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.XXXXX/OSF.IO/XXXXX. 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 LaTeX.

Contents

1 Preliminaries

1.1 Load packages

This file was created using `knitr` (Xie, 2014), mostly using `tidyverse` (Wickham et al., 2019) syntax. As such, data wrangling was mainly done using packages such as `dplyr` (Wickham et al., 2022), and most figures were created or modified using `ggplot2` (Wickham, 2016). Tables were created using `knitr::kable` and `kableExtra` (Zhu, 2020).

Linear mixed models were fitted using `lmerTest` (Kuznetsova et al., 2017), assumptions were performed using `performance` (Lüdecke et al., 2021), contrasts and interactions were explored using `emmeans` (Lenth, 2022), and interactions were plotted using the package `interactions` (Long, 2019).

Used packages also include `osfr` (Wolen et al., 2020) to download and open data files directly from the Open Science Framework (OSF), using the `osf_retrieve_file` and `osf_download` functions.

All packages used in this file can be directly installed from the Comprehensive R Archive Network (CRAN). For a complete list of packages used to create this file, and their versions, see section 4, at the end of the document.

```
library(readxl)
library(ltm)
library(car)
library(lmerTest)
library(tidyverse)
library(ggpubr)
library(tidyquant)
library(dplyr)
library(interactions)
library(emmeans)
library(performance)
library(kableExtra)
library(psych)
library(MetBrewer)
library(ggpmisc)
library(scales)
library(effectsize)
library(rstatix)
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 LaTeX, 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 LaTeX, 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)$coefficients) |>
                    rownames_to_column() |>
    mutate_at("rowname", str_replace_all, ":", " × ") |>
    mutate_at("rowname", str_replace_all, "`", "") |>
    mutate("rowname" = str_replace_all(rowname,
                                   c("Gender1" = "Gender [Women]",
                                     "Relationship1" = "Relationship [Stable]",
                                     Dimension1 = "Dimension [Attractive person DSD]",
                                     Dimension2 = "Dimension [Partner DSD]"))) |>
    select(rowname, Estimate, Std..Error, df, t.value, Pr...t..) |>
    mutate(Pr...t.. = pval.lev(Pr...t..)) |>
    kable(digits = 2,
          booktabs = TRUE,
          align = c("l", rep("c", 5)),
          linesep = "",
          caption = custom_caption,
          col.names = c("Effect",
                        "Estimate",
                        "Std. Error",
                        "$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 intervales 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,
             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 LaTeX, 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 leat 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 ano" = "Single",
                               "Soltero/contactos sexuales en un ano" = "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. Demographic chacarteristics of the sample

Number of participants by demographic category.

