

Are there differences in the predictive relationship between trait sexual desire and subjective sexual arousal toward sexual stimuli dependent on gender and relationship status?

Code and analyses

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Descripción

This document contains all code, and step by step explanations for all analyses, figures and tables (including supplementary figures and tables) for:

Vásquez-Amézquita, M., Martínez-González, M. B., & Leongómez, J. D. (in prep). *Are there differences in the predictive relationship between trait sexual desire and subjective sexual arousal toward sexual stimuli dependent on gender and relationship status?*

Data available from the Open Science Framework (OSF): <https://doi.org/10.XXXXXX/OSF.IO/XX XXX>. All analyses were planned by Milena Vásquez-Amézquita and Juan David Leongómez. This document and its underlying code were created in R `Markdown` by Juan David Leongómez using L^AT_EX.

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```
library(rstatix)
## Warning: package 'rstatix' was built under R version 4.2.3
library(berryFunctions)
```

1.2 Define color palettes

Individual color palettes for figures by gender, stimuli sex, or relationship type.

```
# Palette to color figures by gender
color.Gender <- c("#bd3106", "#5b7314")
# Palette to color figures by stimuli sex
color.StimuliSex <- c("#454b87", "#d9700e")
# Palette to color figures by relationship type
color.Relationship <- c("#b39e05", "#a513d6")
# Palette to color figures by dimension type
color.Dimension <- c("#582310", "#318f49", "#0cb4bb")
```

1.3 Custom functions

1.3.1 pval.lev

This function takes p-values and formats them in L^AT_EX, highlighting significant results in bold.

```
# Version 1 for LaTeX format
pval.lev <- function(pvals) {
  ifelse(pvals < 0.0001,
         "\\textbf{< 0.0001}",
         ifelse(pvals < 0.001,
                "\\textbf{< 0.001}",
                ifelse(pvals < 0.05,
                       paste0("\\textbf{", round(pvals, 4), "}",
                              round(pvals, 2))))
  )
}

# Version 2 without LaTeX format
pval.lev2 <- function(pvals) {
  ifelse(pvals < 0.0001,
         "< 0.0001",
         ifelse(pvals < 0.001,
                "< 0.001",
                ifelse(pvals < 0.05,
                       paste0("= ", round(pvals, 4)),
                       paste0("= ", round(pvals, 2)))))

}
```

1.3.2 pval.stars

This function takes p-values and adds starts to represent significance levels.

```
pval.stars <- function(pvals) {
  ifelse(pvals < 0.0001,
         "****",
         ifelse(pvals < 0.001,
                "***",
                ifelse(pvals < 0.01,
                       "**",
                       "*")))
```

```

        ifelse(pvals < 0.05,
       "*", NA)))
}

```

1.3.3 corr.stars

This function creates a correlation matrix, and displays significance (function `corr.stars` modified from <http://myowelt.blogspot.com/2008/04/beautiful-correlation-tables-in-r.html>).

```

corr.stars <- function(x) {
  require(Hmisc)
  x <- as.matrix(x)
  R <- rcorr(x)$r
  p <- rcorr(x)$P
  # define notions for significance levels; spacing is important.
  mystars <- ifelse(p < .001,
    paste0("\textbf{", round(R, 2), "***}"),
    ifelse(p < .01,
      paste0("\textbf{", round(R, 2), "**}"),
      ifelse(p < .05,
        paste0("\textbf{", round(R, 2), "*}"),
        ifelse(p < .10,
          paste0(round(R, 2), "$^{\dagger}$"),
          format(round(R, 2), nsmall = 2)))))

  # build a new matrix that includes the correlations with their appropriate stars
  Rnew <- matrix(mystars,
    ncol = ncol(x))
  diag(Rnew) <- paste(diag(R), " ",
    sep = "")
  rownames(Rnew) <- colnames(x)
  colnames(Rnew) <- paste(colnames(x), "",
    sep = "")

  # remove upper triangle
  Rnew <- as.matrix(Rnew)
  Rnew[upper.tri(Rnew, diag = TRUE)] <- ""
  Rnew <- as.data.frame(Rnew)
  # remove last column and return the matrix (which is now a data frame)
  Rnew <- cbind(Rnew[1:length(Rnew) - 1])
  return(Rnew)
}

```

1.3.4 summary.sig and summary.sig.boot

Functions to bold significant p values from summary model tables. It highlights significant p values, and formats the output in L^AT_EX, ready to be used with `kable`.

We used `summary` (regression-type tables of estimates) instead on ANOVA-type tables to display model results. This was because we needed to bootstrap estimates for the two models oh Hypothesis 2 (see section 3.2). However, to obtain p -values that represent main effects and interactions, we used *sum-to-zero* contrasts (see e.g., Kaufman & Sweet, 1974; Keppel & Zedeck, 1989).

```

# Version 1 for models with no CIs
summary.sig <- function(mod, custom_caption) {
  modTab <- data.frame(summary(mod)$coefficients) |>
    rownames_to_column() |>
    mutate_at("rowname", str_replace_all, ":" , " \times ") |>
    mutate_at("rowname", str_replace_all, "\`", "") |>
    mutate("rowname" = str_replace_all(rowname,

```

```

c("Gender1" = "Gender [Women]",
  "Relationship1" = "Relationship [Stable]",
  Dimension1 = "Dimension [Attractive person DSD]",
  Dimension2 = "Dimension [Partner DSD]")) |>
  select(rownames, Estimate, Std..Error, df, t.value, Pr....t..) |>
  mutate(Pr....t.. = pval.lev(Pr....t..)) |>
  kable(digits = 2,
    booktabs = TRUE,
    align = c("l", rep("c", 5)),
    linesep = "",
    caption = custom_caption,
    col.names = c("Effect",
      "Estimate",
      "Std. Error",
      "$df$",
      "$t$",
      "$p$"),
    escape = FALSE) |>
  kable_styling(latex_options = c("HOLD_position", "scale_down")) |>
  footnote(general = paste0("$R^2_{conditional} = ",
    round(r2_nakagawa(mod)$R2_conditional, 3),
    ", $R^2_{marginal} = ",
    round(r2_nakagawa(mod)$R2_marginal, 3),
    ". Results are from linear mixed models for main
    effects and interactions between sexual desire (SD) dimensions,
    sex, and Stimuli sex.
    Gender = participants gender (women, men);
    Stimuli sex = sex of stimuli (female, male);
    Attractive person DSD = Dyadic sexual desire toward an
    attractive person;
    Partner DSD = Dyadic sexual desire toward a partner.
    \\\textit{Sum-to-zero} contrasts were used to display
    \\\textit{p}-values that represent main effects and interactions
    in an ANOVA-type manner (i.e. the intercept is the grand mean of
    all cells, and estimates are differences between each category
    mean and the mean of all categories).
    \\\textit{Single} was used as reference category
    for relationship status, \\\textit{Men} for gender,
    and \\\textit{Solitary} for sexual desire dimension.
    Contrasted levels are in square brackets.
    Significant effects are in bold."),
    escape = FALSE,
    threeparttable = TRUE,
    footnote_as_chunk = TRUE)
  return(modTab)
}

# Version 2 for models with bootstrap CIs
summary.sig.boot <- function(mod, modCI, custom_caption) {
  modTab <- left_join(data.frame(summary(mod)$coefficients) |>
    rownames_to_column(),
    data.frame(modCI) |>
    rownames_to_column(),
    by = "rowname") |>
  mutate_at("rowname", str_replace_all, ":" , " × ") |>
  mutate_at("rowname", str_replace_all, "``", "") |>

```

```

mutate("rowname" = str_replace_all(rowname,
  c(`Solitary sexual desire (C)` =
    "Solitary SD (C)",
    `Dyadic sexual desire (Attractive person) (C)` =
    "Attractive person DSD (C)",
    `Dyadic sexual desire (Partner) (C)` =
    "Partner DSD (C)",
    "Relationship1" = "Relationship [Stable]",
    "Stimuli sex1" = "Stimuli sex [Female]",
    "Gender1" = "Gender [Women]")))) |>
select(rowname, Estimate, X2.5..., X97.5..., Std..Error, df, t.value, Pr...t...) |>
mutate(Pr...t... = pval.lev(Pr...t...)) |>
kable(digits = 2,
  booktabs = TRUE,
  align = c("l", rep("c", 7)),
  linesep = "",
  caption = custom_caption,
  col.names = c("Effect",
    "Estimate",
    "Lower 95\\% CI",
    "Upper 95\\% CI",
    "Std. Error",
    "$df$",
    "$t$",
    "$p$"),
  escape = FALSE) |>
kable_styling(latex_options = c("HOLD_position", "scale_down")) |>
footnote(general = paste0("$R^2_{conditional} = ",
  round(r2_nakagawa(mod)$R2_conditional, 3),
  ", $R^2_{marginal} = ",
  round(r2_nakagawa(mod)$R2_marginal, 3),
  ". Results are from linear mixed models for main
  effects and interactions between sexual desire (SD) dimensions,
  sex, and Stimuli sex.
  Confidence intervals were calculated as the 2.5 and 97.5
  percentiles from bootstrap (1000 simulations).
  Continuous variables were centered and scaled
  (represented as \\\textbf{(C)} in variable names).
  Gender = participants gender (women, men);
  Stimuli sex = sex of stimuli (female, male);
  Solitary SD = Solitary Sexual Desire;
  Attractive person DSD = Dyadic Sexual Desire toward an
  Attractive person;
  Partner DSD = Dyadic Sexual Desire toward partner.
  \\\textit{Sum-to-zero} contrasts were used to display
  \\\textit{p}-values that represent main effects and interactions
  in an ANOVA-type manner (i.e. the intercept is the grand mean of
  all cells, and estimates are differences between each category
  mean and the mean of all categories).
  As reference categories
  \\\textit{Single} was used for relationship status,
  \\\textit{Men} for gender,
  and \\\textit{Male} for stimuli sex.
  Contrasted levels are in square brackets.
  Significant effects are in bold."),
  escape = FALSE,
  style = "table"
)

```

```

        threeparttable = TRUE,
        footnote_as_chunk = TRUE)
    return(modTab)
}

```

1.3.5 emms.sig

Function to create a table of estimated marginal means and contrasts at three levels of a covariate, representing significance levels from `emmeans::emmeans` outputs. The function highlights significant p values, and formats the output in L^AT_EX, ready to be used with `kable`.

```

# Version 1, for interactions
emms.sig <- function(low.i, mid.i, hi.i) {
  emm.low <- data.frame(low.i[[1]])
  emm.mid <- data.frame(mid.i[[1]])
  emm.hi <- data.frame(hi.i[[1]])
  con.low <- data.frame(low.i[[2]])
  con.mid <- data.frame(mid.i[[2]])
  con.hi <- data.frame(hi.i[[2]])

  low.tab <- merge(emm.low, con.low, by = 0, all = TRUE)
  mid.tab <- merge(emm.mid, con.mid, by = 0, all = TRUE)
  hi.tab <- merge(emm.hi, con.hi, by = 0, all = TRUE)

  tab <- bind_rows(low.tab, mid.tab, hi.tab) |>
    select(-c(1,3,6,10:13)) |>
    mutate(p.value = pval.lev(p.value)) |>
    kable(digits = 2,
      booktabs = TRUE,
      align = c("l", rep("c", 4), "l", rep("c", 2)),
      linesep = "",
      caption = paste0("Estimated marginal means and contrasts for ",
                      low.i[[1]]@misc$pri.vars[1],
                      " at different levels of ",
                      low.i[[1]]@misc$by.vars),
      col.names = c(low.i[[1]]@misc$pri.vars[1],
                    "EMM",
                    "$SE$",
                    "$2.5\\% CI$",
                    "$97.5\\% CI$",
                    "Contrast",
                    "$z$",
                    "$p$"),
      escape = FALSE) |>
    pack_rows(group_label = paste0(low.i[[1]]@misc$by.vars, " = Mean - SD"),
              start_row = 1,
              end_row = 2,
              bold = TRUE) |>
    pack_rows(group_label = paste0(low.i[[1]]@misc$by.vars, " = Mean"),
              start_row = 3,
              end_row = 4,
              hline_before = TRUE,
              bold = TRUE) |>
    pack_rows(group_label = paste0(low.i[[1]]@misc$by.vars, " = Mean + SD"),
              start_row = 5,
              end_row = 6,
              hline_before = TRUE,

```

```

bold = TRUE) |>
add_header_above(c(" " = 5, "Contrasts" = 3)) |>
kable_styling(latex_options = "HOLD_position") |>
footnote(general = paste0("EMM = estimated marginal mean.
Significant effects are in bold.
Continuous variables were centered and scaled (in this case, ",
low.i[[1]]@misc$by.vars, ".
An asymptotic method was used to avoid extreme computation
times (hence, no degrees of freedom are included, and
$z$ rather than $t$ statistics are reported).
For contrasts, Tukey adjustment was used."),
threeparttable = TRUE,
footnote_as_chunk = TRUE,
escape = FALSE)

return(tab)
}

# Version 2, for triple interactions
emms.sig2 <- function(low.i, mid.i, hi.i) {
  emm.low <- data.frame(low.i[[1]])
  emm.mid <- data.frame(mid.i[[1]])
  emm.hi <- data.frame(hi.i[[1]])
  con.low <- data.frame(low.i[[2]])
  con.mid <- data.frame(mid.i[[2]])
  con.hi <- data.frame(hi.i[[2]])

  low.tab <- merge(emm.low, con.low, by = 0, all = TRUE)
  mid.tab <- merge(emm.mid, con.mid, by = 0, all = TRUE)
  hi.tab <- merge(emm.hi, con.hi, by = 0, all = TRUE)

  tab <- bind_rows(low.tab, mid.tab, hi.tab) |>
  select(-c(1,4,7,11:14)) |>
  mutate(p.value = pval.lev(p.value)) |>
  kable(digits = 2,
    booktabs = TRUE,
    align = c("l", "l", rep("c", 4), "l", rep("c", 2)),
    linesep = "",
    caption = paste0("Estimated marginal means and contrasts for ",
      low.i[[1]]@misc$pri.vars[1], " and ",
      low.i[[1]]@misc$pri.vars[2],
      " at different levels of ",
      low.i[[1]]@misc$by.vars),
    col.names = c(low.i[[1]]@misc$pri.vars[1],
      low.i[[1]]@misc$pri.vars[2],
      "EMM",
      "$SE$",
      "$2.5\\% CI$",
      "$97.5\\% CI$",
      "Contrast",
      "$z$",
      "$p$"),
    escape = FALSE) |>
  pack_rows(group_label = paste0(low.i[[1]]@misc$by.vars, " = Mean - SD"),
    start_row = 1,
    end_row = 6,
    
```

```

bold = TRUE) |>
pack_rows(group_label = paste0(low.i[[1]]@misc$by.vars, " = Mean"),
          start_row = 7,
          end_row = 12,
          hline_before = TRUE,
          bold = TRUE) |>
pack_rows(group_label = paste0(low.i[[1]]@misc$by.vars, " = Mean + SD"),
          start_row = 13,
          end_row = 18,
          hline_before = TRUE,
          bold = TRUE) |>
add_header_above(c(" " = 6, "Contrasts" = 3)) |>
kable_styling(latex_options = c("HOLD_position", "scale_down")) |>
footnote(general = paste0("EMM = estimated marginal mean.  
Significant effects are in bold.  
Continuous variables were centered and scaled (in this case, ",  
low.i[[1]]@misc$by.vars, ")  
An asymptotic method was used to avoid extreme computation  
times (hence, no degrees of freedom are included, and  
$z$ rather than $t$ statistics are reported).  
For contrasts, Tukey adjustment was used."),
threeparttable = TRUE,
footnote_as_chunk = TRUE,
escape = FALSE)

return(tab)
}

```

1.3.6 contr.stars

Function to create a data frame of model contrasts, representing significance levels from an `emmeans::emmeans` output. These data frames are formatted to be called by the `ggpubr::stat_pvalue_manual` function used in model figures.

```

contr.stars <- function(emms){
  require(emmeans)
  x <- as.data.frame(contrast(emms, interaction = "pairwise"))
  x <- separate(x,
                col = 1,
                into = c("group1", "group2"),
                sep = " - ",
                remove = TRUE)
  x$p.signif <- ifelse(x$p.value < 0.0001, "****",
                        ifelse(x$p.value < 0.001, "***",
                               ifelse(x$p.value < 0.01, "**",
                                      ifelse(x$p.value < 0.05, "*", NA))))
  x <- x |>
    mutate_at("group1", str_replace_all, "[()]", "") |>
    mutate_at("group2", str_replace_all, "[()]", "")
  return(x)
}

```

1.3.7 prob.dist.tab

Function to create a table of the probability of a model for each distribution family, using the `check_distribution` function, from the `performance` package (Lüdecke et al., 2021). Values are sorted descending, first for probabilities according to the residual distribution, and then for probabilities according to the response variable. While 18

distribution families are tested, only families with at least one probability (either residual or response variable) higher than 10% are shown in the table.

```
prob.dist.tab <- function(mod){
  # Calculate probabilities for each distribution family
  tibble(check_distribution(mod)) |>
    arrange(desc(p_Response)) |>
    arrange(desc(p_Residuals)) |>
  # Select only distribution families with at least a 10% probability
  filter(p_Residuals > 0.1 | p_Response > 0.1) |>
  # Transform probabilities to percentages
  mutate(p_Residuals = paste0(round(p_Residuals*100, 2), "\\\%")) |>
  mutate(p_Response = paste0(round(p_Response*100, 2), "\\\%")) |>
  # Capitalise first letter of each family distribution
  mutate(Distribution = sub("(.)", "\U\1", Distribution, perl = TRUE)) |>
  # Create table
  kable(booktabs = TRUE,
        align = c("l", "c", "c"),
        row.names = FALSE,
        caption = "Distributional family for the model",
        col.names = c("Family",
                     "Residuals",
                     "Response"),
        escape = FALSE) |>
  kable_styling(latex_options = "HOLD_position") |>
  # Bold highest probability
  row_spec(1, background = "#c4c4c4") |>
  footnote(general = "Only families with at least one probability higher than 10\\\% are shown, but a total of 18 distribution families were tested.
The most likely distribution is highlighted.",
            threeparttable = TRUE,
            footnote_as_chunk = TRUE,
            escape = FALSE)
}
```

1.4 Load and wrangle data

Change necessary variables to factor, sort levels, and rename variables

```
# Load data
dat <- read.csv("Data/BD_Heterosexuales_Vertical_BIG.csv") |>
  # Remove rows with missing values for Solitary sexual desire (SD_solitario)
  drop_na(SD_solitario) |>
  # Change variables to factor and sort their levels
  mutate(Contenido_Estimulo = factor(Contenido_Estimulo)) |>
  mutate(Sexo = factor(Sexo)) |>
  mutate(Sexo_Estimulo = factor(Sexo_Estimulo)) |>
  mutate(PrefSex = factor(PrefSex)) |>
  mutate(EstRel = factor(EstRel)) |>
  mutate(Escolaridad = factor(Escolaridad)) |>
  mutate(Religion = factor(Religion)) |>
  # Rename variables to English
  rename(Participant = Participante,
         Age = EdadParticipante,
         `Preferred sex` = PrefSex,
         Gender = Sexo,
         `Contraceptive uso` = Anticoncep,
```

```

`Last period` = UltimoPer,
`Period day` = Dia_ciclo,
Education = Escolaridad,
Location = Residencia,
`Location (other)` = Residencia_3_TEXT,
`Medical history` = AntMed,
`Sexual orientation` = OS,
`Relationship status` = EstRel,
`Relationship duration` = TiempoRP,
`Partner gender` = SexPareja,
`Relationship type` = TipoRel,
`Age at first intercourse` = Primera.ExpSex,
`Consented to first intercourse` = ConExpSex,
`Number of sexual partners` = Numero.Parejas,
`Pornography consumed last month` = Pornografia_ultimo_mes,
Relationship = TieneRelacion,
`MGH-SFQ (total)` = MGH.SFQ_Total,
`Dyadic sexual desire (Partner)` = SD_Diadico_pareja,
`Solitary sexual desire` = SD_solitario,
`Dyadic sexual desire (Attractive person)` = SD_Diadico_p_atractiva,
`MGSS sexual satisfaction (General)` = Satisfaccion.Sexual..MGSS_general.,
`MGSS sexual satisfaction (Partner)` = Satisfaccion.Sexual..MGSS_Pareja.,
`Stimuli code` = Codigo_Estimulo,
`Stimuli sex` = Sexo_Estimulo,
`Stimuli content` = Contenido_Estimulo,
`Subjective sexual attractiveness` = Atractivo,
`Subjective sexual arousal` = Excitacion) |>

# Recode factor levels
mutate(`Stimuli content` = recode_factor(`Stimuli content`,
                                         Erotico = "Erotic",
                                         No_erotico = "Non-erotic")) |>
mutate(Gender = recode_factor(Gender,
                               Femenino = "Women",
                               Masculino = "Men")) |>
mutate(`Stimuli sex` = recode_factor(`Stimuli sex`,
                                      Femenino = "Female",
                                      Masculino = "Male")) |>
mutate(`Preferred sex` = recode_factor(`Preferred sex`,
                                       Hombre = "Male",
                                       Mujer = "Female")) |>
mutate(Education = recode(Education,
                           "Bachillerato" = "High school",
                           "Universitario" = "University",
                           "Postgrado" = "Postgraduate")) |>
mutate(Religion = recode(Religion,
                         "1" = "Religious",
                         "0" = "Non-religious")) |>
mutate(`Pornography consumed last month` = recode(`Pornography consumed last month`,
                                                 "Nunca" = "None",
                                                 "Una o dos veces" = "1-2 times",
                                                 "Tres a cinco veces" = "3-5 times",
                                                 "Mas de 5 veces" = "5 times or more")) |>

# Recode relationship type
mutate(Relationship = recode(`Relationship status`,
                             "Exclusiva/No viven juntos" = "Stable",
                             "Exclusiva/Matrimonio" = "Stable",

```

```
"No exclusiva" = "Non-stable",
"Soltero/sin contactos sexuales en un año" = "Single",
"Soltero/contactos sexuales en un año" = "Single")) |>
# Relevel factors
mutate(Education = fct_relevel(Education,
                                 c("High school", "University", "Postgraduate"))) |>
mutate(`Pornography consumed last month` = fct_relevel(`Pornography consumed last month`,
                                                       c("None", "1-2 times",
                                                       "3-5 times", "5 times or more"))) |>
# Filter participants in non-stable relationships
filter(Relationship != "Non-stable") |>
droplevels()
```

2 Descriptives

2.0.1 Figure S1. Sample demographic characteristics

Number of participants by demographic category.

