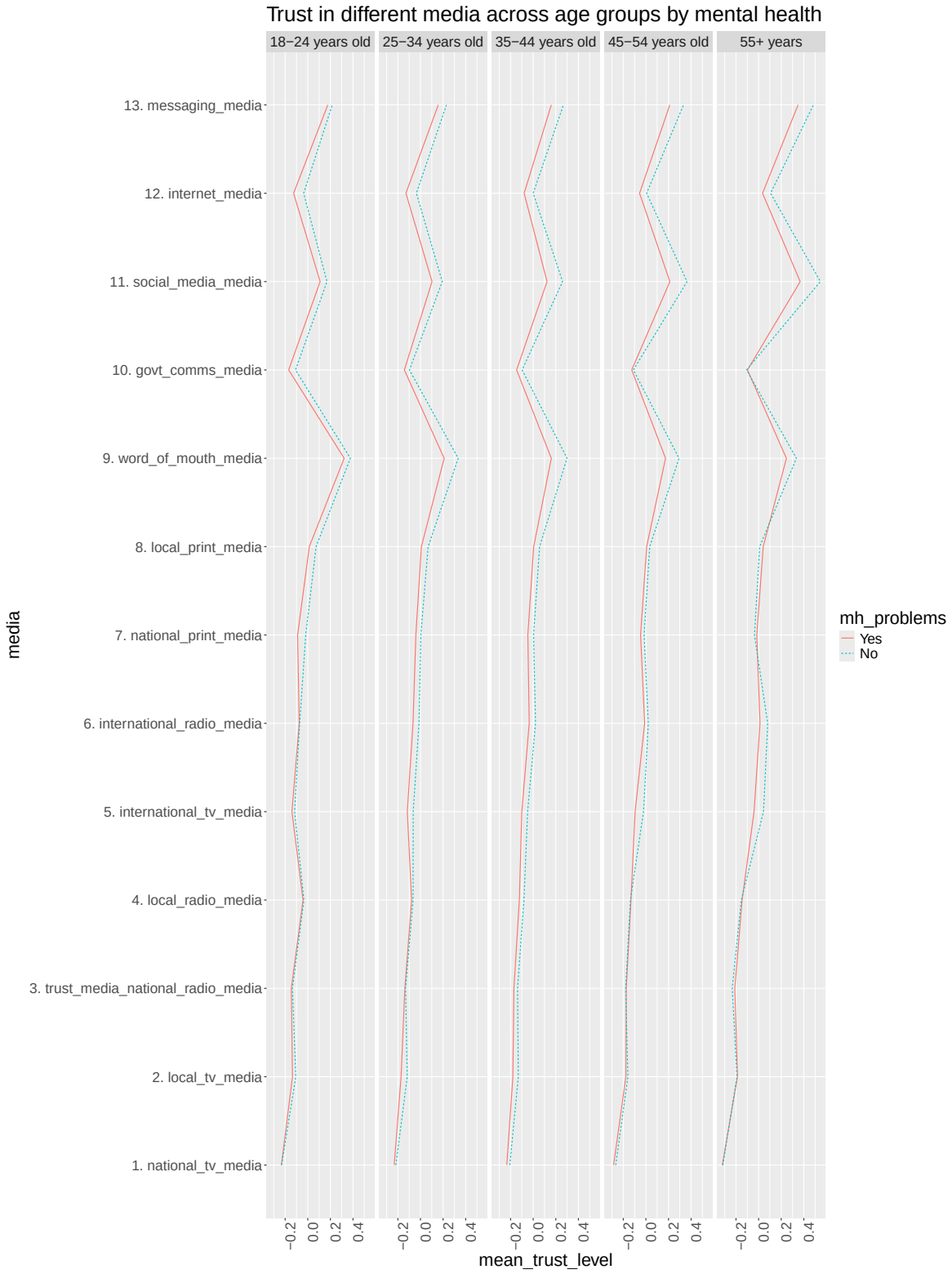
Age and Trust and Mental Health Problems

(This uses trust levels adjusted for countries, because of the differences in mental health reporting across countries.) The differences in levels of trust between those who report mental health problems and those who do not appears to be smaller for the 18-24 year olds than for the other age groups (although these differences are not large for any age groups). The oldest age group (55+) with mental health problems appear to have slightly *more* trust in some media than those without.

(There are two versions of this chart - one flipped sideways, one not, I wasn't sure which was better.)