```
# Get number of participant for each combination of demographic chacarteristic
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),
                               ")")),
            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),
                               ")")),
            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")
```

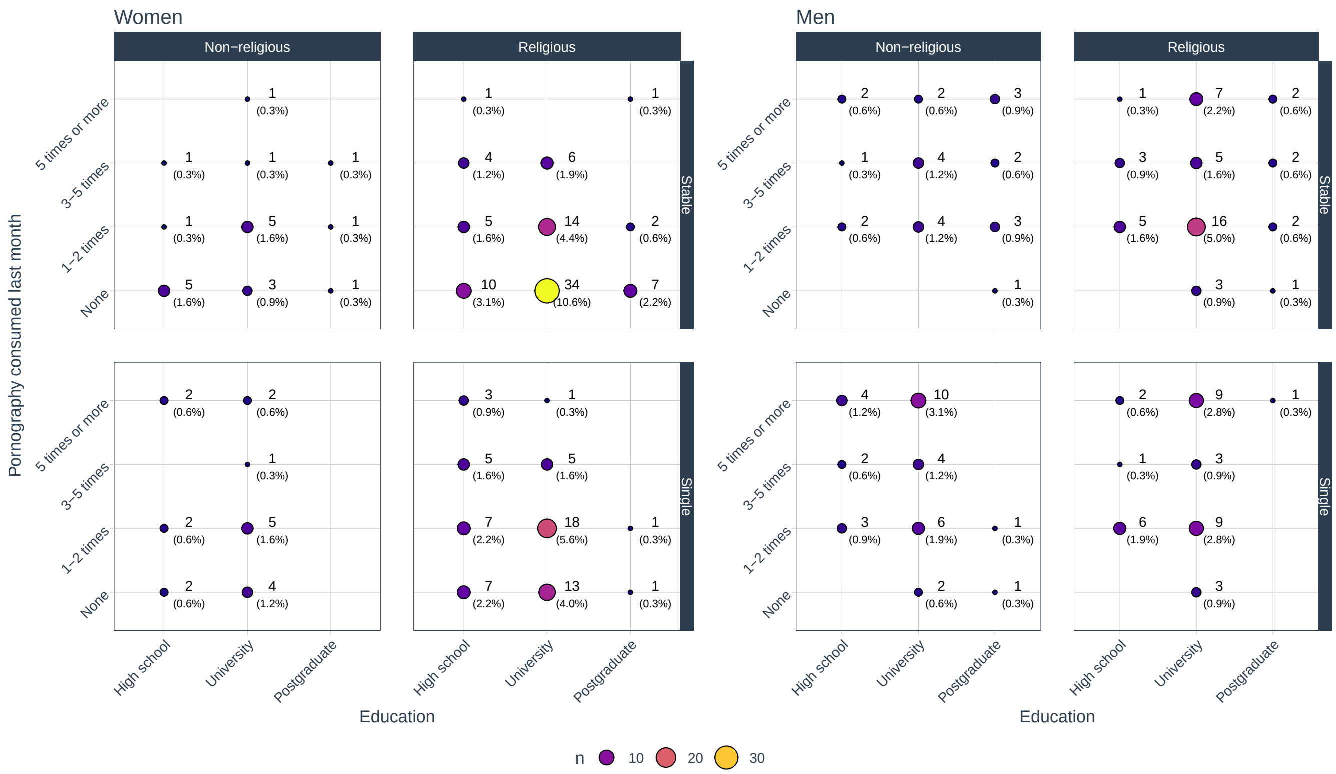

Figure S1. Number of participants by gender (left = women, rigth = men), Relationship (stable = top panels, single = bottom panels), Religion (non-religious = left panels by gender, religious = right panels by gender), Education (X axis), and pornography consumed during the last month (Y axis). The number 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) |>
```

```r
# 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 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
Number of sexual partners	Women	Stable	103	4.41	3.77	3.00	1.00	22.00
		Single	76	5.74	8.85	3.00	0.00	63.00
	Men	Stable	72	8.72	11.36	5.00	1.00	70.00
		Single	66	7.30	8.06	4.00	0.00	40.00
MGH-SFQ (total)	Women	Stable	104	3.31	0.96	3.75	0.00	4.00
		Single	79	2.80	1.23	3.50	0.00	4.00
	Men	Stable	72	3.59	0.62	3.90	0.60	4.00
		Single	67	3.38	0.83	3.80	0.60	4.00
	Women	Stable	100	25.88	5.67	28.00	6.00	30.00
		Single	10	26.90	3.11	27.00	22.00	30.00

(Continued on Next Page...)

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

Measured characteristic	Gender	Relationship status	n	Mean	SD	Median	Min	Max
MGSS sexual satisfaction (General)	Men	Stable	70	26.43	4.54	29.00	12.00	30.00
		Single	12	23.58	5.14	24.50	14.00	29.00
MGSS sexual satisfaction (Partner)	Women	Stable	100	28.13	4.20	30.00	8.00	30.00
		Single	10	28.10	2.13	29.00	25.00	30.00
	Men	Stable	70	28.49	3.48	30.00	6.00	30.00
		Single	12	26.08	4.85	27.50	15.00	30.00
Subjective sexual attractiveness	Women	Stable	105	2.94	1.11	2.78	1.00	5.49
		Single	79	3.19	1.06	3.11	1.44	6.77
	Men	Stable	72	3.27	0.94	3.24	1.11	6.20
		Single	67	3.20	0.90	3.18	1.09	5.72
Subjective sexual arousal	Women	Stable	105	1.59	0.68	1.39	1.00	4.21
		Single	79	1.75	0.71	1.52	1.00	4.39
	Men	Stable	72	2.24	0.83	2.07	1.00	4.57
		Single	67	2.16	0.78	2.05	1.00	4.09
Solitary sexual desire	Women	Stable	105	11.53	8.59	12.00	0.00	29.00
		Single	79	16.03	8.35	17.00	0.00	31.00
	Men	Stable	72	17.47	7.51	17.50	0.00	31.00
		Single	67	18.25	7.10	19.00	1.00	31.00
Dyadic sexual desire (Attractive person)	Women	Stable	105	10.55	7.64	10.00	0.00	30.00
		Single	79	14.06	7.39	15.00	0.00	32.00
	Men	Stable	72	16.21	7.44	15.50	0.00	32.00
		Single	67	17.57	6.66	17.00	2.00	30.00
Dyadic sexual desire (Partner)	Women	Stable	105	27.53	8.50	30.00	0.00	38.00
		Single	76	21.33	10.91	23.00	0.00	38.00
	Men	Stable	72	31.35	5.33	32.00	15.00	38.00
		Single	67	25.81	9.40	28.00	0.00	38.00

Note: Because for *Subjective sexual attractiveness* and *Subjective sexual arousal* there are 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)
fs2a <- ggplot(datp |>
                 filter(Variable %in% c("Age",
                                        "Number of sexual partners",
                                        "Subjective sexual\nattractiveness",
```

```
                                     "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\nattractiveness",
                                            "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()

fs2b <- 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()

fs2c <- ggplot(datp |>
                 filter(Variable %in% c("Solitary sexual desire",
                                        "Dyadic sexual desire\n(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\n(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(fs2a, fs2b, fs2c,
          common.legend = TRUE,
          legend = "bottom",
          nrow = 3)
```