```
# Get number of participant for each combination of demographic characteristic
dat.demog <- dat |>
  select(Participant, Gender, Relationship, Education, Religion,
         `Pornography consumed last month`) |>
  group_by(Participant) |>
  filter(row_number() == 1) |>
  ungroup() |>
  group_by(Gender, Relationship, Education, Religion,
           `Pornography consumed last month`) |>
  rename(Porn = `Pornography consumed last month`) |>
  tally() |>
  drop_na(Religion) |>
  ungroup()

# Create separate tables by gender
dat.demog.W <- filter(dat.demog, Gender == "Women")
dat.demog.M <- filter(dat.demog, Gender == "Men")

# Women
samp.w <- ggballoonplot(dat.demog.W, x = "Education", y = "Porn", size = "n",
                        fill = "n",
                        facet.by = c("Relationship", "Religion")) +
  scale_fill_viridis_c(option = "C", limits = c(1, max(dat.demog$n))) +
  scale_size_continuous(range = c(1, 7), limits = c(1, max(dat.demog$n))) +
  guides(fill = guide_legend(face = "italic"),
         size = guide_legend(face = "italic")) +
  labs(title = "Women", y = "Pornography consumed last month") +
  geom_text(aes(label = n),
            size = 3, nudge_x = 0.3, nudge_y = 0.1) +
  geom_text(aes(label = paste0("\n",
                             percent(n/sum(dat.demog$n), accuracy = 0.1),
                             "\n")),
            size = 2.5, nudge_x = 0.3, nudge_y = -0.05) +
  theme_tq() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        axis.text.y = element_text(angle = 45, vjust = 0.5))

# Men
samp.m <- ggballoonplot(dat.demog.M, x = "Education", y = "Porn", size = "n",
                        fill = "n",
                        facet.by = c("Relationship", "Religion")) +
  scale_fill_viridis_c(option = "C", limits = c(1, max(dat.demog$n))) +
  scale_size_continuous(range = c(1, 7), limits = c(1, max(dat.demog$n))) +
  guides(fill = guide_legend(face = "italic"),
         size = guide_legend(face = "italic")) +
  labs(title = "Men", y = NULL) +
  geom_text(aes(label = n),
            size = 3, nudge_x = 0.3, nudge_y = 0.1) +
  geom_text(aes(label = paste0("\n",
                             percent(n/sum(dat.demog$n), accuracy = 0.1),
                             "\n")),
            size = 2.5, nudge_x = 0.3, nudge_y = -0.05) +
```

```
theme_tq() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1),
        axis.text.y = element_text(angle = 45, vjust = 0.5))

# Full plot
ggarrange(samp.w, samp.m,
           widths = c(1.1, 1),
           common.legend = TRUE,
           legend = "bottom")
```



Figure S1. Number of participants by gender (left = women, right = men), Relationship (stable = top panels, single = bottom panels), Religion (non-religious = left panels by gender, religious = right panels by gender), Education (X axis), and pornography consumed during the last month (Y axis). The number of participants for each combination of these five variables is displayed as numbers (percentage in brackets), as well as by the color and size of the bubbles .

2.1 Descriptive statistics of the participants by gender

Calculate mean values per participant for relevant, numeric variables.

```
# Summarize relevant variables by participant
dat.desc <- dat |>
  select(Participant, Gender, Age, Relationship,
         `Number of sexual partners`, `MGH-SFQ (total)` ,
         `MGSS sexual satisfaction (General)`, `MGSS sexual satisfaction (Partner)` ,
         `Subjective sexual attractiveness`, `Subjective sexual arousal` ,
         `Solitary sexual desire`, `Dyadic sexual desire (Attractive person)` ,
         `Dyadic sexual desire (Partner)` ) |>
  group_by(Participant, Gender, Relationship) |>
  summarize_if(is.numeric, mean, na.rm = TRUE)
```

2.1.1 Table S1. Descriptive statistics of the participants by gender

Table of descriptives by gender.

```
# Table of descriptives by gender and relationship status
describeBy(dat.desc ~ Relationship + Gender,
           mat=TRUE,
           digits=2) |>
  rownames_to_column("Measured characteristic") |>
  select(1,3:4,6:9,12:13) |>
  slice(-(1:12)) |>
  select(1,3,2,4:9) |>
# Remove numbers included to differentiate repeated row names (now on column 1)
mutate("Measured characteristic" = str_replace_all(`Measured characteristic`,
                                                 c("1" = "",
                                                   "2" = "",
                                                   "3" = "",
                                                   "4" = ""))) |>

# Create table
kable(digits = 2,
      booktabs = TRUE,
      align = c("l", "l", "l", rep("c", 6)),
      linesep = "",
      caption = "Descriptive statistics the participants by gender and relationship status",
      col.names = c("Measured characteristic",
                   "Gender",
                   "Relationship status",
                   "$n$",
                   "Mean",
                   "$SD$",
                   "Median",
                   "Min",
                   "Max"),
      longtable = TRUE,
      escape = FALSE) |>
kable_styling(latex_options = c("HOLD_position", "repeat_header"),
              repeat_header_continued = "\\textit{(Continued on Next Page...)}",
              font_size = 8.2) |>
collapse_rows(columns = 1:3, valign = "middle") |>
footnote(general = "Because for \\\textit{Subjective sexual attractiveness} and
\\textit{Subjective sexual arousal} there are multiple within-subject
observations, descriptives are calculated from mean values per participant.",
         threeparttable = TRUE,
         footnote_as_chunk = TRUE,
         escape = FALSE)
```

Table S1. Descriptive statistics the participants by gender and relationship status

Measured characteristic	Gender	Relationship status	n	Mean	SD	Median	Min	Max
Age	Women	Stable	105	24.51	5.58	23.00	18.00	40.00
		Single	79	22.27	3.84	21.00	18.00	36.00
	Men	Stable	72	26.72	5.64	25.00	19.00	40.00
		Single	67	24.24	4.58	23.00	18.00	39.00
		Stable	103	4.41	3.77	3.00	1.00	22.00

(Continued on Next Page...)

Table S1. Descriptive statistics the participants by gen (continued)

Measured characteristic	Gender	Relationship status	n	Mean	SD	Median	Min	Max
Number of sexual partners	Women	Single	76	5.74	8.85	3.00	0.00	63.00
		Stable	72	8.72	11.36	5.00	1.00	70.00
	Men	Single	66	7.30	8.06	4.00	0.00	40.00
		Stable	104	3.31	0.96	3.75	0.00	4.00
MGH-SFQ (total)	Women	Single	79	2.80	1.23	3.50	0.00	4.00
		Stable	72	3.59	0.62	3.90	0.60	4.00
	Men	Single	67	3.38	0.83	3.80	0.60	4.00
		Stable	100	25.88	5.67	28.00	6.00	30.00
MGSS sexual satisfaction (General)	Women	Single	10	26.90	3.11	27.00	22.00	30.00
		Stable	70	26.43	4.54	29.00	12.00	30.00
	Men	Single	12	23.58	5.14	24.50	14.00	29.00
		Stable	100	28.13	4.20	30.00	8.00	30.00
MGSS sexual satisfaction (Partner)	Women	Single	10	28.10	2.13	29.00	25.00	30.00
		Stable	70	28.49	3.48	30.00	6.00	30.00
	Men	Single	12	26.08	4.85	27.50	15.00	30.00
		Stable	105	2.94	1.11	2.78	1.00	5.49
Subjective sexual attractiveness	Women	Single	79	3.19	1.06	3.11	1.44	6.77
		Stable	72	3.27	0.94	3.24	1.11	6.20
	Men	Single	67	3.20	0.90	3.18	1.09	5.72
		Stable	105	1.59	0.68	1.39	1.00	4.21
Subjective sexual arousal	Women	Single	79	1.75	0.71	1.52	1.00	4.39
		Stable	72	2.24	0.83	2.07	1.00	4.57
	Men	Single	67	2.16	0.78	2.05	1.00	4.09
		Stable	105	11.53	8.59	12.00	0.00	29.00
Solitary sexual desire	Women	Single	79	16.03	8.35	17.00	0.00	31.00
		Stable	72	17.47	7.51	17.50	0.00	31.00
	Men	Single	67	18.25	7.10	19.00	1.00	31.00
		Stable	105	10.55	7.64	10.00	0.00	30.00
Dyadic sexual desire (Attractive person)	Women	Single	79	14.06	7.39	15.00	0.00	32.00
		Stable	72	16.21	7.44	15.50	0.00	32.00
	Men	Single	67	17.57	6.66	17.00	2.00	30.00
		Stable	105	27.53	8.50	30.00	0.00	38.00
Dyadic sexual desire (Partner)	Women	Single	76	21.33	10.91	23.00	0.00	38.00
		Stable	72	31.35	5.33	32.00	15.00	38.00
	Men	Single	67	25.81	9.40	28.00	0.00	38.00

Note: Because for *Subjective sexual attractiveness* and *Subjective sexual arousal* there are multiple within-subject observations, descriptives are calculated from mean values per participant.

\end{ThreePartTable}

2.1.2 Figure S2. Distribution of participants' measured variables by gender

Kernel density distributions by gender.

```

# Convert dat.desc to long format
datp <- dat.desc |>
  pivot_longer(cols = Age:`Dyadic sexual desire (Partner)` ,
               names_to = "Variable",
               values_to = "Value") |>
  mutate(Variable = str_wrap(Variable, width = 30))

# Figure created as 3 separate panels (to use a different number of panels per row)
fs1a <- ggplot(datp |>
  filter(Variable %in% c("Age",
                         "Number of sexual partners",
                         "Subjective sexual\tnattractiveness",
                         "Subjective sexual arousal")),
  aes(Value,
      fill = Gender,
      colour = Gender)) +
  geom_density(alpha = 0.3) +
  geom_vline(data = datp |>
    filter(Variable %in% c("Age",
                           "Number of sexual partners",
                           "Subjective sexual\tnattractiveness",
                           "Subjective sexual arousal")) |>
    group_by(Variable, Gender) |>
    summarise(mean = mean(Value, na.rm =TRUE)),
    size = 1,
    aes(xintercept = mean, color = Gender, linetype = Gender)) +
  scale_color_manual(values = color.Gender) +
  scale_fill_manual(values = color.Gender) +
  facet_wrap(~ Variable,
             scales = "free",
             ncol = 4) +
  labs(y = "Density",
       x = NULL) +
  theme_tq()

fs1b <- ggplot(datp |>
  filter(Variable %in% c("MGH-SFQ (total)",
                        "MGSS sexual satisfaction\n(General)",
                        "MGSS sexual satisfaction\n(Partner)"),
  aes(Value,
      fill = Gender,
      colour = Gender)) +
  geom_density(alpha = 0.3) +
  geom_vline(data = datp |>
    filter(Variable %in% c("MGH-SFQ (total)",
                           "MGSS sexual satisfaction\n(General)",
                           "MGSS sexual satisfaction\n(Partner)")) |>
    group_by(Variable, Gender) |>
    summarise(mean = mean(Value, na.rm =TRUE)),
    size = 1,
    aes(xintercept = mean, color = Gender, linetype = Gender)) +
  scale_color_manual(values = color.Gender) +
  scale_fill_manual(values = color.Gender) +
  facet_wrap(~ Variable,
             scales = "free",
             ncol = 3) +

```

```

  labs(y = "Density",
       x = NULL) +
  theme_tq()

fs1c <- ggplot(datp |>
  filter(Variable %in% c("Solitary sexual desire",
                         "Dyadic sexual desire\nn(Attractive person)",
                         "Dyadic sexual desire (Partner)")),
  aes(Value,
      fill = Gender,
      colour = Gender)) +
  geom_density(alpha = 0.3) +
  geom_vline(data = datp |>
    filter(Variable %in% c("Solitary sexual desire",
                           "Dyadic sexual desire\nn(Attractive person)",
                           "Dyadic sexual desire (Partner)")) |>
    group_by(Variable, Gender) |>
    summarise(mean = mean(Value, na.rm =TRUE)),
    size = 1,
    aes(xintercept = mean, color = Gender, linetype = Gender)) +
  scale_color_manual(values = color.Gender) +
  scale_fill_manual(values = color.Gender) +
  facet_wrap(~ Variable,
             scales = "free",
             ncol = 3) +
  labs(y = "Density",
       x = NULL) +
  theme_tq()

# Full plot
ggarrange(fs1a, fs1b, fs1c,
          common.legend = TRUE,
          legend = "bottom",
          nrow = 3)

```

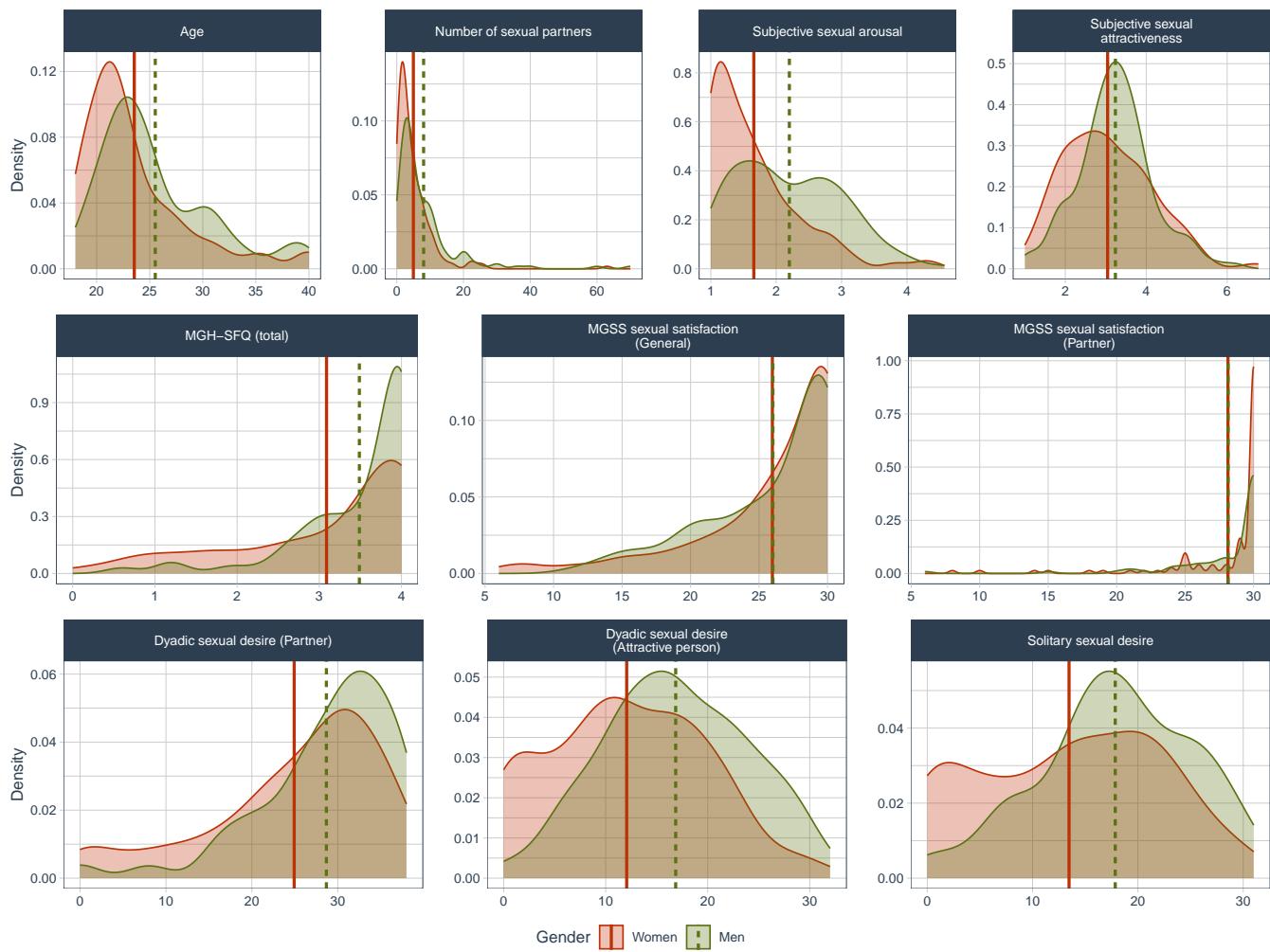


Figure S2. Distribution of measured variables by gender. Coloured vertical lines represent mean values by gender. Detailed descriptives are found in Table S1. Because for *Subjective sexual attractiveness* and *Subjective sexual arousal* there are multiple within-subject observations, densities calculated from mean values per participant.

2.2 Correlations between measured variables

Correlation between numeric variables for women, men, and all participants combined, are reported in Table S2.

2.2.1 Table S2. Correlations between measured variables

Correlation matrix table.