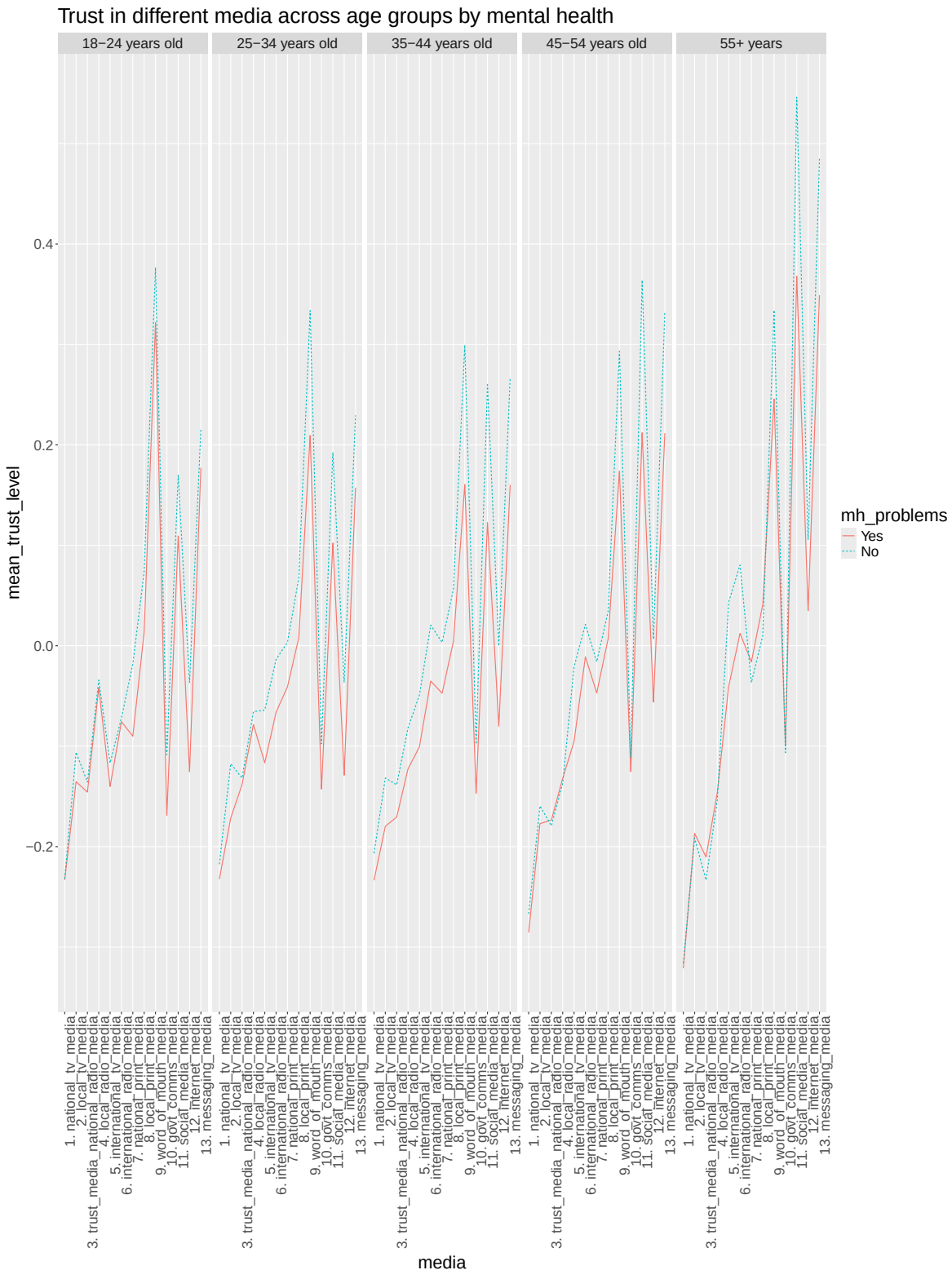
```
d_long %>%
  dplyr::filter(age_group != "Don't know/ Prefer not to say") %>%
  dplyr::group_by(
    age_group, media, mh_problems
  ) %>%
  dplyr::summarise(
    mean_trust_level = mean(mean_trust_residualized)
  ) %>%
  ggplot2::ggplot(
    aes(
      x = media, y = mean_trust_level, group = mh_problems, color = mh_problems
    )
  ) +
  geom_line(aes(linetype = mh_problems)) +
  theme(
    axis.text.x = element_text(angle = 90, hjust = 1),
    text = element_text(size=20)
  ) +
  ggtitle(
    "Trust in different media across age groups by mental health"
  ) +
  facet_grid(. ~ age_group) + coord_flip()
```

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


Trust in different media across age groups by mental health
18−24 years old
25−34 years old
35−44 years old
45−54 years old
55+ years
13. messaging_media
12. internet_media
11. social_media_media
10. govt_comms_media
9. word_of_mouth_media
8. local_print_media
7. national_print_media
6. international_radio_media
5. international_tv_media
4. local_radio_media
3. trust_media_national_radio_media
2. local_tv_media
1. national_tv_media
media
−0.2
0.0
0.2
0.4
mean_trust_level
mh_problems
Yes
No

```r
d_long %>%
  dplyr::filter(age_group != "Don't know/ Prefer not to say") %>%
  dplyr::group_by(
    age_group, media, mh_problems
  ) %>%
  dplyr::summarise(
    mean_trust_level = mean(mean_trust_residualized)
  ) %>%
  ggplot2::ggplot(
    aes(
      x = media, y = mean_trust_level, group = mh_problems, color = mh_problems
    )
  ) +
  geom_line(aes(linetype = mh_problems)) +
  theme(
    axis.text.x = element_text(angle = 90, hjust = 1),
    text = element_text(size=20)
  ) +
  ggtitle(
    "Trust in different media across age groups by mental health"
  ) +
  facet_grid(. ~ age_group)
```

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


Trust in different media across age groups by mental health
18−24 years old
25−34 years old
35−44 years old
45−54 years old
55+ years
mean_trust_level
0.4
0.2
0.0
−0.2
mh_problems
Yes
No
1. national_tv_media
2. local_tv_media
3. trust_media_national_radio_media
4. local_radio_media
5. international_tv_media
6. international_radio_media
7. national_print_media
8. local_print_media
9. word_of_mouth_media
10. govt_comms_media
11. social_media_media
12. internet_media
13. messaging_media
media