```
# Correlations for women
dat.corr.W <- dat.desc |>
ungroup() |>
filter(Gender == "Women") |>
select(Age: `Dyadic sexual desire (Partner)`) |>
corr.stars() |>
rownames_to_column(var = " ")

# Correlations for men
dat.corr.M <- dat.desc |>
ungroup() |>
filter(Gender == "Men") |>
select(Age: `Dyadic sexual desire (Partner)`) |>
```

```

corr.stars() |>
rownames_to_column(var = " ")

# Correlations for all participants combined
dat.corr.All <- dat.desc |>
ungroup() |>
select(Age:`Dyadic sexual desire (Partner)`) |>
corr.stars() |>
rownames_to_column(var = " ")

# Full formated table
bind_rows(dat.corr.W, dat.corr.M, dat.corr.All) |>
kable(digits = 2,
      booktabs = TRUE,
      align = c("l", rep("c", 9)),
      linesep = "",
      caption = "Correlations between measured variables",
      escape = FALSE) |>
pack_rows(group_label = "Women",
          start_row = 1, end_row = 10,
          bold = TRUE) |>
pack_rows(group_label = "Men",
          start_row = 11, end_row = 20,
          hline_before = TRUE,
          bold = TRUE) |>
pack_rows(group_label = "All participants",
          start_row = 21, end_row = 30,
          hline_before = TRUE,
          bold = TRUE) |>
kable_styling(latex_options = c("HOLD_position", "scale_down")) |>
column_spec(2:10, width = "2.2cm") |>
footnote(general = paste0("Values represent Pearson correlation coefficients ($r$). ",
                           "For significance, ${} \\dagger \\{p} < 0.1, *${p} < 0.05, ",
                           "**${p} < 0.01, ***${p} < 0.001. ",
                           "Significant correlations are in bold."),
         threeparttable = TRUE,
         footnote_as_chunk = TRUE,
         escape = FALSE) |>
landscape()

```

Table S2. Correlations between measured variables

	Age	Number of sexual partners	MGH-SFQ (total)	MGSS sexual satisfaction (General)	MGSS sexual satisfaction (Partner)	Subjective sexual attractiveness	Subjective sexual arousal	Solitary sexual desire	Dyadic sexual desire (Attractive person)
Women									
Age									
Number of sexual partners	0.24**								
MGH-SFQ (total)	-0.05	-0.07							
MGSS sexual satisfaction (General)	-0.21*	0.02	0.46***						
MGSS sexual satisfaction (Partner)	-0.16 [†]	-0.14	0.32***	0.73***					
Subjective sexual attractiveness	0.11	0.18*	-0.04	-0.22*	-0.18 [†]				
Subjective sexual arousal	0.00	0.17*	-0.13 [†]	-0.18 [†]	-0.16 [†]	0.54***			
Solitary sexual desire	-0.14 [†]	0.28***	0.05	-0.06	-0.18 [†]	0.31***	0.33***		
Dyadic sexual desire (Attractive person)	0.06	0.32***	-0.17*	-0.04	-0.17 [†]	0.34***	0.36***	0.44***	
Dyadic sexual desire (Partner)	0.00	0.21**	0.43***	0.44***	0.27**	0.13 [†]	0.04	0.31***	0.13 [†]
Men									
Age									
Number of sexual partners	0.23**								
MGH-SFQ (total)	0.04	0.02							
MGSS sexual satisfaction (General)	-0.24*	-0.08	0.36***						
MGSS sexual satisfaction (Partner)	-0.13	-0.01	0.10	0.63***					
Subjective sexual attractiveness	0.10	-0.05	-0.08	-0.10	-0.02				
Subjective sexual arousal	0.2*	0.07	0.05	-0.14	-0.09	0.46***			
Solitary sexual desire	-0.16 [†]	0.00	0.09	0.10	0.17	0.26**	0.11		
Dyadic sexual desire (Attractive person)	0.12	0.29***	0.03	-0.13	-0.08	0.25**	0.43***	0.25**	
Dyadic sexual desire (Partner)	0.11	0.07	0.36***	0.55***	0.22*	0.14	0.24**	0.17*	0.2*
All participants									
Age									
Number of sexual partners	0.26***								
MGH-SFQ (total)	0.02	0.01							
MGSS sexual satisfaction (General)	-0.22**	-0.03	0.42***						
MGSS sexual satisfaction (Partner)	-0.14*	-0.07	0.24***	0.69***					
Subjective sexual attractiveness	0.12*	0.08	-0.03	-0.18*	-0.12				
Subjective sexual arousal	0.15**	0.17**	0.01	-0.15*	-0.12 [†]	0.5***			
Solitary sexual desire	-0.09	0.17**	0.11 [†]	0.00	-0.05	0.31***	0.3***		
Dyadic sexual desire (Attractive person)	0.14*	0.33***	-0.04	-0.07	-0.12 [†]	0.32***	0.45***	0.42***	
Dyadic sexual desire (Partner)	0.08	0.16**	0.43***	0.46***	0.25***	0.15**	0.18**	0.3***	0.21***

Note: Values represent Pearson correlation coefficients (r). For significance, $^{\dagger}p < 0.1$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$. Significant correlations are in bold.

2.3 Internal consistency

Six variables were calculated from multiple items (1. MGH-SFQ, 2. Dyadic sexual desire (Partner), 3. Solitary sexual desire, 4. Dyadic sexual desire (Attractive person), 5. MGSS sexual satisfaction (General) and 6. MGSS sexual satisfaction (Partner)).

Data by item, for each participant, is included in the following data base, loaded as `dat.reli`:

```
dat.reli <- read_excel("Data/BD_ConsistenciaInternacional.xlsx") |>
  mutate(Sex = recode_factor(Sex,
    "2" = "Women",
    "1" = "Men")) |>
  rename(Gender = Sex) |>
  filter(Participante != 122)
```

Participant 122 was excluded because they did not respond the psychological scales.

To measure the internal consistency of these tests, we used standardized Cronbach's alpha (α or Tau-equivalent reliability: ρ_T) coefficients, using the function `cronbach.alpha` from the package `ltm` (Rizopoulos, 2006).

Importantly, given that for MGH-SFQ one item was answered only by men, the internal consistency of this variable was measured independently for each gender.

```
# MGH-SFQ for men
MGH.m <- dat.reli |>
  filter(Gender == "Men" ) |>
  select(3:7) |>
  drop_na() |>
  cronbach.alpha(CI = TRUE, standardized = TRUE)

# MGH-SFQ for women
MGH.w <- dat.reli |>
  filter(Gender == "Women" ) |>
  select(3:5,7) |>
  drop_na() |>
  cronbach.alpha(CI = TRUE, standardized = TRUE)

# Dyadic sexual desire (Partner)
DSD.p <- dat.reli |>
  select(9:13) |>
  drop_na() |>
  cronbach.alpha(CI = TRUE, standardized = TRUE)

# Solitary sexual desire
SSD.p <- dat.reli |>
  select(15:18) |>
  drop_na() |>
  cronbach.alpha(CI = TRUE, standardized = TRUE)

# Dyadic sexual desire (Attractive person)
DSD.a <- dat.reli |>
  select(20:23) |>
  drop_na() |>
  cronbach.alpha(CI = TRUE, standardized = TRUE)

# MGSS sexual satisfaction (General)
MGSS.g <- dat.reli |>
  select(26:30) |>
  drop_na() |>
  cronbach.alpha(CI = TRUE, standardized = TRUE)
```

```
# MGSS sexual satisfaction (Partner)
MGSS.p <- dat.reli |>
  select(32:36) |>
  drop_na() |>
  cronbach.alpha(CI = TRUE, standardized = TRUE)
```

2.3.1 Table S3. Internal consistency of construct variables

Table of Cronbach's α for construct variables.

```
# Create table
tibble(Variable = c("MGH-SFQ", "MGH-SFQ",
                    "MGSS sexual satisfaction (General)",
                    "MGSS sexual satisfaction (Partner)",
                    "Dyadic sexual desire (Partner)",
                    "Solitary sexual desire",
                    "Dyadic sexual desire (Attractive person)"),
       Gender = c("Men", "Women", rep(" ", 5)),
       p = c(MGH.m$p,
              MGH.w$p,
              MGSS.g$p,
              MGSS.p$p,
              DSD.p$p,
              SSD.p$p,
              DSD.a$p),
       n = c(MGH.m$n,
              MGH.w$n,
              MGSS.g$n,
              MGSS.p$n,
              DSD.p$n,
              SSD.p$n,
              DSD.a$n),
       alpha = c(MGH.m$alpha,
                 MGH.w$alpha,
                 MGSS.g$alpha,
                 MGSS.p$alpha,
                 DSD.p$alpha,
                 SSD.p$alpha,
                 DSD.a$alpha),
       ci2.5 = c(MGH.m$ci[1],
                  MGH.w$ci[1],
                  MGSS.g$ci[1],
                  MGSS.p$ci[1],
                  DSD.p$ci[1],
                  SSD.p$ci[1],
                  DSD.a$ci[1]),
       ci97.5 = c(MGH.m$ci[2],
                  MGH.w$ci[2],
                  MGSS.g$ci[2],
                  MGSS.p$ci[2],
                  DSD.p$ci[2],
                  SSD.p$ci[2],
                  DSD.a$ci[2])) |>
kable(digits = 2,
      booktabs = TRUE,
      align = c("l", "l", rep("c", 5)),
```

```

linesep = "",
caption = "Internal consistency of measured variables",
escape = FALSE,
col.names = c("Variable", "Gender",
             "Items",
             "$n$",
             "$\\alpha$",
             "$2.5\\% CI$",
             "$97.5\\% CI$")) |>
collapse_rows(columns = 1, valign = "middle") |>
kable_styling(latex_options = "HOLD_position") |>
footnote(general = "95\\\\% confidence intervals were calculated with 1,000 bootstrap samples.
Standardized Cronbach's alpha ($\\alpha$) coefficients were computed.
MGH-SFQ is reported by gender, because one item was answered only by men.",
threeparttable = TRUE,
footnote_as_chunk = TRUE,
escape = FALSE)

```

Table S3. Internal consistency of measured variables

Variable	Gender	Items	n	α	2.5%CI	97.5%CI
MGH-SFQ	Men	5	139	0.82	0.71	0.88
	Women	4	181	0.86	0.82	0.90
MGSS sexual satisfaction (General)		5	188	0.92	0.89	0.94
MGSS sexual satisfaction (Partner)		5	187	0.91	0.85	0.95
Dyadic sexual desire (Partner)		5	309	0.90	0.88	0.92
Solitary sexual desire		4	314	0.91	0.89	0.93
Dyadic sexual desire (Attractive person)		4	320	0.89	0.87	0.91

Note: 95% confidence intervals were calculated with 1,000 bootstrap samples. Standardized Cronbach's alpha (α) coefficients were computed. MGH-SFQ is reported by gender, because one item was answered only by men.

3 Hypothesis tests

3.1 Hypothesis1: Sexual desire by gender, relationship type and sexual desire dimension

Interaction between relationship type, sexual desire dimension, and gender as predictors of sexual desire. To test this hypothesis, we modeled the effects of Relationship type, Sexual desire dimension, and Gender on the scores of sexual desire.

3.1.1 Filter data

Create data frame selecting only relevant variables, and summarizing per sexual desire dimension for each participant (three rows per participant).

```

dat.comp <- dat |>
  #mutate(`Relationship status` = factor(`Relationship status`)) |>
  select(Participant, Gender,
         `Stimuli code`,
         `Solitary sexual desire`,
         `Dyadic sexual desire (Attractive person)` ,
         `Dyadic sexual desire (Partner)` ,

```

```

Relationship,) |>
group_by(Participant, Gender, Relationship) |>
summarise(`Solitary sexual desire` =
  mean(`Solitary sexual desire`),
  `Dyadic sexual desire (Attractive person)` =
  mean(`Dyadic sexual desire (Attractive person)`),
  `Dyadic sexual desire (Partner)` =
  mean(`Dyadic sexual desire (Partner)`)) |>
pivot_longer(cols = `Solitary sexual desire`:`Dyadic sexual desire (Partner)`,
  names_to = "Dimension",
  values_to = "Sexual desire") |>
mutate(Participant = factor(Participant)) |>
#mutate("Stimuli code" = factor(`Stimuli code`)) |>
mutate(Dimension = factor(Dimension))

```

3.1.2 Fit model

We modelled the effects of relationship type, sexual desire dimension, and Gender on the scores of sexual desire as a linear mixed effect model, with random intercepts per participant.

```

options(contrasts = c("contr.sum", "contr.poly"))

m1 <- lmer(`Sexual desire` ~ Gender * Relationship * Dimension +
  (1 | Participant),
  data = dat.comp)

```

Although it would be ideal to also include random slopes between sexual desire dimensions for each participant, and random intercepts per stimuli (Barr et al., 2013; see also DeBruine & Barr, 2021), this would require to use raw values, instead of averages per participant (i.e. including the sexual desire rating given to each stimuli). Although this was attempted, such model does not converge.

3.1.2.1 Model assumptions Most model assumptions were checked using the `check_model` function from the `performance` package (Lüdecke et al., 2021), and reported in Fig. S3. These assumptions do not include collinearity, as the function plots *VIF* instead of the recommended Generalized Variance Inflation Factors (*GVIF*) and the most comparable $GVIF^{1/(2 \times df)}$ (Fox & Monette, 1992). Instead, *GVIF* and $GVIF^{1/(2 \times df)}$ values are reported in Table S4.

3.1.2.1.1 Figure S3. Model assumptions This figure includes most assumptions: linearity, homogeneity of variance, and normality of both residuals and random effects.

```

check_model(m1,
  check = c("pp_check", "linearity", "homogeneity", "qq", "reqq"))

```

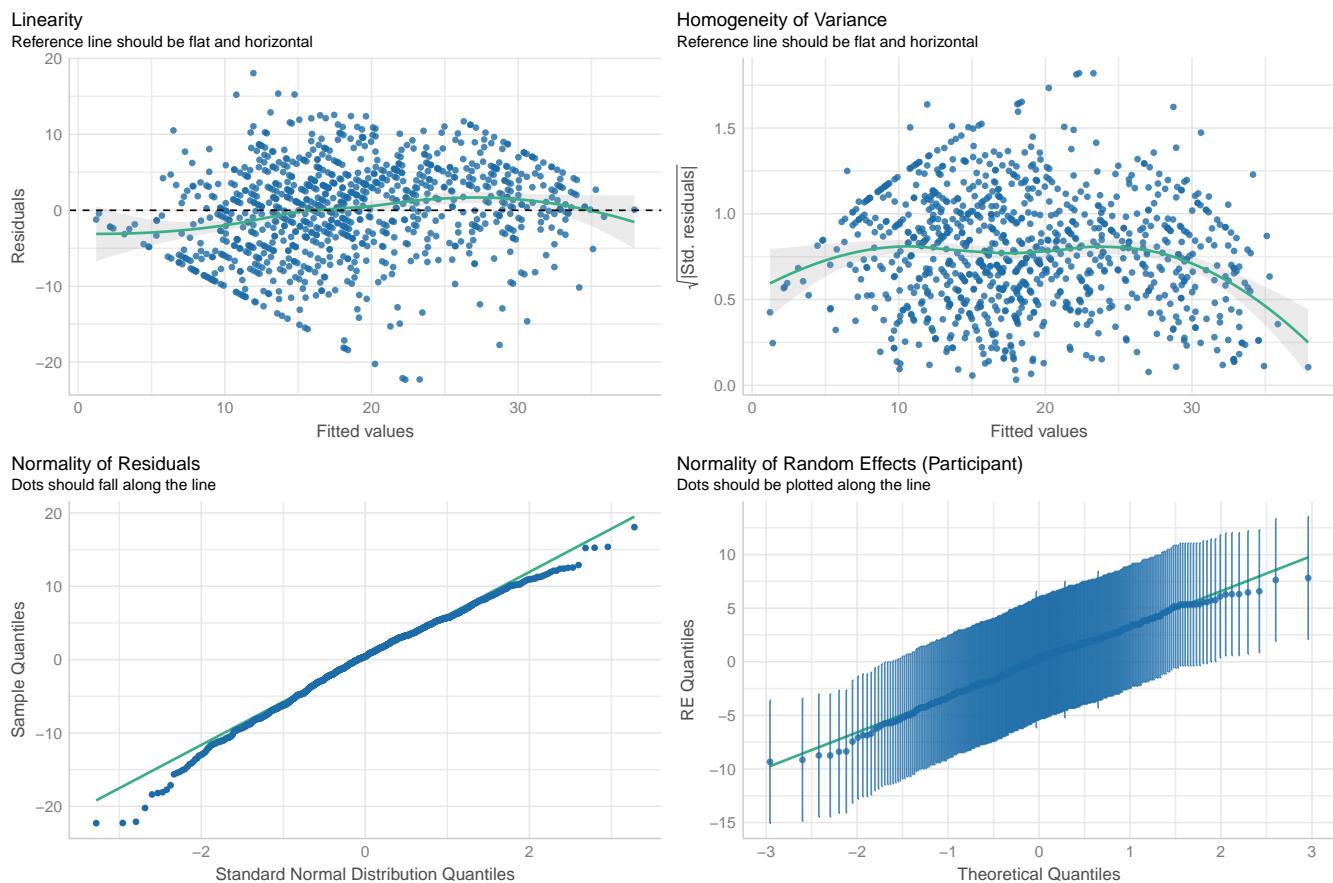


Figure S3. Model assumptions. Plots represent linearity, homogeneity of variance, and normality of both residuals and random effects (as QQ plots), respectively.

3.1.2.1.2 Table S4. Collinearity Given the presence of interactions, that all predictors are categorical, and the absence of random slopes, *VIF* and *GVIF* values would be expected to be high.

```
data.frame(vif(m1)) |>
  rownames_to_column() |>
  mutate_at("rowname", str_replace_all, ":" , " × ") |>
  mutate_at("rowname", str_replace_all, "`", "") |>
  kable(digits = 2,
    booktabs = TRUE,
    align = c("l", rep("c", 3)),
    linesep = "",
    caption = "Variance inflation factors for the model of hypothesis 1b",
    col.names = c(" ",
      "$GVIF$",
      "$df$",
      "$GVIF^{{1}}/{{(2 \times df)}}$"),
    escape = FALSE) |>
  kable_styling(latex_options = "HOLD_position")
```

Table S4. Variance inflation factors for the model of hypothesis 1b

	GVIF	df	$GVIF^{1/(2 \times df)}$
Gender	1.01	1	1.00
Relationship	1.02	1	1.01
Dimension	1.06	2	1.01
Gender × Relationship	1.02	1	1.01
Gender × Dimension	1.06	2	1.01
Relationship × Dimension	1.06	2	1.01
Gender × Relationship × Dimension	1.06	2	1.01

3.1.2.2 Table S5. Regression-type table for the interaction between Relationship type, Sexual desire dimension, and Gender This tables summarizes the results of the model.

```
summary.sig(m1, "Sexual desire by relationship type, sexual desire dimension and gender")
```

Table S5. Sexual desire by relationship type, sexual desire dimension and gender

Effect	Estimate	Std. Error	df	t	p
(Intercept)	18.98	0.33	319.63	57.04	< 0.0001
Gender [Women]	-2.13	0.33	319.63	-6.40	< 0.0001
Relationship [Stable]	0.13	0.33	319.63	0.39	0.7
Dimension [Attractive person DSD]	-4.38	0.31	636.25	-14.10	< 0.0001
Dimension [Partner DSD]	7.54	0.31	637.61	24.19	< 0.0001
Gender [Women] × Relationship [Stable]	-0.44	0.33	319.63	-1.31	0.19
Gender [Women] × Dimension [Attractive person DSD]	-0.16	0.31	636.25	-0.51	0.61
Gender [Women] × Dimension [Partner DSD]	0.07	0.31	637.61	0.22	0.82
Relationship [Stable] × Dimension [Attractive person DSD]	-1.35	0.31	636.25	-4.34	< 0.0001
Relationship [Stable] × Dimension [Partner DSD]	2.80	0.31	637.61	8.97	< 0.0001
Gender [Women] × Relationship [Stable] × Dimension [Attractive person DSD]	-0.10	0.31	636.25	-0.33	0.75
Gender [Women] × Relationship [Stable] × Dimension [Partner DSD]	0.59	0.31	637.61	1.90	0.06

Note: $R^2_{conditional} = 0.569$, $R^2_{marginal} = 0.383$. Results are from linear mixed models for main effects and interactions between sexual desire (SD) dimensions, sex, and Stimuli sex. Gender = participants gender (women, men); Stimuli sex = sex of stimuli (female, male); Attractive person DSD = Dyadic sexual desire toward an attractive person; Partner DSD = Dyadic sexual desire toward a partner. Sum-to-zero contrasts were used to display p-values that represent main effects and interactions in an ANOVA-type manner (i.e. the intercept is the grand mean of all cells, and estimates are differences between each category mean and the mean of all categories). Single was used as reference category for relationship status, Men for gender, and Solitary for sexual desire dimension. Contrasted levels are in square brackets. Significant effects are in bold.

3.1.2.3 Post-hoc comparisons Because only the main effect of (sexual desire) dimension, and the interaction between relationship (type) and dimension are significant, we explored the interaction using estimated marginal means, as well as comparing the relationship types for each of the three sexual desire dimensions.

Table of estimated marginal means and contrasts between sexual desire dimension. All estimated marginal means and contrasts were calculated using the `emmeans` function from the `emmeans` package (Lenth, 2022).

¡¡¡AGREGAR COLUMNA DF (EN TODAS LAS TABLAS DE CONTRASTES)!!!! Hecho!

```
emms.m1a <- emmeans(m1, ~ Dimension,
                      adjust = "bonferroni",
                      lmer.df = "satterthwaite")

emms.m1a.tab <- tibble(data.frame(emms.m1a)) |>
  mutate("Sexual desire" = emmean)

t.m1a <- contr.stars(emms.m1a) |>
  mutate(p.value = pval.lev(p.value)) |>
  mutate(group1 = recode_factor(group1,
```

```

    "Dyadic sexual desire Attractive person" =
      "Dyadic sexual desire (Attractive person)",
    "Dyadic sexual desire Partner" =
      "Dyadic sexual desire (Partner))") |>
  mutate(group2 = recode_factor(group2,
    "Dyadic sexual desire Attractive person" =
      "Dyadic sexual desire (Attractive person)",
    "Dyadic sexual desire Partner" =
      "Dyadic sexual desire (Partner)))
```

`merge(emms.m1a.tab, t.m1a, by = 0, all = TRUE) |>`

`select(-c(1,8,16)) |>`

`mutate(Dimension = recode_factor(Dimension ,`

"Dyadic sexual desire (Attractive person)" =
 "Dyadic (Attractive person)",
 "Dyadic sexual desire (Partner)" =
 "Dyadic (Partner)",
 "Solitary sexual desire" =
 "Solitary")) |>

`mutate(group1 = recode_factor(group1,`

"Dyadic sexual desire (Attractive person)" =
 "Dyadic (Attractive person)",
 "Dyadic sexual desire (Partner)" =
 "Dyadic (Partner)",
 "Solitary sexual desire" =
 "Solitary")) |>

`mutate(group2 = recode_factor(group2,`

"Dyadic sexual desire (Attractive person)" =
 "Dyadic (Attractive person)",
 "Dyadic sexual desire (Partner)" =
 "Dyadic (Partner)",
 "Solitary sexual desire" =
 "Solitary")) |>

`unite(Contrast, group1, group2, sep = " - ") |>`

`mutate_at("Contrast", str_replace_all, "NA - NA", " ") |>`

`kable(digits = 2,`

booktabs = TRUE,
 align = c("l", rep("c", 5), "l", rep("c", 5)),
 linesep = "",
 caption = "Estimated marginal means for the three dimensions of sexual desire",
 col.names = c("Dimension",
 "EMM",
 "\$SE\$"
 "\$df\$"
 "\$2.5\\% CI\$"
 "\$97.5\\% CI\$"
 "Contrast",
 "Difference",
 "\$SE\$"
 "\$df\$"
 "\$t\$"
 "\$p\$"),
 escape = FALSE) |>

`add_header_above(c(" " = 6, "Contrasts" = 6)) |>`

`kable_styling(latex_options = c("HOLD_position", "scale_down")) |>`

`footnote(general = "EMM = estimated marginal mean.`

```
Degrees of freedom ($df$) were calculated
using the Satterthwaite approximation.
Bonferroni adjustment was used.",
threeparttable = TRUE,
footnote_as_chunk = TRUE,
escape = FALSE)
```

Table S6. Estimated marginal means for the three dimensions of sexual desire

Dimension	EMM	SE	df	2.5%CI	97.5%CI	Contrasts					
						Contrast	Difference	SE	df	t	p
Dyadic (Attractive person)	14.60	0.45	808.08	13.51	15.69	Dyadic (Attractive person) - Dyadic (Partner)	-11.92	0.54	637.15	-22.10	< 0.0001
Dyadic (Partner)	26.52	0.46	811.74	25.42	27.61	Dyadic (Attractive person) - Solitary	-1.22	0.54	635.79	-2.28	0.0232
Solitary	15.82	0.45	808.08	14.73	16.91	Dyadic (Partner) - Solitary	10.69	0.54	637.15	19.83	< 0.0001

Note: EMM = estimated marginal mean. Degrees of freedom (df) were calculated using the Satterthwaite approximation. Bonferroni adjustment was used.

3.1.2.3.1 Table S6. Estimated marginal means and contrasts between relationship status types for the three dimensions of sexual desire.

3.1.2.3.2 Table S7. Estimated marginal means and contrasts between relationship status types for the three dimensions of sexual desire

Table of estimated marginal means and contrasts between relationship status for each sexual desire dimension. All estimated marginal means and contrasts were calculated using the emmeans function from the emmeans package (Lenth, 2022).

```
emms.m1b <- emmeans(m1, ~ Relationship | Dimension,
                      adjust = "bonferroni",
                      lmer.df = "satterthwaite")

emms.m1b.tab <- tibble(data.frame(emms.m1b)) |>
  mutate("Sexual desire" = emmean)

t.m1b <- contr.stars(emms.m1b) |>
  mutate(p.value = pval.lev(p.value))

t.m1b.f <- t.m1b |>
  insertRows(2, new = NA) |>
  insertRows(4, new = NA)

merge(emms.m1b.tab, t.m1b.f, by = 0, all = TRUE) |>
  select(-c(1,3,9,12,18)) |>
  unite(Contrast, group1, group2, sep = " - ") |>
  mutate_at("Contrast", str_replace_all, "NA - NA", " ") |>
  kable(digits = 2,
        booktabs = TRUE,
        align = c("l", rep("c", 5), "l", rep("c", 5)),
        linesep = "",
        caption = "Estimated marginal means for the three dimensions of sexual desire by relationship status",
        col.names = c("Relationship",
                     "EMM",
                     "$SE$",
                     "$df$",
                     "$2.5\\% CI$",
                     "$97.5\\% CI$",
                     "Contrast",
                     "Difference",
                     "$SE$",
                     "p"))
```

```

    "$df$",
    "$t$",
    "$p$"),
  escape = FALSE) |>
pack_rows(group_label = "Dyadic sexual desire (Attractive person)",
  start_row = 1,
  end_row = 2,
  bold = TRUE) |>
pack_rows(group_label = "Dyadic sexual desire (Partner)",
  start_row = 3,
  end_row = 4,
  hline_before = TRUE,
  bold = TRUE) |>
pack_rows(group_label = "Solitary sexual desire",
  start_row = 5,
  end_row = 6,
  hline_before = TRUE,
  bold = TRUE) |>
add_header_above(c(" " = 6, "Contrasts" = 6)) |>
kable_styling(latex_options = c("HOLD_position", "scale_down")) |>
footnote(general = "EMM = estimated marginal mean.
Degrees of freedom ($df$) were calculated
using the Satterthwaite approximation.
Bonferroni adjustment was used.",
threeparttable = TRUE,
footnote_as_chunk = TRUE,
escape = FALSE)

```

Table S7. Estimated marginal means for the three dimensions of sexual desire by relationship status

Relationship	EMM	SE	df	2.5%CI	97.5%CI	Contrasts						
						Contrast	Difference	SE	df	t	p	
Dyadic sexual desire (Attractive person)												
Stable	13.38	0.62	808.08	12.00	14.76	Stable - Single	-2.43	0.91	808.08	-2.68	0.0076	
Single	15.82	0.67	808.08	14.31	17.32							
Dyadic sexual desire (Partner)												
Stable	29.44	0.62	808.08	28.06	30.82	Stable - Single	5.85	0.91	811.74	6.41	< 0.0001	
Single	23.59	0.67	814.77	22.08	25.10							
Solitary sexual desire												
Stable	14.50	0.62	808.08	13.12	15.89	Stable - Single	-2.64	0.91	808.08	-2.90	0.0038	
Single	17.14	0.67	808.08	15.64	18.64							

Note: EMM = estimated marginal mean. Degrees of freedom (df) were calculated using the Satterthwaite approximation. Bonferroni adjustment was used.

3.1.3 Figure S4. Differences among the three dimensions of sexual desire

This figure summarizes the results of hypothesis 1.

```

# Figure Dimension main effect
h1a <- ggplot(dat.comp, aes(x = Dimension, y = `Sexual desire`, color = Dimension)) +
  geom_violin() +
  geom_jitter(alpha = 0.3, width = 0.1) +
  scale_color_manual(values = color.Dimension) +
  scale_fill_manual(values = color.Dimension) +
  geom_errorbar(data = emms.m1a.tab,
                mapping = aes(ymin = lower.CL, ymax = upper.CL),
                colour = "black", width = 0.1) +

```

```

geom_point(data = emms.m1a.tab,
            position = position_dodge(0.1),
            shape = 21, size = 3,
            color = "black", fill = "white") +
stat_pvalue_manual(t.m1a,
                    label = "p.signif",
                    y.position = c(44, 47, 41),
                    tip.length = 0) +
theme_tq()

# Figure Relationship × Dimension interaction
h1b <- ggplot(dat.comp, aes(x = Relationship, y = `Sexual desire`, color = Relationship)) +
  geom_violin() +
  geom_jitter(alpha = 0.3, width = 0.1) +
  scale_color_manual(values = color.Relationship) +
  scale_fill_manual(values = color.Relationship) +
  facet_wrap(~Dimension) +
  geom_errorbar(data = emms.m1b.tab,
                mapping = aes(ymin = lower.CL, ymax = upper.CL),
                colour = "black", width = 0.1) +
  geom_point(data = emms.m1b.tab,
            position = position_dodge(0.1),
            shape = 21, size = 3,
            color = "black", fill = "white") +
  stat_pvalue_manual(t.m1b,
                    label = "p.signif",
                    y.position = c(34, 40, 33),
                    tip.length = 0) +
  theme_tq()

# Full figure for hypothesis 1 (a and b)
p1f <- ggarrange(h1a, h1b,
                  labels = "auto",
                  legend = "bottom",
                  nrow = 2)
p1f

```

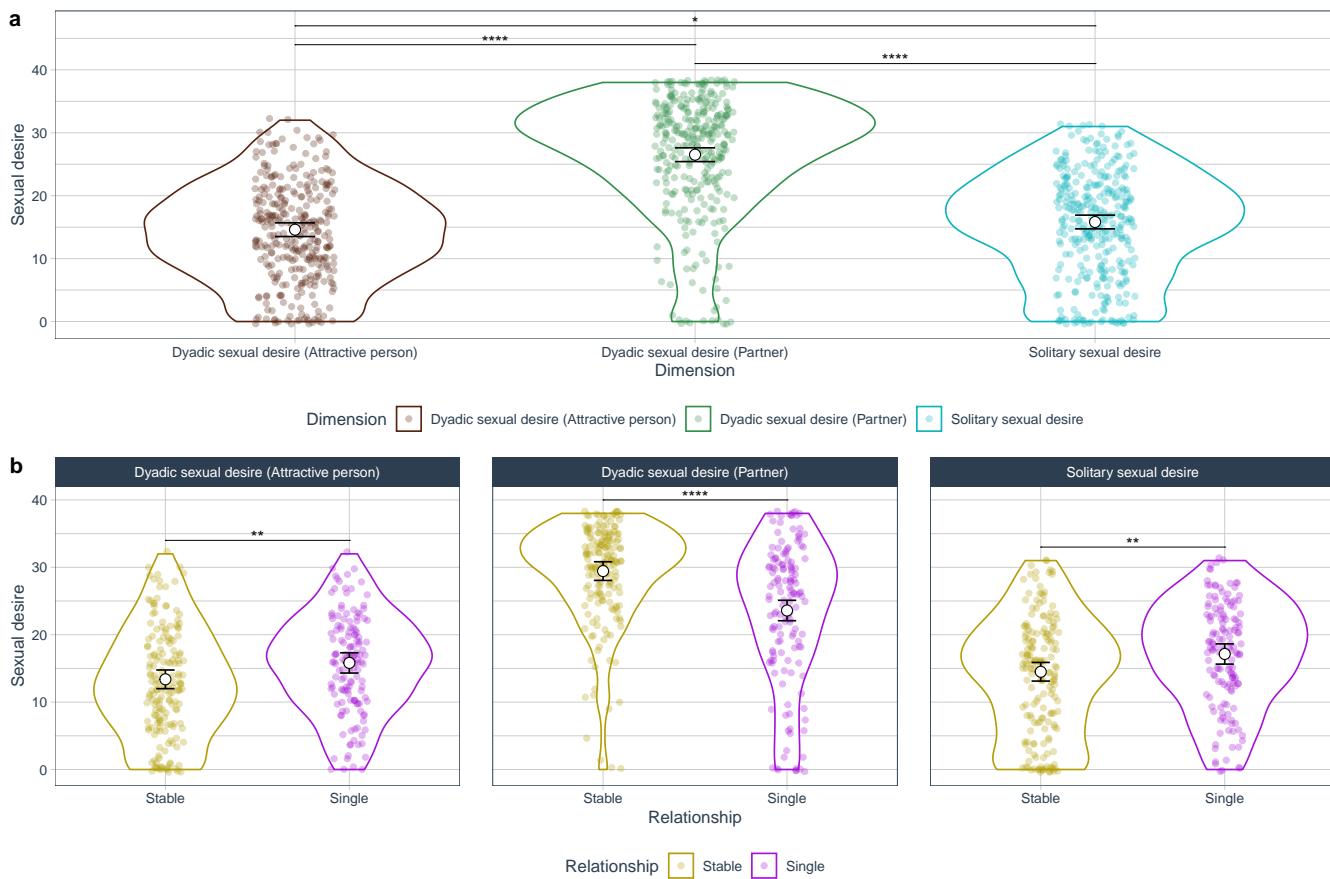


Figure S4. Differences among the three dimensions of sexual desire (Solitary sexual desire, Dyadic sexual desire (Partner), dyadic sexual desire (Attractive person)). (a) Simple comparison between dimensions of sexual desire (for detailed results, see Table S6); (b) Interaction between relationship type and sexual desire dimension (see Table S5; for detailed results, see Table S7). White dots and black bars represent estimated marginal means and 95% CI. In all cases, significant effects are represented with lines and stars: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.0001$.

3.2 Hypothesis 2

Data

```
dat.fin <- dat |>
  mutate(`Solitary sexual desire (C)` =
    scale(`Solitary sexual desire`,
          center = TRUE, scale = FALSE)) |>
  mutate(`Dyadic sexual desire (Attractive person) (C)` =
    scale(`Dyadic sexual desire (Attractive person)`,
          center = TRUE, scale = FALSE)) |>
  mutate(`Dyadic sexual desire (Partner) (C)` =
    scale(`Dyadic sexual desire (Partner)`,
          center = TRUE, scale = FALSE))
```

3.2.1 Hypothesis 2a: Erotic

3.2.1.1 Filter data Create data frame selecting only relevant variables, and summarizing per sexual desire dimension for each participant (three rows per participant).

```
dat.ero <- dat.fin |>
  filter(`Stimuli content` == "Erotic") |>
  select(Participant, `Stimuli code`,
```

```
`Subjective sexual arousal` ,
Relationship,
Gender,
`Stimuli sex` ,
`Solitary sexual desire (C)` ,
`Dyadic sexual desire (Attractive person) (C)` ,
`Dyadic sexual desire (Partner) (C)` , ) |>
  mutate_if(is.character, factor)
```

3.2.1.2 Fit model

We modelled the effects of XXXXX.

```
options(contrasts = c("contr.sum", "contr.poly"))

m2a <- lmer(`Subjective sexual arousal` ~
  Relationship * Gender * `Stimuli sex` * `Solitary sexual desire (C)` +
  Relationship * Gender * `Stimuli sex` * `Dyadic sexual desire (Attractive person) (C)` +
  Relationship * Gender * `Stimuli sex` * `Dyadic sexual desire (Partner) (C)` +
  (1 | `Stimuli code`) +
  (1 + `Stimuli sex` | Participant),
  data = dat.ero,
  control = lmerControl(optimizer = "bobyqa"))
```

3.2.1.2.1 Model assumptions Most model assumptions were checked using the `check_model` function from the `performance` package (Lüdecke et al., 2021), and reported in Fig. S5. These assumptions do not include collinearity, as the function plots *VIF* instead of the recommended Generalized Variance Inflation Factors (*GVIF*) and the most comparable $GVIF^{1/(2 \times df)}$ (Fox & Monette, 1992). Instead, *GVIF* and $GVIF^{1/(2 \times df)}$ values are reported in Table S8.

Figure S5. Model assumptions

This figure includes most assumptions: linearity, homogeneity of variance, and normality of both residuals and random effects.

```
check_model(m2a,
  check = c("linearity", "homogeneity", "qq", "reqq"))
```

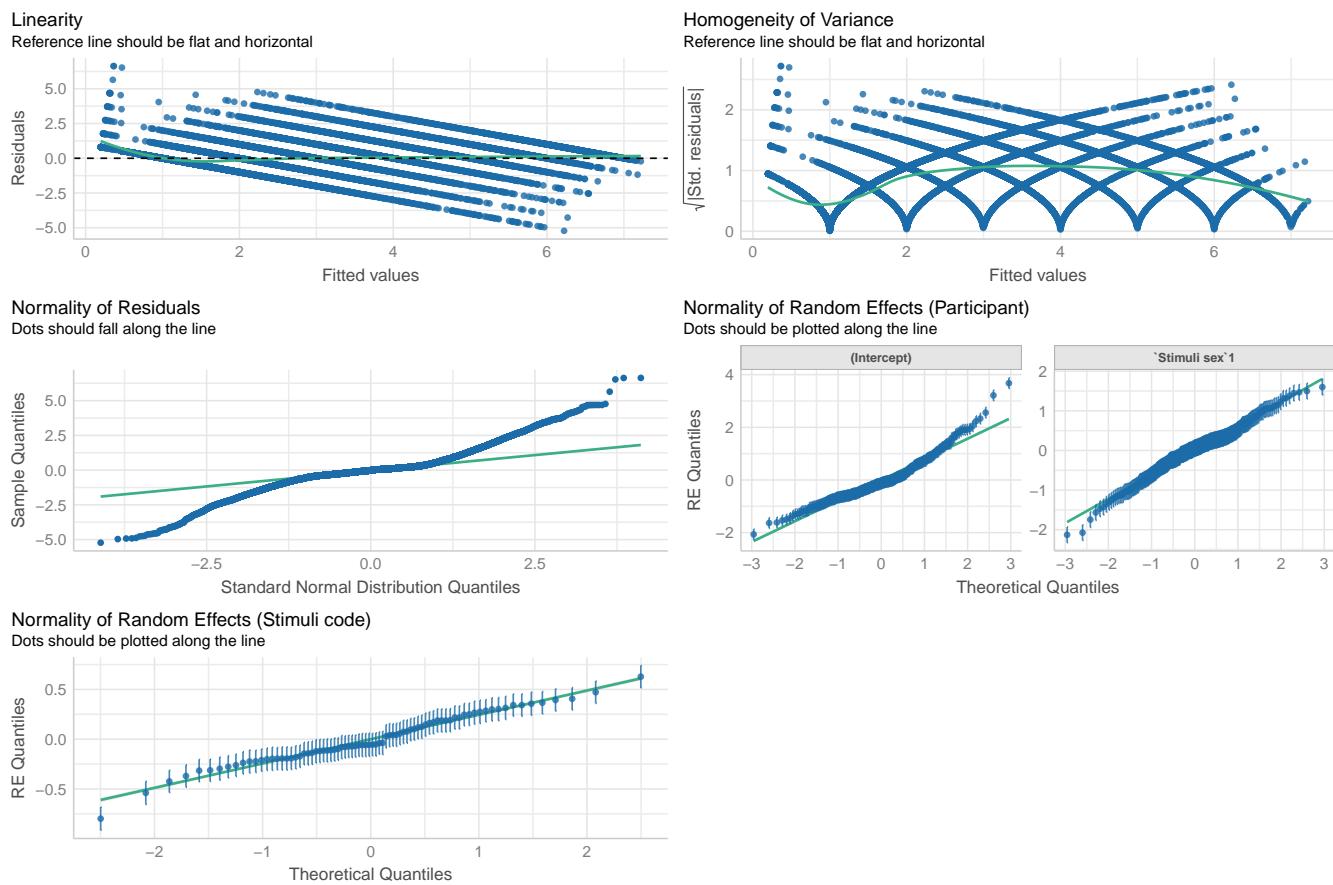


Figure S5. Model assumptions. Plots represent linearity, homogeneity of variance, and normality of both residuals and random effects (as QQ plots), respectively.

Table S8. Collinearity

Given the presence of interactions, that all predictors are categorical, and the absence of random slopes, *VIF* and *GVIF* values would be expected to be high.

```
data.frame(vif(m2a)) |>
  rownames_to_column() |>
  mutate_at("rowname", str_replace_all, ":", " × ") |>
  mutate_at("rowname", str_replace_all, "\`", "") |>
  kable(digits = 2,
    booktabs = TRUE,
    align = c("l", "c"),
    linesep = "",
    caption = "Variance inflation factors for the model of hypothesis 2a",
    col.names = c(" ",
                 "$VIF$"),
    escape = FALSE) |>
  kable_styling(latex_options = "HOLD_position")
```

Table S8. Variance inflation factors for the model of hypothesis 2a

	VIF
Relationship	1.83
Gender	1.82
Stimuli sex	1.39
Solitary sexual desire (C)	1.76
Dyadic sexual desire (Attractive person) (C)	1.71
Dyadic sexual desire (Partner) (C)	2.13
Relationship × Gender	1.84
Relationship × Stimuli sex	1.84
Gender × Stimuli sex	1.83
Relationship × Solitary sexual desire (C)	1.70
Gender × Solitary sexual desire (C)	1.64
Stimuli sex × Solitary sexual desire (C)	1.76
Relationship × Dyadic sexual desire (Attractive person) (C)	1.65
Gender × Dyadic sexual desire (Attractive person) (C)	1.54
Stimuli sex × Dyadic sexual desire (Attractive person) (C)	1.71
Relationship × Dyadic sexual desire (Partner) (C)	1.94
Gender × Dyadic sexual desire (Partner) (C)	2.04
Stimuli sex × Dyadic sexual desire (Partner) (C)	2.13
Relationship × Gender × Stimuli sex	1.84
Relationship × Gender × Solitary sexual desire (C)	1.72
Relationship × Stimuli sex × Solitary sexual desire (C)	1.73
Gender × Stimuli sex × Solitary sexual desire (C)	1.70
Relationship × Gender × Dyadic sexual desire (Attractive person) (C)	1.69
Relationship × Stimuli sex × Dyadic sexual desire (Attractive person) (C)	1.68
Gender × Stimuli sex × Dyadic sexual desire (Attractive person) (C)	1.63
Relationship × Gender × Dyadic sexual desire (Partner) (C)	2.12
Relationship × Stimuli sex × Dyadic sexual desire (Partner) (C)	2.04
Gender × Stimuli sex × Dyadic sexual desire (Partner) (C)	2.09
Relationship × Gender × Stimuli sex × Solitary sexual desire (C)	1.74
Relationship × Gender × Stimuli sex × Dyadic sexual desire (Attractive person) (C)	1.70
Relationship × Gender × Stimuli sex × Dyadic sexual desire (Partner) (C)	2.12

```
m2aCI <- confint(m2a,
  method = "boot", #define bootstrap as the method for computing CIs
  nsim = 4, #number of simulations
  FUN = fixef, #to obtain only estimates for fixed effects
  parallel = "multicore", #parallel computation
  ncpus = detectCores()-1, #number of computational cores to run in parallel
  .progress = "txt", #show progress bar
  seed = 2023) #to ensure reproducibility and allow cache to work
```

3.2.1.2.2 Bootstrap confidence intervals

```
## =====
```

3.2.1.2.3 Table S9. Regression-type table for the interaction between Relationship type, Sexual desire dimension, and Gender

This table summarizes the results of the model.

```
tab.m2a <- summary.sig.boot(mod = m2a,
  modCI = m2aCI,
  custom_caption = "Subjective sexual arousal in response to erotic
  stimuli, by relationship type, gender, stimuli sex, and the three
  dimensions of sexual desire dimension")
```

tab.m2a

Table S9. Subjective sexual arousal in response to erotic stimuli, by relationship type, gender, stimuli sex, and the three dimensions of sexual desire dimension

Effect	Estimate	Lower 95% CI	Upper 95% CI	Std. Error	df	t	p
(Intercept)	2.14	1.97	2.17	0.07	376.07	32.43	< 0.0001
Relationship [Stable]	0.05	0.04	0.06	0.06	304.00	0.77	0.44
Gender [Women]	-0.23	-0.23	-0.06	0.06	304.00	-3.90	< 0.001
Stimuli sex [Female]	0.46			0.05	360.27	8.50	< 0.0001
Solitary sexual desire (C)	0.02	0.01	0.04	0.01	304.00	2.53	0.0119
Dyadic sexual desire (Attractive person) (C)	0.03	0.02	0.04	0.01	304.00	4.74	< 0.0001
Dyadic sexual desire (Partner) (C)	0.00	-0.01	0.00	0.01	304.00	0.36	0.72
Relationship [Stable] × Gender [Women]	0.01	-0.09	0.07	0.06	304.00	0.16	0.88
Relationship [Stable] × Stimuli sex [Female]	0.02			0.05	304.00	0.45	0.65
Gender [Women] × Stimuli sex [Female]	-0.81			0.05	304.00	-17.66	< 0.0001
Relationship [Stable] × Solitary sexual desire (C)	0.00	0.00	0.00	0.01	304.00	-0.44	0.66
Gender [Women] × Solitary sexual desire (C)	0.01	0.00	0.01	0.01	304.00	1.22	0.22
Stimuli sex [Female] × Solitary sexual desire (C)	-0.01			0.01	304.00	-1.05	0.3
Relationship [Stable] × Dyadic sexual desire (Attractive person) (C)	0.01	0.00	0.01	0.01	304.00	1.13	0.26
Gender [Women] × Dyadic sexual desire (Attractive person) (C)	0.00	-0.01	0.00	0.01	304.00	-0.29	0.77
Stimuli sex [Female] × Dyadic sexual desire (Attractive person) (C)	0.02			0.01	304.00	2.86	0.0045
Relationship [Stable] × Dyadic sexual desire (Partner) (C)	0.00	-0.01	0.01	0.01	304.00	-0.51	0.61
Gender [Women] × Dyadic sexual desire (Partner) (C)	-0.01	-0.01	0.00	0.01	304.00	-1.60	0.11
Stimuli sex [Female] × Dyadic sexual desire (Partner) (C)	0.01			0.01	304.00	1.75	0.08
Relationship [Stable] × Gender [Women] × Stimuli sex [Female]	0.00			0.05	304.00	0.04	0.97
Relationship [Stable] × Gender [Women] × Solitary sexual desire (C)	0.00	0.00	0.01	0.01	304.00	0.36	0.72
Relationship [Stable] × Stimuli sex [Female] × Solitary sexual desire (C)	0.00			0.01	304.00	-0.46	0.65
Gender [Women] × Stimuli sex [Female] × Solitary sexual desire (C)	0.00			0.01	304.00	-0.12	0.91
Relationship [Stable] × Gender [Women] × Dyadic sexual desire (Attractive person) (C)	-0.01	-0.01	0.00	0.01	304.00	-1.29	0.2
Relationship [Stable] × Stimuli sex [Female] × Dyadic sexual desire (Attractive person) (C)	0.01			0.01	304.00	1.90	0.06
Gender [Women] × Stimuli sex [Female] × Dyadic sexual desire (Attractive person) (C)	-0.02			0.01	304.00	-4.33	< 0.0001
Relationship [Stable] × Gender [Women] × Dyadic sexual desire (Partner) (C)	0.01	0.01	0.02	0.01	304.00	2.20	0.0285
Relationship [Stable] × Stimuli sex [Female] × Dyadic sexual desire (Partner) (C)	-0.01			0.01	304.00	-2.11	0.0357
Gender [Women] × Stimuli sex [Female] × Dyadic sexual desire (Partner) (C)	-0.01			0.01	304.00	-1.08	0.28
Relationship [Stable] × Gender [Women] × Stimuli sex [Female] × Solitary sexual desire (C)	0.00			0.01	304.00	0.78	0.44
Relationship [Stable] × Gender [Women] × Stimuli sex [Female] × Dyadic sexual desire (Attractive person) (C)	0.00			0.01	304.00	-0.06	0.95
Relationship [Stable] × Gender [Women] × Stimuli sex [Female] × Dyadic sexual desire (Partner) (C)	0.00			0.01	304.00	-0.61	0.54

Note: $R^2_{conditional} = 0.749$, $R^2_{marginal} = 0.385$. Results are from linear mixed models for main effects and interactions between sexual desire (SD) dimensions, sex, and Stimuli sex. Confidence intervals were calculated as the 2.5 and 97.5 percentiles from bootstrap (1000 simulations). Continuous variables were centered and scaled (represented as (C) in variable names). Gender = participants (gender: women, men); Stimuli sex = sex of stimuli (female, male); Solitary SD = Solitary Sexual Desire; Attractive person DSD = Dyadic Sexual Desire toward an Attractive person; Partner DSD = Dyadic Sexual Desire toward partner. Sum-to-zero contrasts were used to display p-values that represent main effects and interactions in an ANOVA-type manner (i.e. the intercept is the grand mean of all cells, and estimates are differences between each category mean and the mean of all categories). As reference categories *Single* was used for relationship status, *Men* for gender, and *Male* for stimuli sex. Contrasted levels are in square brackets. Significant effects are in bold.

3.2.1.2.4 Simple slope analysis and post-hoc comparisons We further explored significant interactions between gender and stimuli sex using estimated marginal means, as well as comparing subjective sexual arousal between stimuli sex for each participant gender.

Table S10. Estimated marginal means and contrasts of subjective arousal between stimuli sex by participant gender

Table of estimated marginal means and contrasts between stimuli sex for each participant gender. All estimated marginal means and contrasts were calculated using the `emmeans` function from the `emmeans` package (Lenth, 2022).

```
emms.m2a_c <- emmeans(m2a, ~ factor(`Stimuli sex`) | Gender,
                        adjust = "bonferroni") #asymptotic degrees of freedom

emms.m2a_c.tab <- tibble(data.frame(emms.m2a_c)) |>
  rename("Stimuli sex" = Stimuli.sex) |>
  mutate("Subjective sexual arousal (p)" = emmean)

t.m2a_c <- contr.stars(emms.m2a_c) |>
  mutate(p.value = pval.lev(p.value))

t.m2a_c.f <- t.m2a_c |>
  insertRows(2, new = NA)

merge(emms.m2a_c.tab, t.m2a_c.f, by = 0, all = TRUE) |>
  select(-c(1,3,6,9,12,15,18)) |>
  unite(Contrast, group1, group2, sep = " - ") |>
  mutate_at("Contrast", str_replace_all, "NA - NA", " ") |>
  kable(digits = 2,
        booktabs = TRUE,
        align = c("l", rep("c", 5), "l", rep("c", 5)),
```

```

linesep = "",
caption = "Estimated marginal means of subjective sexual arousal for gender by
stimuli sex, in response to erotic stimuli",
col.names = c("Stimuli sex",
             "EMM",
             "$SE$",
             "$2.5\\% CI$",
             "$97.5\\% CI$",
             "Contrast",
             "Difference",
             "$SE$",
             "$z$",
             "$p$"),
escape = FALSE) |>
pack_rows(group_label = "Women",
          start_row = 1,
          end_row = 2,
          bold = TRUE) |>
pack_rows(group_label = "Men",
          start_row = 3,
          end_row = 4,
          hline_before = TRUE,
          bold = TRUE) |>
add_header_above(c(" " = 5, "Contrasts" = 5)) |>
kable_styling(latex_options = c("HOLD_position", "scale_down")) |>
footnote(general = "EMM = estimated marginal mean.

No degrees of freedom are reported, as an asymptotic method was used.
Because of this, \\textit{z} rather than \\textit{t} scores are reported.
Bonferroni adjustment was used.",
threeparttable = TRUE,
footnote_as_chunk = TRUE,
escape = FALSE)

```

Table S10. Estimated marginal means of subjective sexual arousal for gender by stimuli sex, in response to erotic stimuli

Stimuli sex	EMM	SE	2.5%CI	97.5%CI	Contrasts				
					Contrast	Difference	SE	z	p
Women									
Female	1.55	0.12	1.29	1.81	Female - Male	-0.71	0.13	-5.50	< 0.0001
Male	2.26	0.09	2.07	2.45					
Men									
Female	3.64	0.14	3.32	3.96	Female - Male	2.54	0.15	16.44	< 0.0001
Male	1.10	0.10	0.87	1.33					

Note: EMM = estimated marginal mean. No degrees of freedom are reported, as an asymptotic method was used. Because of this, z rather than t scores are reported. Bonferroni adjustment was used.

Table S11. Slope for Dyadic sexual desire (Attractive person) on Subjective sexual arousal by stimuli sex

Table of estimated slopes for Dyadic sexual desire (Attractive person) on Subjective sexual arousal for each stimuli sex from model 2a. Dyadic sexual desire (Attractive person) values were centered. Slopes were calculated using the `sim_slopes` function from the `interactions` package (Long, 2019).

```
slop.m2a_d <- sim_slopes(m2a,
                           pred = "Dyadic sexual desire (Attractive person) (C)",
                           modx = "Stimuli sex")

slop.m2a_d.tab <- data.frame(slop.m2a_d$slopes) |>
  select(1,2,4,5:7) |>
  mutate(across(2:6, as.numeric)) |>
  mutate(across(2:5, round, 3)) |>
  mutate(sig = pval.stars(p)) |>
  rename("Stimuli sex" = "Value.of.Stimuli.sex") |>
  rename(Coefficient = Est.)

slop.m2a_d.tab[,-c(7)] |>
  mutate(p = pval.lev(p)) |>
  kable(booktabs = TRUE,
        align = c("l", rep("c", 5)),
        caption = "Slope for Dyadic sexual desire (Attractive person) on
Subjective sexual arousal by stimuli sex",
        col.names = c("Stimuli sex",
                     "$B$",
                     "$2.5\\% CI$",
                     "$97.5\\% CI$",
                     "$t$",
                     "$p$"),
        escape = FALSE) |>
  kable_styling(latex_options = c("HOLD_position")) |>
  footnote(general = "$B$ and $CIs$ are for unstandardized coefficient.
No intercept is reported as continuous predictors were centered
and are dependent on this specific sample.",
            threeparttable = TRUE,
            footnote_as_chunk = TRUE,
            escape = FALSE)
```

Table S11. Slope for Dyadic sexual desire (Attractive person) on Subjective sexual arousal by stimuli sex

Stimuli sex	B	2.5%CI	97.5%CI	t	p
Male	0.019	0.004	0.033	2.462	0.0144
Female	0.051	0.030	0.072	4.754	< 0.0001

Note: B and CIs are for unstandardized coefficient. No intercept is reported as continuous predictors were centered and are dependent on this specific sample.

Table S12. Slope for Dyadic sexual desire (Attractive person) on Subjective sexual arousal by stimuli sex and gender

Table of estimated slopes for Dyadic sexual desire (Attractive person) on Subjective sexual arousal for each stimuli sex and gender from model 2a. Dyadic sexual desire (Attractive person) values were centered. Slopes were calculated using the `sim_slopes` function from the `interactions` package (Long, 2019).

```
slop.m2a_e <- sim_slopes(m2a,
                           pred = "Dyadic sexual desire (Attractive person) (C)",
                           mod2 = "Gender",
                           modx = "Stimuli sex")

slop.m2a_e.tab <- rbind(data.frame(slop.m2a_e$slopes[1]),
                         data.frame(slop.m2a_e$slopes[2])) |>
  select(1,2,4,5:7) |>
```

```

mutate(across(2:6, as.numeric)) |>
mutate(across(2:5, round, 3)) |>
mutate(sig = pval.stars(p)) |>
rename("Stimuli sex" = "Value.of.Stimuli.sex") |>
rename(Coefficient = Est.) |>
mutate(Gender = rep(c("Women", "Men"), each = 2)) |>
select(8,1:7)

slop.m2a_e.tab[,-c(8)] |>
mutate(p = pval.lev(p)) |>
kable(booktabs = TRUE,
      align = c("l", "l", rep("c", 4)),
      caption = "Slope for Dyadic sexual desire (Attractive person) on
Subjective sexual arousal by stimuli sex and gender",
      col.names = c("Gender",
                   "Stimuli sex",
                   "$B$",
                   "$2.5\\% CI$",
                   "$97.5\\% CI$",
                   "$t$",
                   "$p$"),
      escape = FALSE) |>
collapse_rows(columns = 1, valign = "middle") |>
kable_styling(latex_options = c("HOLD_position")) |>
footnote(general = "$B$ and $CIs$ are for unstandardized coefficient.
No intercept is reported as continuous predictors were centered
and are dependent on this specific sample.",
threeparttable = TRUE,
footnote_as_chunk = TRUE,
escape = FALSE)

```

Table S12. Slope for Dyadic sexual desire (Attractive person) on Subjective sexual arousal by stimuli sex and gender

Gender	Stimuli sex	B	2.5%CI	97.5%CI	t	p
Women	Female	0.024	-0.002	0.051	1.802	0.07
	Male	0.041	0.022	0.060	4.316	< 0.0001
Men	Female	0.077	0.045	0.110	4.658	< 0.0001
	Male	-0.004	-0.027	0.019	-0.328	0.74

Note: B and CIs are for unstandardized coefficient. No intercept is reported as continuous predictors were centered and are dependent on this specific sample.

Table S13. Slope for Dyadic sexual desire (Partner) on Subjective sexual arousal by relationship type and gender
Table of estimated slopes for Dyadic sexual desire (Partner) on Subjective sexual arousal for each relationship type and gender from model 2a. Dyadic sexual desire (Partner) were centered Slopes were calculated using the sim_slopes function from the interactions package (Long, 2019).

```

slop.m2a_f <- sim_slopes(m2a,
                           pred = "Dyadic sexual desire (Partner) (C)",
                           mod2 = "Gender",
                           modx = "Relationship")

slop.m2a_f.tab <- rbind(data.frame(slop.m2a_f$slopes[1]),

```

```

  data.frame(slop.m2a_f$slopes[2])) |>
  select(1,2,4,5:7) |>
  mutate(across(2:6, as.numeric)) |>
  mutate(across(2:5, round, 3)) |>
  mutate(sig = pval.stars(p)) |>
  rename("Relationship" = "Value.of.Relationship") |>
  rename(Coefficient = Est.) |>
  mutate(Gender = rep(c("Women", "Men"), each = 2)) |>
  select(8,1:7)

slop.m2a_f.tab[,-c(8)] |>
  mutate(p = pval.lev(p)) |>
  kable(booktabs = TRUE,
        align = c("l", "l", rep("c", 5)),
        caption = "Slope for Dyadic sexual desire (Partner) on
Subjective sexual arousal by relationship type and gender",
        col.names = c("Gender",
                     "Relationship",
                     "$B$",
                     "$2.5\\% CI$",
                     "$97.5\\% CI$",
                     "$t$",
                     "$p$"),
        escape = FALSE) |>
  collapse_rows(columns = 1, valign = "middle") |>
  kable_styling(latex_options = c("HOLD_position")) |>
  footnote(general = "$B$ and $CIs$ are for unstandardized coefficient.
No intercept is reported as continuous predictors were centered
and are dependent on this specific sample.",
            threeparttable = TRUE,
            footnote_as_chunk = TRUE,
            escape = FALSE)

```

Table S13. Slope for Dyadic sexual desire (Partner) on Subjective sexual arousal by relationship type and gender

Gender	Relationship	B	2.5%CI	97.5%CI	t	p
Women	Stable	0.003	-0.017	0.023	0.309	0.76
	Single	-0.020	-0.042	0.002	-1.803	0.07
Men	Stable	-0.005	-0.042	0.032	-0.267	0.79
	Single	0.032	0.007	0.057	2.529	0.012

Note: B and CIs are for unstandardized coefficient. No intercept is reported as continuous predictors were centered and are dependent on this specific sample.

Table S14. Slope for Dyadic sexual desire (Partner) on Subjective sexual arousal by relationship type and stimuli sex

Table of estimated slopes for Dyadic sexual desire (Partner) on Subjective sexual arousal for each relationship type and stimuli sex from model 2a. Dyadic sexual desire (Partner) were centered. Slopes were calculated using the `sim_slopes` function from the `interactions` package (Long, 2019).

```

slop.m2a_g <- sim_slopes(m2a,
                           pred = "Dyadic sexual desire (Partner) (C)",
                           mod2 = "Stimuli sex",
                           modx = "Relationship")

```

```

slop.m2a_g.tab <- rbind(data.frame(slop.m2a_g$slopes[1]),
                         data.frame(slop.m2a_g$slopes[2])) |>
  select(1,2,4,5:7) |>
  mutate(across(2:6, as.numeric)) |>
  mutate(across(2:5, round, 3)) |>
  mutate(sig = pval.stars(p)) |>
  rename("Relationship" = "Value.of.Relationship") |>
  rename(Coefficient = Est.) |>
  mutate("Stimuli sex" = rep(c("Female", "Male"), each = 2)) |>
  select(8,1:7)

slop.m2a_g.tab[,-c(8)] |>
  mutate(p = pval.lev(p)) |>
  kable(booktabs = TRUE,
        align = c("l", "l", rep("c", 4)),
        caption = "Slope for Dyadic sexual desire (Partner) on
Subjective sexual arousal by relationship type and stimuli sex",
        col.names = c("Stimuli sex",
                     "Relationship",
                     "$B$",
                     "$2.5\\% CI$",
                     "$97.5\\% CI$",
                     "$t$",
                     "$p$"),
        escape = FALSE) |>
  collapse_rows(columns = 1, valign = "middle") |>
  kable_styling(latex_options = c("HOLD_position")) |>
  footnote(general = "$B$ and $CIs$ are for unstandardized coefficient.
No intercept is reported as continuous predictors were centered
and are dependent on this specific sample.",
            threeparttable = TRUE,
            footnote_as_chunk = TRUE,
            escape = FALSE)

```

Table S14. Slope for Dyadic sexual desire (Partner) on Subjective sexual arousal by relationship type and stimuli sex

Stimuli sex	Relationship	B	2.5%CI	97.5%CI	t	p
Female	Stable	-0.003	-0.034	0.028	-0.182	0.86
	Single	0.026	0.002	0.050	2.144	0.0329
Male	Stable	0.001	-0.021	0.023	0.081	0.94
	Single	-0.014	-0.031	0.003	-1.665	0.1

Note: B and CIs are for unstandardized coefficient. No intercept is reported as continuous predictors were centered and are dependent on this specific sample.

3.2.1.3 Figure S6. Subjective sexual arousal to erotic stimuli: Main effects and interactions This figure summarizes the results of hypothesis 2a.

```

## Create data frame and add predicted values for plots
m2a.dat <- m2a@frame |>
  mutate(`Subjective sexual arousal (p)` = predict(m2a))

## Extract slope data from model summary for main effects of continuous predictors

```

```

slop.m2a_ab.tab <- left_join(data.frame(summary(m2a)$coefficients) |>
                                rownames_to_column(),
                                data.frame(m2aCI) |>
                                rownames_to_column(),
                                by = "rowname")[5:6,] |>
select(1:2,7:8,5:6) |>
mutate(across(2:5, round, 3)) |>
mutate(Pr....t... = pval.lev2(Pr....t...))

# Figure main effect of Solitary sexual desire on Subjective sexual arousal
p2a.a <- ggplot(m2a.dat, aes(x = `Solitary sexual desire (C)`,
                               y = `Subjective sexual arousal (p)`)) +
  geom_jitter(alpha = 0.01) +
  geom_smooth(method = "lm") +
  labs(y = "Subjective sexual\\narousal (predicted)") +
  geom_text(data = slop.m2a_ab.tab[1,],
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 2, hjust = -0.03),
            label = paste("B = ", slop.m2a_ab.tab[1,]$Estimate,
                          ", IC 95%[",
                          paste(slop.m2a_ab.tab[1,]$X2.5.,
                                 slop.m2a_ab.tab[1,]$X97.5.,
                                 sep = ", "),
                          "]", p", slop.m2a_ab.tab[1,]$Pr....t..., "*"),
            size = 3) +
  theme_tq()

# Figure main effect of Dyadic sexual desire (Attractive person) on Subjective sexual arousal
p2a.b <- ggplot(m2a.dat, aes(x = `Dyadic sexual desire (Attractive person) (C)`,
                               y = `Subjective sexual arousal (p)`)) +
  geom_jitter(alpha = 0.01) +
  geom_smooth(method = "lm") +
  labs(y = "\n") +
  geom_text(data = slop.m2a_ab.tab[2,],
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 2, hjust = -0.03),
            label = paste("B = ", slop.m2a_ab.tab[2,]$Estimate,
                          ", IC 95%[", paste(slop.m2a_ab.tab[2,]$X2.5.,
                                                slop.m2a_ab.tab[2,]$X97.5.,
                                                sep = ", "),
                          "]", p", slop.m2a_ab.tab[2,]$Pr....t..., "****"),
            size = 3) +
  theme_tq()

# Figure interaction between Stimuli sex and gender
p2a.c <- ggplot(m2a.dat, aes(x = `Stimuli sex`,
                               y = `Subjective sexual arousal (p)`,
                               color = `Stimuli sex`)) +
  geom_violin() +
  geom_jitter(alpha = 0.01, width = 0.1) +
  scale_color_manual(values = color.StimuliSex) +
  scale_fill_manual(values = color.StimuliSex) +
  facet_wrap(~Gender) +
  geom_errorbar(data = emms.m2a_c.tab,
                mapping = aes(ymin = asymp.LCL, ymax = asymp.UCL),
                colour = "black", width = 0.1) +

```

```

geom_point(data = emms.m2a_c.tab,
           shape = 21, size = 3,
           color = "black", fill = "white") +
stat_pvalue_manual(t.m2a_c,
                   label = "p.signif",
                   y.position = c(7.4,7.8),
                   tip.length = 0) +
labs(y = "Subjective sexual\arousal (predicted)") +
ylim(c(0, 8.5)) +
theme_tq() +
theme(legend.position = "none")

# Figure interaction between Stimuli sex and Dyadic sexual desire (Attractive person)
## Extract data for by stimuli sex
slop.m2a_d.tab_f <- filter(slop.m2a_d.tab, `Stimuli sex` == "Female") |>
  mutate(p = pval.lev2(p))
slop.m2a_d.tab_m <- filter(slop.m2a_d.tab, `Stimuli sex` == "Male") |>
  mutate(p = pval.lev2(p))
## Plot
p2a.d <- ggplot(m2a.dat, aes(x = `Dyadic sexual desire (Attractive person) (C)`,
                                y = `Subjective sexual arousal (p)`,
                                color = `Stimuli sex`, fill = `Stimuli sex`)) +
  geom_jitter(alpha = 0.01, size = 1, width = 0.4) +
  geom_smooth(method = "lm", fullrange = TRUE) +
  scale_color_manual(values = color.StimuliSex) +
  scale_fill_manual(values = color.StimuliSex) +
  geom_text(data = slop.m2a_d.tab_f,
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 2, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2a_d.tab_f$Coefficient,
                          ", IC 95%[", paste(slop.m2a_d.tab_f$X2.5.,
                                              slop.m2a_d.tab_f$X97.5., sep = ", "),
                          "], p", slop.m2a_d.tab_f$p,
                          ifelse(is.na(slop.m2a_d.tab_f$sig), "", slop.m2a_d.tab_f$sig)),
            color = color.StimuliSex[1], size = 3) +
  geom_text(data = slop.m2a_d.tab_m,
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 4, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2a_d.tab_m$Coefficient,
                          ", IC 95%[", paste(slop.m2a_d.tab_m$X2.5.,
                                              slop.m2a_d.tab_m$X97.5., sep = ", "),
                          "], p", slop.m2a_d.tab_m$p,
                          ifelse(is.na(slop.m2a_d.tab_m$sig), "", slop.m2a_d.tab_m$sig)),
            color = color.StimuliSex[2], size = 3) +
  labs(y = "Subjective sexual\arousal (predicted)") +
  theme_tq()

# Figure interaction between Stimuli sex, gender and Dyadic sexual desire (Attractive person)
## Extract data for by stimuli sex
slop.m2a_e.tab_f <- filter(slop.m2a_e.tab, `Stimuli sex` == "Female") |>
  mutate(p = pval.lev2(p))
slop.m2a_e.tab_m <- filter(slop.m2a_e.tab, `Stimuli sex` == "Male") |>
  mutate(p = pval.lev2(p))
## Plot

```

```

p2a.e <- ggplot(m2a.dat, aes(x = `Dyadic sexual desire (Attractive person) (C)`,
                               y = `Subjective sexual arousal (p)`,
                               color = `Stimuli sex`, fill = `Stimuli sex`)) +
  geom_jitter(alpha = 0.01, size = 1, width = 0.4) +
  geom_smooth(method = "lm", fullrange = TRUE) +
  scale_color_manual(values = color.StimuliSex) +
  scale_fill_manual(values = color.StimuliSex) +
  facet_wrap(~fct_relevel(Gender, "Women", "Men")) +
  geom_text(data = slop.m2a_e.tab_f,
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 2, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2a_e.tab_f$Coefficient,
                          ", IC 95%[", paste(slop.m2a_e.tab_f$X2.5.,
                                              slop.m2a_e.tab_f$X97.5., sep = ", "),
                          "], p", slop.m2a_e.tab_f$p,
                          ifelse(is.na(slop.m2a_e.tab_f$sig), "", slop.m2a_e.tab_f$sig)),
            color = color.StimuliSex[1], size = 2.5) +
  geom_text(data = slop.m2a_e.tab_m,
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 4, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2a_e.tab_m$Coefficient,
                          ", IC 95%[", paste(slop.m2a_e.tab_m$X2.5.,
                                              slop.m2a_e.tab_m$X97.5., sep = ", "),
                          "], p", slop.m2a_e.tab_m$p,
                          ifelse(is.na(slop.m2a_e.tab_m$sig), "", slop.m2a_e.tab_m$sig)),
            color = color.StimuliSex[2], size = 2.5) +
  labs(y = " \n ") +
  theme_tq()

# Figure interaction between Relationship, gender and Dyadic sexual desire (Partner)
## Extract data for by stimuli sex
slop.m2a_f.tab_sta <- filter(slop.m2a_f.tab, Relationship == "Stable") |>
  mutate(p = pval.lev2(p))
slop.m2a_f.tab_sin <- filter(slop.m2a_f.tab, Relationship == "Single") |>
  mutate(p = pval.lev2(p))
## Plot
p2a.f <- ggplot(m2a.dat, aes(x = `Dyadic sexual desire (Partner) (C)`,
                               y = `Subjective sexual arousal (p)`,
                               color = Relationship, fill = Relationship)) +
  geom_jitter(alpha = 0.01, size = 1, width = 0.4) +
  geom_smooth(method = "lm", fullrange = TRUE) +
  scale_color_manual(values = color.Relationship) +
  scale_fill_manual(values = color.Relationship) +
  facet_wrap(~fct_relevel(Gender, "Women", "Men")) +
  geom_text(data = slop.m2a_f.tab_sta,
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 2, hjust = -0.03),
            label = paste("B = ", slop.m2a_f.tab_sta$Coefficient,
                          ", IC 95%[", paste(slop.m2a_f.tab_sta$X2.5.,
                                              slop.m2a_f.tab_sta$X97.5., sep = ", "),
                          "], p", slop.m2a_f.tab_sta$p,
                          ifelse(is.na(slop.m2a_f.tab_sta$sig), "", slop.m2a_f.tab_sta$sig)),
            color = color.Relationship[1], size = 2.5) +
  geom_text(data = slop.m2a_f.tab_sin,
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 2, hjust = -0.03),
            label = paste("B = ", slop.m2a_f.tab_sin$Coefficient,
                          ", IC 95%[", paste(slop.m2a_f.tab_sin$X2.5.,
                                              slop.m2a_f.tab_sin$X97.5., sep = ", "),
                          "], p", slop.m2a_f.tab_sin$p,
                          ifelse(is.na(slop.m2a_f.tab_sin$sig), "", slop.m2a_f.tab_sin$sig)),
            color = color.Relationship[2], size = 2.5)

```

```

mapping = aes(x = -Inf, y = Inf,
vjust = 4, hjust = -0.03),
label = paste("B = ", slop.m2a_f.tab_sin$Coefficient,
", IC 95%[", paste(slop.m2a_f.tab_sin$X2.5.,
slop.m2a_f.tab_sin$X97.5., sep = ", "),
"], p", slop.m2a_f.tab_sin$p,
ifelse(is.na(slop.m2a_f.tab_sin$sig), "", slop.m2a_f.tab_sin$sig)),
color = color.Relationship[2], size = 2.5) +
labs(y = "Subjective sexual\narousal (predicted)") +
theme_tq()

# Figure interaction between Relationship, Stimuli sex and Dyadic sexual desire (Partner)
## Extract data for by stimuli sex
slop.m2a_g.tab_sta <- filter(slop.m2a_g.tab, Relationship == "Stable") |>
  mutate(p = pval.lev2(p))
slop.m2a_g.tab_sin <- filter(slop.m2a_g.tab, Relationship == "Single") |>
  mutate(p = pval.lev2(p))
## Plot
p2a.g <- ggplot(m2a.dat, aes(x = `Dyadic sexual desire (Partner)`~,
y = `Subjective sexual arousal (p)`~,
color = Relationship, fill = Relationship)) +
  geom_jitter(alpha = 0.01, size = 1, width = 0.4) +
  geom_smooth(method = "lm", fullrange = TRUE) +
  scale_color_manual(values = color.Relationship) +
  scale_fill_manual(values = color.Relationship) +
  facet_wrap(~`Stimuli sex`, "Female", "Male")) +
  geom_text(data = slop.m2a_g.tab_sta,
    mapping = aes(x = -Inf, y = Inf,
    vjust = 2, hjust = -0.03),
    label = paste("B = ", slop.m2a_g.tab_sta$Coefficient,
    ", IC 95%[", paste(slop.m2a_g.tab_sta$X2.5.,
    slop.m2a_g.tab_sta$X97.5., sep = ", "),
    ], p", slop.m2a_g.tab_sta$p,
    ifelse(is.na(slop.m2a_g.tab_sta$sig), "", slop.m2a_g.tab_sta$sig)),
    color = color.Relationship[1], size = 2.5) +
  geom_text(data = slop.m2a_g.tab_sin,
    mapping = aes(x = -Inf, y = Inf,
    vjust = 4, hjust = -0.03),
    label = paste("B = ", slop.m2a_g.tab_sin$Coefficient,
    ", IC 95%[", paste(slop.m2a_g.tab_sin$X2.5.,
    slop.m2a_g.tab_sin$X97.5., sep = ", "),
    ], p", slop.m2a_g.tab_sin$p,
    ifelse(is.na(slop.m2a_g.tab_sin$sig), "", slop.m2a_g.tab_sin$sig)),
    color = color.Relationship[2], size = 2.5) +
  labs(y = "\n") +
  theme_tq()

# Full figure for hypothesis 2a
p2af <- ggarrange(ggarrange(ggarrange(p2a.a, p2a.b,
nrow = 1,
labels = "auto"),
p2a.c,
labels = c(" ", "c"),
nrow = 2),
ggarrange(ggarrange(p2a.d, p2a.e,
nrow = 1,

```

```
    labels = c("d", "e"),
    common.legend = TRUE,
    legend = "bottom"),
ggarrange(p2a.f, p2a.g,
           nrow = 1,
           labels = c("f", "g"),
           common.legend = TRUE,
           legend = "bottom"),
           ncol = 1),
nrow = 2,
ncol = 1)
p2af
```

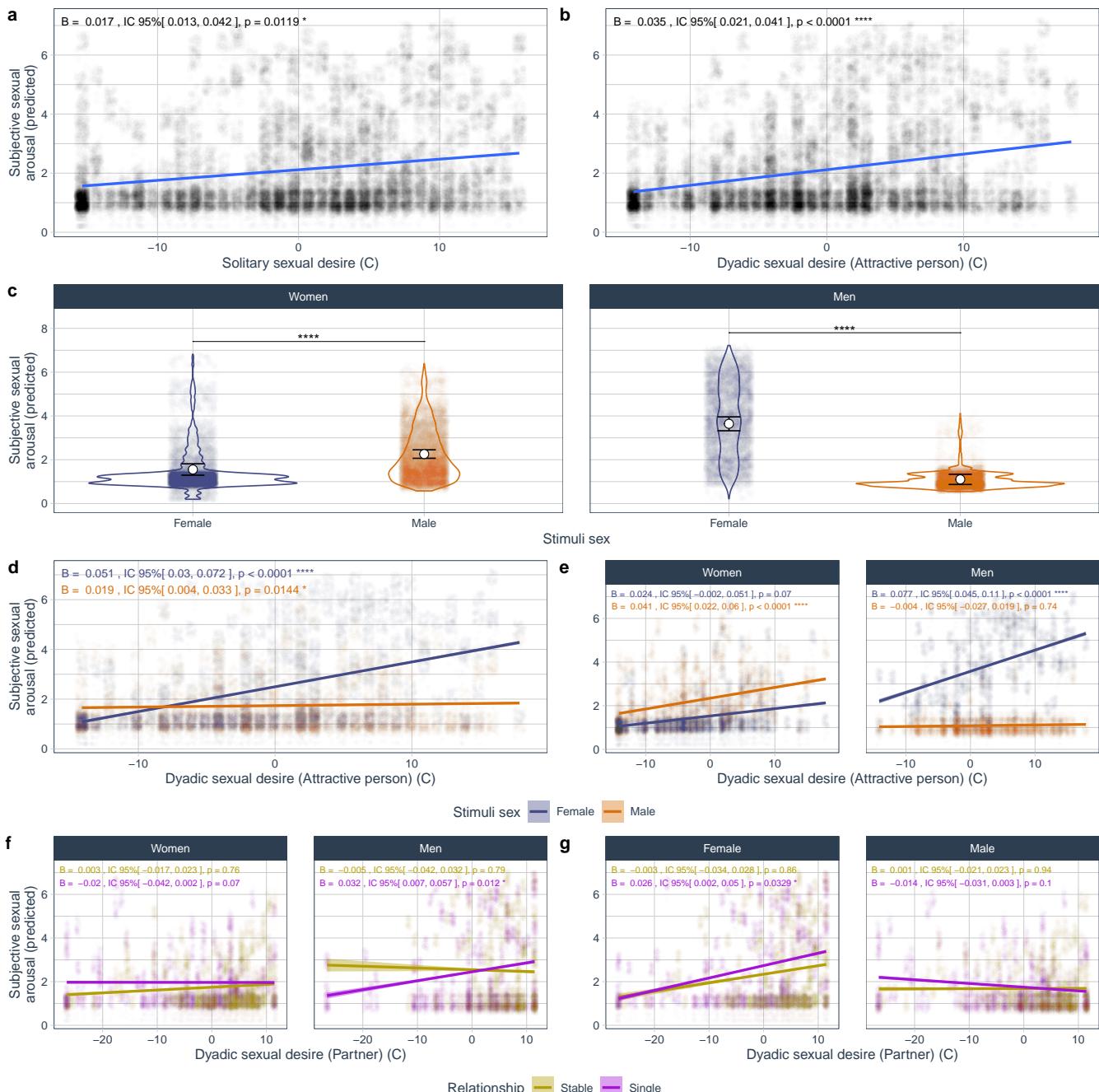


Figure S6. Subjective sexual arousal to erotic stimuli: Significant main effects and interactions of model 2A. For detailed results of the model, see Table S9. (a) Main effect of Solitary sexual desire on Subjective sexual arousal (for detailed results, see Table S9); (b) main effect of Dyadic sexual desire (Attractive person) on Subjective sexual arousal (for detailed results, see Table S9); (c) interaction between Stimuli sex and gender (significant effects of stimuli sex by participant gender are represented with lines and stars. White dots and black bars represent estimated marginal means and 95% CI, calculated from 1000 bootstrapped simulations; for detailed results, see Table S10); (d) interaction between Stimuli sex and Dyadic sexual desire (Attractive person) (for detailed results, see Table S11); (e) interaction between Stimuli sex, gender and Dyadic sexual desire (Attractive person) (for detailed results, see Table S12); (f) interaction between Relationship, gender and Dyadic sexual desire (Partner) (for detailed results, see Table S13); (g) interaction between Relationship, Stimuli sex and Dyadic sexual desire (Partner) (for detailed results, see Table S14). *Women* and *Men* refer to the gender of the participants and *Female* and *Male* to the sex of the stimuli. To better represent the associations between predictor variables and subjective sexual arousal within the model (i.e. when including all other effects), in all cases the Y axis represents values predicted by the model instead of raw values. For statistical significance, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$, $****p < 0.0001$.

3.2.2 Hypothesis 2b: Non-erotic

3.2.2.1 Filter data Create data frame selecting only relevant variables, and summarizing per sexual desire dimension for each participant (three rows per participant).

```
dat.nero <- dat.fin |>
  filter(`Stimuli content` == "Non-erotic")
```

3.2.2.2 Fit model We modelled the effects of XXXXX.

```
options(contrasts = c("contr.sum", "contr.poly"))

m2b <- lmer(`Subjective sexual arousal` ~
  Relationship * Gender * `Stimuli sex` * `Solitary sexual desire (C)` + 
  Relationship * Gender * `Stimuli sex` * `Dyadic sexual desire (Attractive person) (C)` + 
  Relationship * Gender * `Stimuli sex` * `Dyadic sexual desire (Partner) (C)` + 
  (1 | `Stimuli code`) + 
  (1 + `Stimuli sex` | Participant),
  data = dat.nero,
  control = lmerControl(optimizer = "bobyqa"))
```

3.2.2.2.1 Model assumptions Most model assumptions were checked using the `check_model` function from the `performance` package (Lüdecke et al., 2021), and reported in Fig. S7. These assumptions do not include collinearity, as the function plots *VIF* instead of the recommended Generalized Variance Inflation Factors (*GVIF*) and the most comparable $GVIF^{1/(2 \times df)}$ (Fox & Monette, 1992). Instead, *GVIF* and $GVIF^{1/(2 \times df)}$ values are reported in Table S15.

Figure S7. Model assumptions

This figure includes most assumptions: linearity, homogeneity of variance, and normality of both residuals and random effects.

```
check_model(m2b,
  check = c("linearity", "homogeneity", "qq", "reqq"))
```

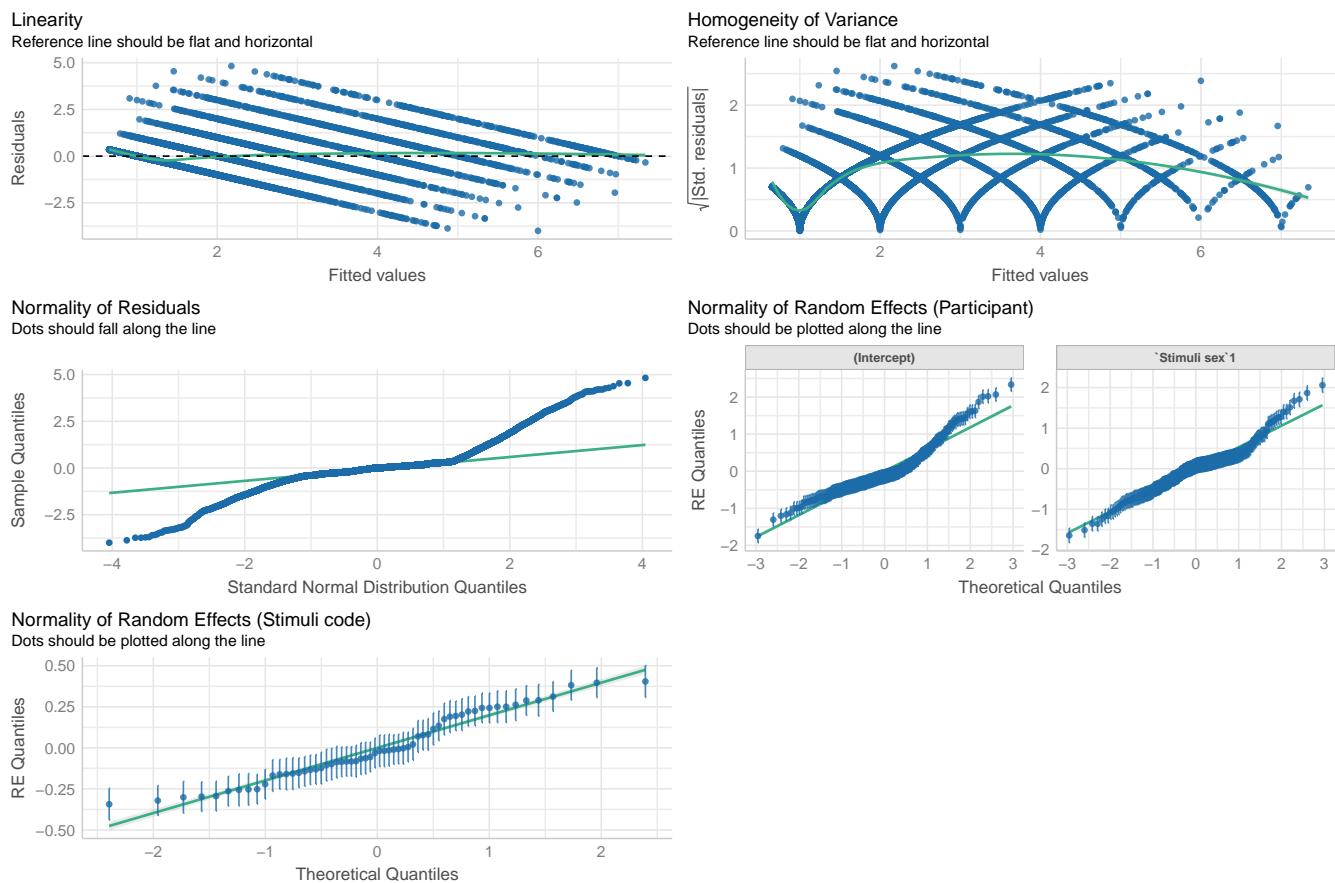


Figure S7. Model assumptions. Plots represent linearity, homogeneity of variance, and normality of both residuals and random effects (as QQ plots), respectively.

Table S15. Collinearity

Given the presence of interactions, that all predictors are categorical, and the absence of random slopes, *VIF* and *GVIF* values would be expected to be high.

```
data.frame(vif(m2b)) |>
  rownames_to_column() |>
  mutate_at("rowname", str_replace_all, ":", " × ") |>
  mutate_at("rowname", str_replace_all, "`", "") |>
  kable(digits = 2,
    booktabs = TRUE,
    align = c("l", "c"),
    linesep = "\n",
    caption = "Variance inflation factors for the model of hypothesis 2a",
    col.names = c(" ",
                 "$VIF$"),
    escape = FALSE) |>
  kable_styling(latex_options = "HOLD_position")
```

Table S15. Variance inflation factors for the model of hypothesis 2a

	VIF
Relationship	1.96
Gender	1.95
Stimuli sex	1.36
Solitary sexual desire (C)	1.88
Dyadic sexual desire (Attractive person) (C)	1.83
Dyadic sexual desire (Partner) (C)	2.28
Relationship × Gender	1.97
Relationship × Stimuli sex	1.97
Gender × Stimuli sex	1.96
Relationship × Solitary sexual desire (C)	1.82
Gender × Solitary sexual desire (C)	1.76
Stimuli sex × Solitary sexual desire (C)	1.88
Relationship × Dyadic sexual desire (Attractive person) (C)	1.77
Gender × Dyadic sexual desire (Attractive person) (C)	1.65
Stimuli sex × Dyadic sexual desire (Attractive person) (C)	1.83
Relationship × Dyadic sexual desire (Partner) (C)	2.08
Gender × Dyadic sexual desire (Partner) (C)	2.19
Stimuli sex × Dyadic sexual desire (Partner) (C)	2.28
Relationship × Gender × Stimuli sex	1.98
Relationship × Gender × Solitary sexual desire (C)	1.84
Relationship × Stimuli sex × Solitary sexual desire (C)	1.85
Gender × Stimuli sex × Solitary sexual desire (C)	1.82
Relationship × Gender × Dyadic sexual desire (Attractive person) (C)	1.81
Relationship × Stimuli sex × Dyadic sexual desire (Attractive person) (C)	1.80
Gender × Stimuli sex × Dyadic sexual desire (Attractive person) (C)	1.74
Relationship × Gender × Dyadic sexual desire (Partner) (C)	2.28
Relationship × Stimuli sex × Dyadic sexual desire (Partner) (C)	2.17
Gender × Stimuli sex × Dyadic sexual desire (Partner) (C)	2.23
Relationship × Gender × Stimuli sex × Solitary sexual desire (C)	1.86
Relationship × Gender × Stimuli sex × Dyadic sexual desire (Attractive person) (C)	1.82
Relationship × Gender × Stimuli sex × Dyadic sexual desire (Partner) (C)	2.28

```
m2bCI <- confint(m2b,
  method = "boot", #define bootstrap as the method for computing the confidence intervals
  nsim = 4, #number of simulations
  FUN = fixef, #to obtain only estimates for fixed effects
  parallel = "multicore", #parallel computation
  ncpus = detectCores()-1, #number of computational cores to run in parallel
  .progress = "txt", #show progress bar
  seed = 2023) #to ensure reproducibility and allow cache to work
```

3.2.2.2.2 Bootstrap confidence intervals

```
## =====
```

3.2.2.2.3 Table S16. Regression-type table for the interaction between Relationship type, Sexual desire dimension, and Gender

This tables summarizes the results of the model.

```
tab.m2b <- summary.sig.boot(mod = m2b,
  modCI = m2aCI,
  custom_caption = "Subjective sexual arousal in response to
  non-erotic stimuli, by relationship type, gender, stimuli sex,
  and the three dimensions of sexual desire dimension")
```

tab.m2b

Table S16. Subjective sexual arousal in response to non-erotic stimuli, by relationship type, gender, stimuli sex, and the three dimensions of sexual desire dimension

Effect	Estimate	Lower 95% CI	Upper 95% CI	Std. Error	df	t	p
(Intercept)	1.59	1.97	2.17	0.05	330.32	29.98	< 0.0001
Relationship [Stable]	0.02	0.04	0.06	0.05	304.00	0.49	0.63
Gender [Women]	-0.13	-0.23	-0.06	0.05	304.00	-2.87	0.0043
Stimuli sex [Female]	0.19			0.05	302.42	3.89	< 0.001
Solitary sexual desire (C)	0.00	0.01	0.04	0.01	304.00	0.05	0.96
Dyadic sexual desire (Attractive person) (C)	0.03	0.02	0.04	0.01	304.00	5.68	< 0.0001
Dyadic sexual desire (Partner) (C)	0.01	-0.01	0.00	0.01	304.00	1.03	0.3
Relationship [Stable] × Gender [Women]	-0.01	-0.09	0.07	0.05	304.00	-0.29	0.77
Relationship [Stable] × Stimuli sex [Female]	0.03			0.04	304.00	0.85	0.39
Gender [Women] × Stimuli sex [Female]	-0.49			0.04	304.00	-12.14	< 0.0001
Relationship [Stable] × Solitary sexual desire (C)	0.00	0.00	0.00	0.01	304.00	-0.39	0.69
Gender [Women] × Solitary sexual desire (C)	0.01	0.00	0.01	0.01	304.00	2.49	0.0133
Stimuli sex [Female] × Solitary sexual desire (C)	-0.01			0.00	304.00	-2.03	0.0435
Relationship [Stable] × Dyadic sexual desire (Attractive person) (C)	0.00	0.00	0.01	0.01	304.00	0.28	0.78
Gender [Women] × Dyadic sexual desire (Attractive person) (C)	-0.02	-0.01	0.00	0.01	304.00	-2.90	0.004
Stimuli sex [Female] × Dyadic sexual desire (Attractive person) (C)	0.02			0.00	304.00	3.86	< 0.001
Relationship [Stable] × Dyadic sexual desire (Partner) (C)	0.00	-0.01	0.01	0.01	304.00	0.07	0.94
Gender [Women] × Dyadic sexual desire (Partner) (C)	-0.01	-0.01	0.00	0.01	304.00	-1.44	0.15
Stimuli sex [Female] × Dyadic sexual desire (Partner) (C)	0.01			0.00	304.00	1.10	0.27
Relationship [Stable] × Gender [Women] × Stimuli sex [Female]	0.02			0.04	304.00	0.41	0.68
Relationship [Stable] × Gender [Women] × Solitary sexual desire (C)	0.00	0.00	0.01	0.01	304.00	0.64	0.52
Relationship [Stable] × Stimuli sex [Female] × Solitary sexual desire (C)	0.00			0.00	304.00	0.21	0.83
Gender [Women] × Stimuli sex [Female] × Solitary sexual desire (C)	0.00			0.00	304.00	0.23	0.82
Relationship [Stable] × Gender [Women] × Dyadic sexual desire (Attractive person) (C)	0.00	-0.01	0.00	0.01	304.00	-0.49	0.62
Relationship [Stable] × Stimuli sex [Female] × Dyadic sexual desire (Attractive person) (C)	0.00			0.00	304.00	0.58	0.56
Gender [Women] × Stimuli sex [Female] × Dyadic sexual desire (Attractive person) (C)	-0.03			0.00	304.00	-5.53	< 0.0001
Relationship [Stable] × Gender [Women] × Dyadic sexual desire (Partner) (C)	0.00	0.01	0.02	0.01	304.00	0.06	0.95
Relationship [Stable] × Stimuli sex [Female] × Dyadic sexual desire (Partner) (C)	0.00			0.00	304.00	-0.57	0.57
Gender [Women] × Stimuli sex [Female] × Dyadic sexual desire (Partner) (C)	-0.01			0.00	304.00	-1.19	0.23
Relationship [Stable] × Gender [Women] × Stimuli sex [Female] × Solitary sexual desire (C)	0.00			0.00	304.00	0.11	0.91
Relationship [Stable] × Gender [Women] × Stimuli sex [Female] × Dyadic sexual desire (Attractive person) (C)	0.00			0.00	304.00	0.48	0.63
Relationship [Stable] × Gender [Women] × Stimuli sex [Female] × Dyadic sexual desire (Partner) (C)	0.00			0.00	304.00	-0.43	0.67

Note: $R^2_{conditional} = 0.722$, $R^2_{marginal} = 0.292$. Results are from linear mixed models for main effects and interactions between sexual desire (SD) dimensions, sex, and Stimuli sex. Confidence intervals were calculated as the 2.5 and 97.5 percentiles from bootstrap (1000 simulations). Continuous variables were centered and scaled (represented as (C) in variable names). Gender = participants (gender: women, men); Stimuli sex = sex of stimuli (female, male); Solitary SD = Solitary Sexual Desire; Attractive person DSD = Dyadic Sexual Desire toward an Attractive person; Partner DSD = Dyadic Sexual Desire toward partner. Sum-to-zero contrasts were used to display p-values that represent main effects and interactions in an ANOVA-type manner (i.e. the intercept is the grand mean of all cells, and estimates are differences between each category mean and the mean of all categories). As reference categories *Single* was used for relationship status, *Men* for gender, and *Male* for stimuli sex. Contrasted levels are in square brackets. Significant effects are in bold.

3.2.2.2.4 Simple slope analysis and post-hoc comparisons We further explored the interaction between gender and stimuli sex using estimated marginal means, as well as comparing subjective sexual arousal between stimuli sex for each participant gender.

Table S17. Estimated marginal means and contrasts of subjective arousal between stimuli sex by participant gender

Table of estimated marginal means and contrasts between stimuli sex for each participant gender. All estimated marginal means and contrasts were calculated using the `emmeans` function from the `emmeans` package (Lenth, 2022).

```
emms.m2b_b <- emmeans(m2b, ~ factor(`Stimuli sex`) | Gender,
                        adjust = "bonferroni") #asymptotic degrees of freedom

emms.m2b_b.tab <- tibble(data.frame(emms.m2b_b)) |>
  rename("Stimuli sex" = Stimuli.sex) |>
  mutate("Subjective sexual arousal (p)" = emmean)

t.m2b_b <- contr.stars(emms.m2b_b) |>
  mutate(p.value = pval.lev(p.value))

t.m2b_b.f <- t.m2b_b |>
  insertRows(2, new = NA)

merge(emms.m2b_b.tab, t.m2b_b.f, by = 0, all = TRUE) |>
  select(-c(1,3,6,9,12,15,18)) |>
  unite(Contrast, group1, group2, sep = " - ") |>
  mutate_at("Contrast", str_replace_all, "NA - NA", " ") |>
  kable(digits = 2,
        booktabs = TRUE,
        align = c("l", rep("c", 5), "l", rep("c", 5)),
```

```

linesep = "",
caption = "Estimated marginal means of subjective sexual arousal for gender by
stimuli sex, in response to non-erotic stimuli",
col.names = c("Stimuli sex",
             "EMM",
             "$SE$",
             "$2.5\\% CI$",
             "$97.5\\% CI$",
             "Contrast",
             "Difference",
             "$SE$",
             "$z$",
             "$p$"),
escape = FALSE) |>
pack_rows(group_label = "Women",
          start_row = 1,
          end_row = 2,
          bold = TRUE) |>
pack_rows(group_label = "Men",
          start_row = 3,
          end_row = 4,
          hline_before = TRUE,
          bold = TRUE) |>
add_header_above(c(" " = 5, "Contrasts" = 5)) |>
kable_styling(latex_options = c("HOLD_position", "scale_down")) |>
footnote(general = "EMM = estimated marginal mean.

No degrees of freedom are reported, as an asymptotic method was used.
Because of this, \\textit{z} rather than \\textit{t} scores are reported.
Bonferroni adjustment was used.",
threeparttable = TRUE,
footnote_as_chunk = TRUE,
escape = FALSE)

```

Table S17. Estimated marginal means of subjective sexual arousal for gender by stimuli sex, in response to non-erotic stimuli

Stimuli sex	EMM	SE	2.5%CI	97.5%CI	Contrasts				
					Contrast	Difference	SE	z	p
Women									
Female	1.16	0.10	0.93	1.38	Female - Male	-0.60	0.11	-5.27	< 0.0001
Male	1.76	0.07	1.60	1.91					
Men									
Female	2.40	0.12	2.13	2.67	Female - Male	1.36	0.14	9.88	< 0.0001
Male	1.04	0.08	0.86	1.22					

Note: EMM = estimated marginal mean. No degrees of freedom are reported, as an asymptotic method was used. Because of this, z rather than t scores are reported. Bonferroni adjustment was used.

Table S18. Slope for Solitary sexual desire on Subjective sexual arousal by gender

Table of estimated slopes for Solitary sexual desire on Subjective sexual arousal for each gender from model 2b. Dyadic sexual desire (Attractive person) values were centered. Slopes were calculated using the `sim_slopes` function from the `interactions` package (Long, 2019).

```
slop.m2b_c <- sim_slopes(m2b,
                           pred = "Solitary sexual desire (C)",
                           modx = "Gender")

slop.m2b_c.tab <- data.frame(slop.m2b_c$slopes) |>
  select(1,2,4,5:7) |>
  mutate(across(2:6, as.numeric)) |>
  mutate(across(2:5, round, 3)) |>
  mutate(sig = pval.stars(p)) |>
  rename("Gender" = "Value.of.Gender") |>
  rename(Coefficient = Est.)

slop.m2b_c.tab[,-c(7)] |>
  mutate(p = pval.lev(p)) |>
  kable(booktabs = TRUE,
        align = c("l", rep("c", 5)),
        caption = "Slope for Solitary sexual desire on Subjective sexual arousal by gender",
        col.names = c("Gender",
                     "$B$",
                     "$2.5\\% CI$",
                     "$97.5\\% CI$",
                     "$t$",
                     "$p$"),
        escape = FALSE) |>
  kable_styling(latex_options = c("HOLD_position")) |>
  footnote(general = "$B$ and $CIs$ are for unstandardized coefficient.  
No intercept is reported as continuous predictors were centered  
and are dependent on this specific sample.",  
threeparttable = TRUE,  
footnote_as_chunk = TRUE,  
escape = FALSE)
```

Table S18. Slope for Solitary sexual desire on Subjective sexual arousal by gender

Gender	B	2.5%CI	97.5%CI	t	p
Men	-0.013	-0.028	0.003	-1.628	0.10
Women	0.013	0.000	0.027	1.917	0.06

Note: B and CIs are for unstandardized coefficient.
No intercept is reported as continuous predictors were centered and are dependent on this specific sample.

Table S19. Slope for Solitary sexual desire on Subjective sexual arousal by stimuli sex

Table of estimated slopes for Solitary sexual desire on Subjective sexual arousal for each stimuli sex from model 2b. Dyadic sexual desire (Attractive person) values were centered. Slopes were calculated using the `sim_slopes` function from the `interactions` package (Long, 2019).

```
slop.m2b_d <- sim_slopes(m2b,
                           pred = "Solitary sexual desire (C)",
                           modx = "Stimuli sex")

slop.m2b_d.tab <- data.frame(slop.m2b_d$slopes) |>
  select(1,2,4,5:7) |>
  mutate(across(2:6, as.numeric)) |>
  mutate(across(2:5, round, 3)) |>
  mutate(sig = pval.stars(p)) |>
```

```

rename("Stimuli sex" = "Value.of.Stimuli.sex") |>
  rename(Coefficient = Est.) |>

slop.m2b_d.tab[,-c(7)] |>
  mutate(p = pval.lev(p)) |>
  kable(booktabs = TRUE,
        align = c("l", rep("c", 5)),
        caption = "Slope for Solitary sexual desire on Subjective sexual arousal by gender",
        col.names = c("Stimuli sex",
                     "$B$",
                     "$2.5\\% CI$",
                     "$97.5\\% CI$",
                     "$t$",
                     "$p$"),
        escape = FALSE) |>
  kable_styling(latex_options = c("HOLD_position")) |>
  footnote(general = "$B$ and $CIs$ are for unstandardized coefficient.  

  No intercept is reported as continuous predictors were centered  

  and are dependent on this specific sample.",  

  threeparttable = TRUE,  

  footnote_as_chunk = TRUE,  

  escape = FALSE)

```

Table S19. Slope for Solitary sexual desire on Subjective sexual arousal by gender

Stimuli sex	B	2.5%CI	97.5%CI	t	p
Male	0.010	-0.001	0.020	1.815	0.07
Female	-0.009	-0.026	0.007	-1.094	0.27

Note: B and CIs are for unstandardized coefficient.
 No intercept is reported as continuous predictors were centered and are dependent on this specific sample.

Table S20. Slope for Dyadic sexual desire (Attractive person) on Subjective sexual arousal by stimuli sex and gender

Table of estimated slopes for Dyadic sexual desire (Attractive person) on Subjective sexual arousal for each stimuli sex and gender from model 2b. Dyadic sexual desire (Attractive person) values were centered. Slopes were calculated using the `sim_slopes` function from the `interactions` package (Long, 2019).

```

slop.m2b_e <- sim_slopes(m2b,
                           pred = "Dyadic sexual desire (Attractive person) (C)",
                           mod2 = "Gender",
                           modx = "Stimuli sex")

slop.m2b_e.tab <- rbind(data.frame(slop.m2b_e$slopes[1]),
                         data.frame(slop.m2b_e$slopes[2])) |>
  select(1,2,4,5:7) |>
  mutate(across(2:6, as.numeric)) |>
  mutate(across(2:5, round, 3)) |>
  mutate(sig = pval.stars(p)) |>
  rename("Stimuli sex" = "Value.of.Stimuli.sex") |>
  rename(Coefficient = Est.) |>
  mutate(Gender = rep(c("Women", "Men"), each = 2)) |>
  select(8,1:7)

slop.m2b_e.tab[,-c(8)] |>
  mutate(p = pval.lev(p)) |>

```

```

kable(booktabs = TRUE,
      align = c("l", "l", rep("c", 4)),
      caption = "Slope for Dyadic sexual desire (Attractive person) on
      Subjective sexual arousal by stimuli sex and gender",
      col.names = c("Gender",
                   "Stimuli sex",
                   "$B$",
                   "$2.5\\% CI$",
                   "$97.5\\% CI$",
                   "$t$",
                   "$p$"),
      escape = FALSE) |>
collapse_rows(columns = 1, valign = "middle") |>
kable_styling(latex_options = c("HOLD_position")) |>
footnote(general = "$B$ and $CIs$ are for unstandardized coefficient.
      No intercept is reported as continuous predictors were centered
      and are dependent on this specific sample.",
      threeparttable = TRUE,
      footnote_as_chunk = TRUE,
      escape = FALSE)

```

Table S20. Slope for Dyadic sexual desire (Attractive person) on Subjective sexual arousal by stimuli sex and gender

Gender	Stimuli sex	B	2.5%CI	97.5%CI	t	p
Women	Female	0.007	-0.015	0.029	0.656	0.51
	Male	0.024	0.010	0.038	3.327	< 0.001
Men	Female	0.095	0.068	0.122	6.822	< 0.0001
	Male	0.002	-0.016	0.019	0.177	0.86

Note: B and CIs are for unstandardized coefficient. No intercept is reported as continuous predictors were centered and are dependent on this specific sample.

3.2.2.3 Figure S8. Subjective sexual arousal to non-erotic stimuli: Main effects and interactions

This figure summarizes the results of hypothesis 2b.

```

## Create data frame and add predicted values for plots
m2b.dat <- m2b@frame |>
  mutate(`Subjective sexual arousal (p)` = predict(m2b))

## Extract slope data from model summary for main effects of continuous predictors
slop.m2b_a.tab <- left_join(data.frame(summary(m2b)$coefficients) |>
  rownames_to_column(),
  data.frame(m2bCI) |>
  rownames_to_column(),
  by = "rowname") |>
  select(1:2,7:8,5:6) |>
  mutate(across(2:5, round, 3)) |>
  mutate(Pr....t... = pval.lev2(Pr....t...))

# # Figure main effect of Dyadic sexual desire (Attractive person) on Subjective sexual arousal
p2b.a <- ggplot(m2b.dat, aes(x = `Dyadic sexual desire (Attractive person) (C)`,
                                y = `Subjective sexual arousal (p)`)) +
  geom_jitter(alpha = 0.01) +

```

```

geom_smooth(method = "lm") +
  labs(y = "Subjective sexual\arousal (predicted)") +
  geom_text(data = slop.m2b_a.tab[6, ],
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 2, hjust = -0.03),
            label = paste("B = ", slop.m2b_a.tab[6, ]$Estimate,
                          ", IC 95%[",
                          paste(slop.m2b_a.tab[6, ]$X2.5.,
                                slop.m2b_a.tab[6, ]$X97.5.,
                                sep = ", "),
                          "] , p", slop.m2b_a.tab[6, ]$Pr...t.., "****"),
            size = 3) +
  theme_tq()

# Figure interaction between Stimuli sex and gender
p2b.b <- ggplot(m2b.dat, aes(x = `Stimuli sex`,
                               y = `Subjective sexual arousal (p)`,
                               color = `Stimuli sex`)) +
  geom_violin() +
  geom_jitter(alpha = 0.01, width = 0.1) +
  scale_color_manual(values = color.StimuliSex) +
  scale_fill_manual(values = color.StimuliSex) +
  facet_wrap(~Gender) +
  geom_errorbar(data = emms.m2b_b.tab,
                mapping = aes(ymin = asymp.LCL, ymax = asymp.UCL),
                colour = "black", width = 0.1) +
  geom_point(data = emms.m2b_b.tab,
             shape = 21, size = 3,
             color = "black", fill = "white") +
  stat_pvalue_manual(t.m2b_b,
                     label = "p.signif",
                     y.position = c(7.4, 7.8),
                     tip.length = 0) +
  labs(y = " \n ") +
  ylim(c(0, 8.5)) +
  theme_tq() +
  theme(legend.position = "none")

# Figure interaction between gender and Solitary sexual desire
## Extract data for by stimuli sex
slop.m2b_c.tab_wom <- filter(slop.m2b_c.tab, Gender == "Women") |>
  mutate(p = pval.lev2(p))
slop.m2b_c.tab_men <- filter(slop.m2b_c.tab, Gender == "Men") |>
  mutate(p = pval.lev2(p))
## Plot
p2b.c <- ggplot(m2b.dat, aes(x = `Solitary sexual desire (C)`,
                               y = `Subjective sexual arousal (p)`,
                               color = Gender, fill = Gender)) +
  geom_jitter(alpha = 0.01, size = 1, width = 0.4) +
  geom_smooth(method = "lm", fullrange = TRUE) +
  scale_color_manual(values = color.Gender) +
  scale_fill_manual(values = color.Gender) +
  geom_text(data = slop.m2b_c.tab_wom,
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 2, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2b_c.tab_wom$Estimate,
                          ", IC 95%[",
                          paste(slop.m2b_c.tab_wom$X2.5.,
                                slop.m2b_c.tab_wom$X97.5.,
                                sep = ", "),
                          "] , p", slop.m2b_c.tab_wom$Pr...t.., "****"),
            size = 3) +
  theme_tq()

```

```

label = paste("B = ", slop.m2b_c.tab_wom$Coefficient,
             ", IC 95%[", paste(slop.m2b_c.tab_wom$X2.5.,
                                  slop.m2b_c.tab_wom$X97.5., sep = " , "),
             "]", p", slop.m2b_c.tab_wom$p,
             ifelse(is.na(slop.m2b_c.tab_wom$sig), "", slop.m2b_c.tab_wom$sig)),
color = color.Gender[1], size = 3) +
geom_text(data = slop.m2b_c.tab_men,
          mapping = aes(x = -Inf, y = Inf,
                         vjust = 4, hjust = -0.03),
          inherit.aes = FALSE,
          label = paste("B = ", slop.m2b_c.tab_men$Coefficient,
                         ", IC 95%[", paste(slop.m2b_c.tab_men$X2.5.,
                                              slop.m2b_c.tab_men$X97.5., sep = " , "),
                         "]", p", slop.m2b_c.tab_men$p,
                         ifelse(is.na(slop.m2b_c.tab_men$sig), "", slop.m2b_c.tab_men$sig)),
color = color.Gender[2], size = 3) +
labs(y = "Subjective sexual\narousal (predicted)") +
theme_tq()

# Figure interaction between Stimuli sex and Solitary sexual desire
## Extract data for by stimuli sex
slop.m2b_d.tab_f <- filter(slop.m2b_d.tab, `Stimuli sex` == "Female") |>
  mutate(p = pval.lev2(p))
slop.m2b_d.tab_m <- filter(slop.m2b_d.tab, `Stimuli sex` == "Male") |>
  mutate(p = pval.lev2(p))
## Plot
p2b.d <- ggplot(m2b.dat, aes(x = `Dyadic sexual desire (Attractive person) (C)` ,
                                y = `Subjective sexual arousal (p)` ,
                                color = `Stimuli sex`, fill = `Stimuli sex`)) +
  geom_jitter(alpha = 0.01, size = 1, width = 0.4) +
  geom_smooth(method = "lm", fullrange = TRUE) +
  scale_color_manual(values = color.StimuliSex) +
  scale_fill_manual(values = color.StimuliSex) +
  geom_text(data = slop.m2b_d.tab_f,
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 2, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2b_d.tab_f$Coefficient,
                          ", IC 95%[", paste(slop.m2b_d.tab_f$X2.5.,
                                              slop.m2b_d.tab_f$X97.5., sep = " , "),
                          "]", p", slop.m2b_d.tab_f$p,
                          ifelse(is.na(slop.m2b_d.tab_f$sig), "", slop.m2b_d.tab_f$sig)),
            color = color.StimuliSex[1], size = 3) +
  geom_text(data = slop.m2b_d.tab_m,
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 4, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2b_d.tab_m$Coefficient,
                          ", IC 95%[", paste(slop.m2b_d.tab_m$X2.5.,
                                              slop.m2b_d.tab_m$X97.5., sep = " , "),
                          "]", p", slop.m2b_d.tab_m$p,
                          ifelse(is.na(slop.m2b_d.tab_m$sig), "", slop.m2b_d.tab_m$sig)),
            color = color.StimuliSex[2], size = 3) +
  labs(y = " \n ") +
  theme_tq()

```

```

# Figure interaction between Stimuli sex, gender and Dyadic sexual desire (Attractive person)
## Extract data for by stimuli sex
slop.m2b_e.tab_f <- filter(slop.m2b_e.tab, `Stimuli sex` == "Female") |>
  mutate(p = pval.lev2(p))
slop.m2b_e.tab_m <- filter(slop.m2b_e.tab, `Stimuli sex` == "Male") |>
  mutate(p = pval.lev2(p))
## Plot
p2b.e <- ggplot(m2b.dat, aes(x = `Dyadic sexual desire (Attractive person) (C)` ,
                               y = `Subjective sexual arousal (p)` ,
                               color = `Stimuli sex` , fill = `Stimuli sex` )) +
  geom_jitter(alpha = 0.01, size = 1, width = 0.4) +
  geom_smooth(method = "lm", fullrange = TRUE) +
  scale_color_manual(values = color.StimuliSex) +
  scale_fill_manual(values = color.StimuliSex) +
  facet_wrap(~fct_relevel(Gender, "Women", "Men")) +
  geom_text(data = slop.m2b_e.tab_f,
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 2, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2b_e.tab_f$Coefficient,
                          ", IC 95%[", paste(slop.m2b_e.tab_f$X2.5.,
                                              slop.m2b_e.tab_f$X97.5., sep = ", "),
                          "]", p", slop.m2b_e.tab_f$p,
                          ifelse(is.na(slop.m2b_e.tab_f$sig), "", slop.m2b_e.tab_f$sig)),
            color = color.StimuliSex[1], size = 2.5) +
  geom_text(data = slop.m2b_e.tab_m,
            mapping = aes(x = -Inf, y = Inf,
                           vjust = 4, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2b_e.tab_m$Coefficient,
                          ", IC 95%[", paste(slop.m2b_e.tab_m$X2.5.,
                                              slop.m2b_e.tab_m$X97.5., sep = ", "),
                          "]", p", slop.m2b_e.tab_m$p,
                          ifelse(is.na(slop.m2b_e.tab_m$sig), "", slop.m2b_e.tab_m$sig)),
            color = color.StimuliSex[2], size = 2.5) +
  labs(y = "Subjective sexual\arousal (predicted)") +
  theme_tq()

# Full figure for hypothesis 2b
p2bf <- ggarrange(ggarrange(ggarrange(p2b.a, p2b.b,
                                         nrow = 1,
                                         labels = "auto")),
                    ggarrange(p2b.c, p2b.d,
                               nrow = 1,
                               labels = c("c", "d"),
                               ncol = 2),
                    ggarrange(p2b.e,
                               labels = "e",
                               legend = "bottom"),
                    nrow = 3,
                    ncol = 1)

p2bf

```

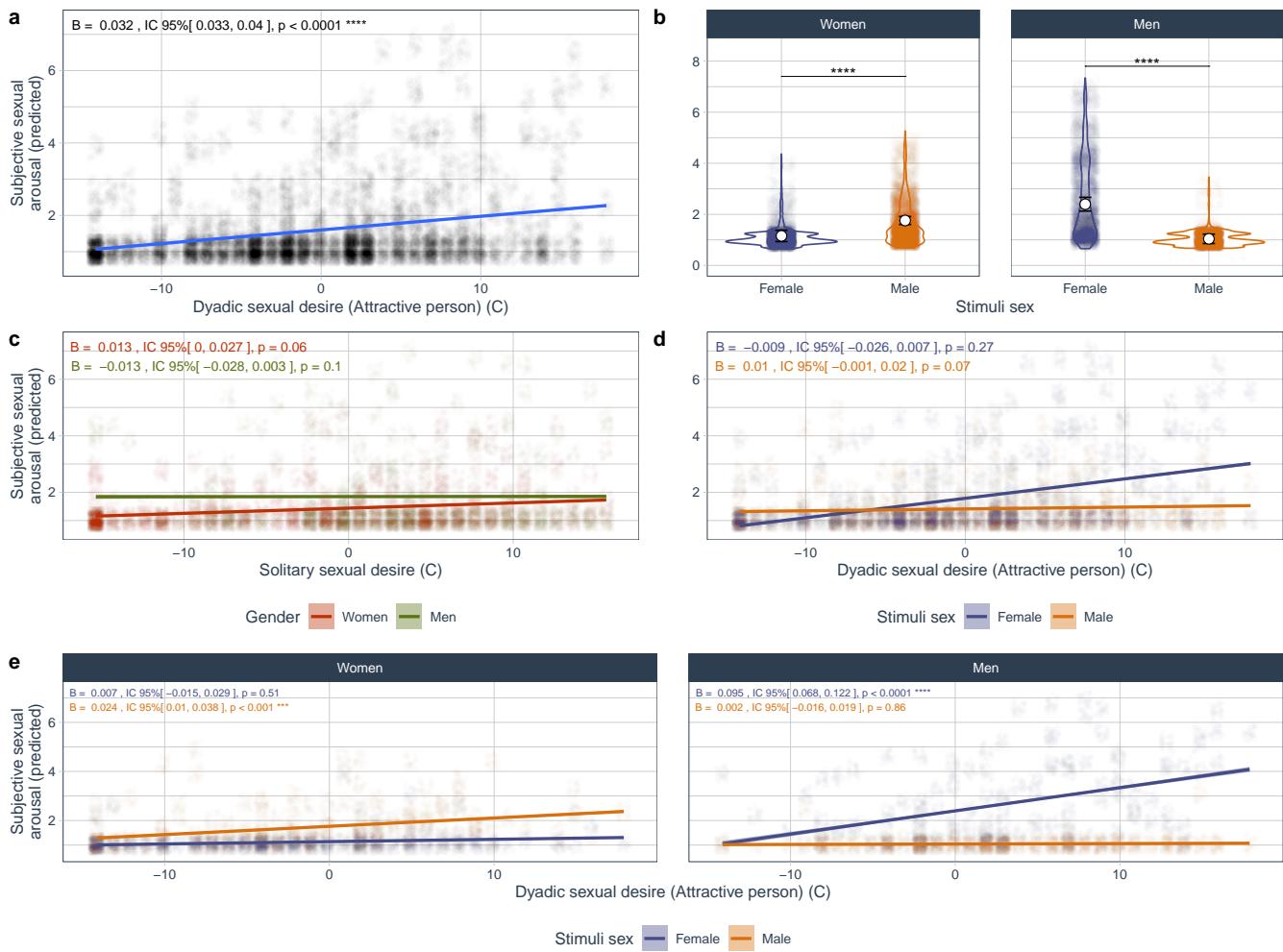


Figure S8. Subjective sexual arousal to non-erotic stimuli: Significant main effects and interactions of model 2B. For detailed results of the model, see Table S16. **(a)** Main effect of Dyadic sexual desire (Attractive person) on Subjective sexual arousal (for detailed results, see Table S16); **(b)** interaction between Stimuli sex and gender (significant effects of stimuli sex by participant gender are represented with lines and stars. White dots and black bars represent estimated marginal means and 95% CI, calculated from 1000 bootstrapped simulations; for detailed results, see Table S17); **(c)** interaction between Gender and Solitary sexual desire (for detailed results, see Table S18); **(d)** interaction between Stimuli sex and Solitary sexual desire (for detailed results, see Table S19); **(e)** interaction between Stimuli sex, gender and Dyadic sexual desire (Attractive person) (for detailed results, see Table S20). *Women* and *Men* refer to the gender of the participants and *Female* and *Male* to the sex of the stimuli. To better represent the associations between predictor variables and subjective sexual arousal within the model (i.e. when including all other effects), in all cases the *Y* axis represents values predicted by the model instead of raw values. For statistical significance, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$, $****p < 0.0001$.

4 Session info (for reproducibility)

```
library(pander)
pander(sessionInfo(), locale = FALSE)
```

R version 4.2.2 (2022-10-31 ucrt)

Platform: x86_64-w64-mingw32/x64 (64-bit)

attached base packages: *stats*, *graphics*, *grDevices*, *utils*, *datasets*, *methods* and *base*

other attached packages: *pander*(v.0.6.5), *Hmisc*(v.5.0-1), *berryFunctions*(v.1.21.14), *rstatix*(v.0.7.2), *effectsize*(v.0.8.3), *scales*(v.1.2.1), *ggpmisc*(v.0.5.2), *ggpp*(v.0.5.1), *MetBrewer*(v.0.2.0), *psych*(v.2.3.3), *kable-*

Extra(v.1.3.4), performance(v.0.10.2), emmeans(v.1.8.5), interactions(v.1.1.5), tidyquant(v.1.0.6), quantmod(v.0.4.20), TTR(v.0.24.3), PerformanceAnalytics(v.2.0.4), xts(v.0.13.0), zoo(v.1.8-11), ggppubr(v.0.6.0), lubridate(v.1.9.2), forcats(v.1.0.0), stringr(v.1.5.0), dplyr(v.1.0.10), purrr(v.1.0.1), readr(v.2.1.4), tidyverse(v.1.3.0), tibble(v.3.2.1), ggplot2(v.3.4.1), tidyverse(v.2.0.0), lmerTest(v.3.1-3), lme4(v.1.1-32), Matrix(v.1.5-3), car(v.3.1-1), carData(v.3.0-5), ltm(v.1.2-0), polycor(v.0.8-1), msm(v.1.7), MASS(v.7.3-58.1), readxl(v.1.4.2) and knitr(v.1.42)

loaded via a namespace (and not attached): *backports(v.1.4.1), jtools(v.2.2.1), systemfonts(v.1.0.4), splines(v.4.2.2), TH.data(v.1.1-1), digest(v.0.6.31), htmltools(v.0.5.4), fansi(v.1.0.4), magrittr(v.2.0.3), checkmate(v.2.1.0), cluster(v.2.1.4), tzdb(v.0.3.0), see(v.0.7.4), sandwich(v.3.0-2), svglite(v.2.1.1), timechange(v.0.2.0), colorspace(v.2.1-0), rvest(v.1.0.3), xfun(v.0.36), crayon(v.1.5.2), jsonlite(v.1.8.4), survival(v.3.4-0), glue(v.1.6.2), gtable(v.0.3.3), webshot(v.0.5.4), MatrixModels(v.0.5-1), Quandl(v.2.11.0), abind(v.1.4-5), SparseM(v.1.81), mvtnorm(v.1.1-3), DBI(v.1.1.3), Rcpp(v.1.0.9), viridisLite(v.0.4.1), xtable(v.1.8-4), htmlTable(v.2.4.1), foreign(v.0.8-83), Formula(v.1.2-5), datawizard(v.0.6.5), htmlwidgets(v.1.6.2), httr(v.1.4.5), pkgconfig(v.2.0.3), farver(v.2.1.1), nnet(v.7.3-18), utf8(v.1.2.3), tidyselect(v.1.2.0), labeling(v.0.4.2), rlang(v.1.1.0), munsell(v.0.5.0), cellranger(v.1.1.0), tools(v.4.2.2), cli(v.3.6.0), generics(v.0.1.3), broom(v.1.0.4), evaluate(v.0.20), fastmap(v.1.1.0), yaml(v.2.3.6), admisc(v.0.31), nlme(v.3.1-160), quantreg(v.5.94), xml2(v.1.3.3), compiler(v.4.2.2), rstudioapi(v.0.14), curl(v.5.0.0), ggsignif(v.0.6.4), stringi(v.1.7.12), highr(v.0.10), parameters(v.0.20.2), lattice(v.0.20-45), nloptr(v.2.0.3), vctrs(v.0.6.0), pillar(v.1.9.0), lifecycle(v.1.0.3), estimability(v.1.4.1), data.table(v.1.14.8), cowplot(v.1.1.1), insight(v.0.19.1), patchwork(v.1.1.2), R6(v.2.5.1), bookdown(v.0.33), gridExtra(v.2.3), codetools(v.0.2-18), boot(v.1.3-28), assertthat(v.0.2.1), withr(v.2.5.0), mnormt(v.2.1.1), multcomp(v.1.4-23), mgcv(v.1.8-41), bayestestR(v.0.13.0), expm(v.0.999-7), parallel(v.4.2.2), hms(v.1.1.3), quadprog(v.1.5-8), grid(v.4.2.2), rpart(v.4.1.19), coda(v.0.19-4), minqa(v.1.2.5), rmarkdown(v.2.20), numDeriv(v.2016.8-1.1) and base64enc(v.0.1-3)*

Supplementary references

- Barr, D. J., Levy, R., Scheepers, C., & Tily, H. J. (2013). Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language*, 68(3), 255–278. <https://doi.org/10.1016/j.jml.2012.11.001>
- DeBruine, L. M., & Barr, D. J. (2021). Understanding Mixed-Effects Models Through Data Simulation. *Advances in Methods and Practices in Psychological Science*, 4(1), 2515245920965119. <https://doi.org/10.1177/2515245920965119>
- Fox, J., & Monette, G. (1992). Generalized Collinearity Diagnostics. *Journal of the American Statistical Association*, 87(417), 178–183. <https://doi.org/10.1080/01621459.1992.10475190>
- Kaufman, D., & Sweet, R. (1974). Contrast Coding in Least Squares Regression Analysis. *American Educational Research Journal*, 11(4), 359–377. <https://doi.org/10.3102/00028312011004359>
- Keppel, G., & Zedeck, S. (1989). *Data analysis for research designs: Analysis of variance and multiple regression/correlation approaches*. W.H. Freeman.
- Kuznetsova, A., Brockhoff, P. B., & Christensen, R. H. B. (2017). lmerTest package: Tests in linear mixed effects models. *Journal of Statistical Software*, 82(13), 1–26. <https://doi.org/10.18637/jss.v082.i13>
- Lenth, R. V. (2022). Emmeans: Estimated marginal means, aka least-squares means. <https://CRAN.R-project.org/package=emmeans>
- Long, J. A. (2019). Interactions: Comprehensive, user-friendly toolkit for probing interactions. <https://cran.r-project.org/package=interactions>
- Lüdecke, D., Ben-Shachar, M. S., Patil, I., Waggoner, P., & Makowski, D. (2021). performance: An R package for assessment, comparison and testing of statistical models. *Journal of Open Source Software*, 6(60), 3139. <https://doi.org/10.21105/joss.03139>
- Rizopoulos, D. (2006). ltm: An R package for latent variable modeling and item response theory analyses. *Journal of Statistical Software*, 17(5), 1–25. <https://doi.org/10.18637/jss.v017.i05>
- Wickham, H. (2016). *ggplot2: Elegant graphics for data analysis*. Springer-Verlag New York. <https://ggplot2.tidyverse.org>
- Wickham, H., Averick, M., Bryan, J., Chang, W., McGowan, L. D., François, R., Grolemund, G., Hayes, A., Henry, L., Hester, J., Kuhn, M., Pedersen, T. L., Miller, E., Bache, S. M., Müller, K., Ooms, J., Robinson, D., Seidel, D. P., Spinu, V., ... Yutani, H. (2019). Welcome to the tidyverse. *Journal of Open Source Software*, 4(43), 1686. <https://doi.org/10.21105/joss.01686>
- Wickham, H., François, R., Henry, L., & Müller, K. (2022). Dplyr: A grammar of data manipulation. <https://CRAN.R-project.org/package=dplyr>

- Wolen, A. R., Hartgerink, C. H. J., Hafen, R., Richards, B. G., Soderberg, C. K., & York, T. P. (2020). osfr: An R interface to the open science framework. *Journal of Open Source Software*, 5(46), 2071. <https://doi.org/10.21105/joss.02071>
- Xie, Y. (2014). Knitr: A comprehensive tool for reproducible research in R. In V. Stodden, F. Leisch, & R. D. Peng (Eds.), *Implementing reproducible computational research*. Chapman and Hall/CRC. <https://doi.org/10.1201/9781315373461-1>
- Zhu, H. (2020). *kableExtra: Construct complex table with 'kable' and pipe syntax*. <https://CRAN.R-project.org/package=kableExtra>