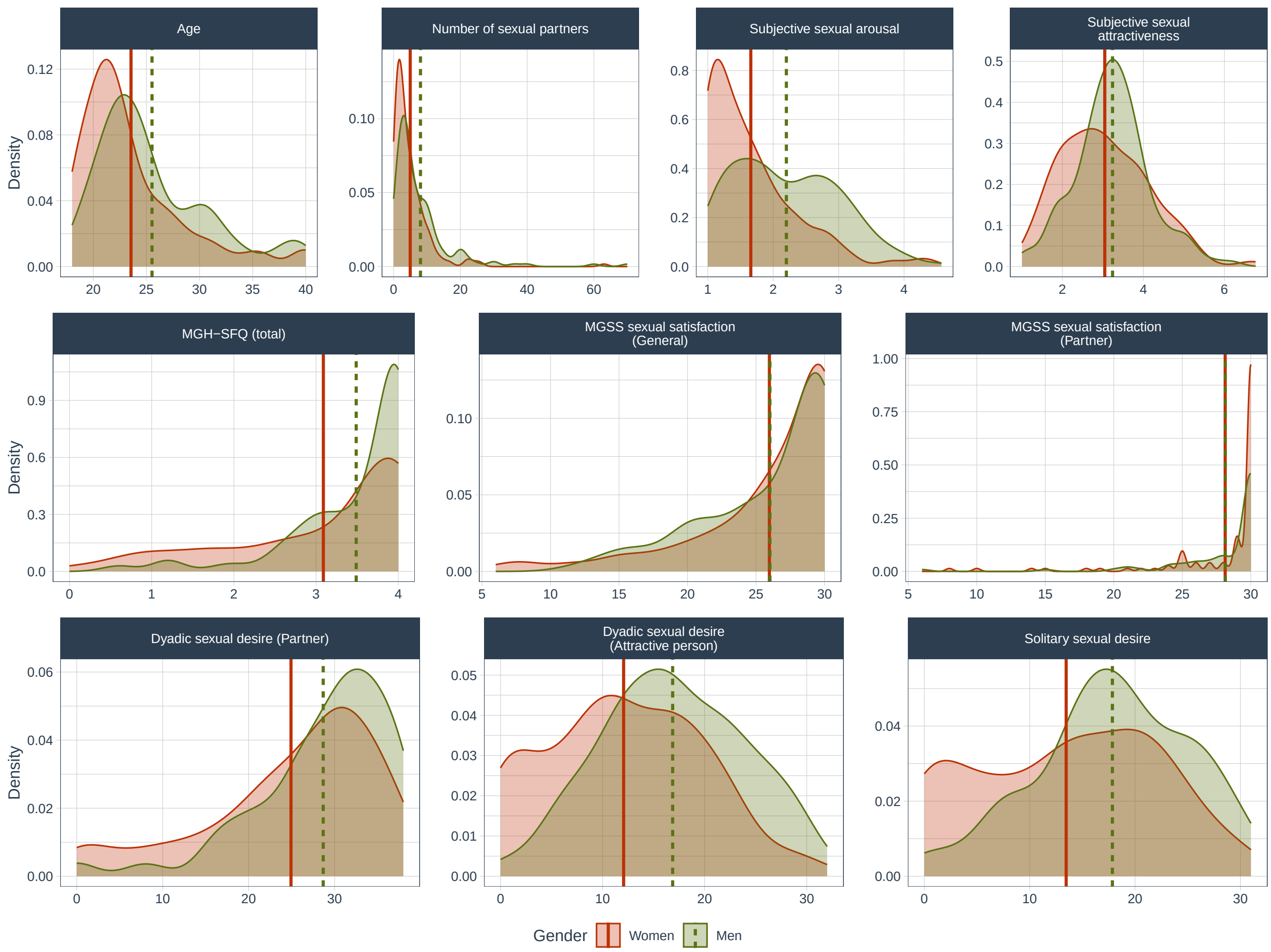

Figure S2. Distribution of measured variables by gender. Coloured vertical lines represent mean values by gender. Detailed descriptives are found in Table S1. Because for *Subjective sexual attractiveness* and *Subjective sexual arousal* there are are multiple within-subject observations, densities calculated 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_ConsistenciaInterna.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	0.72	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"))
```

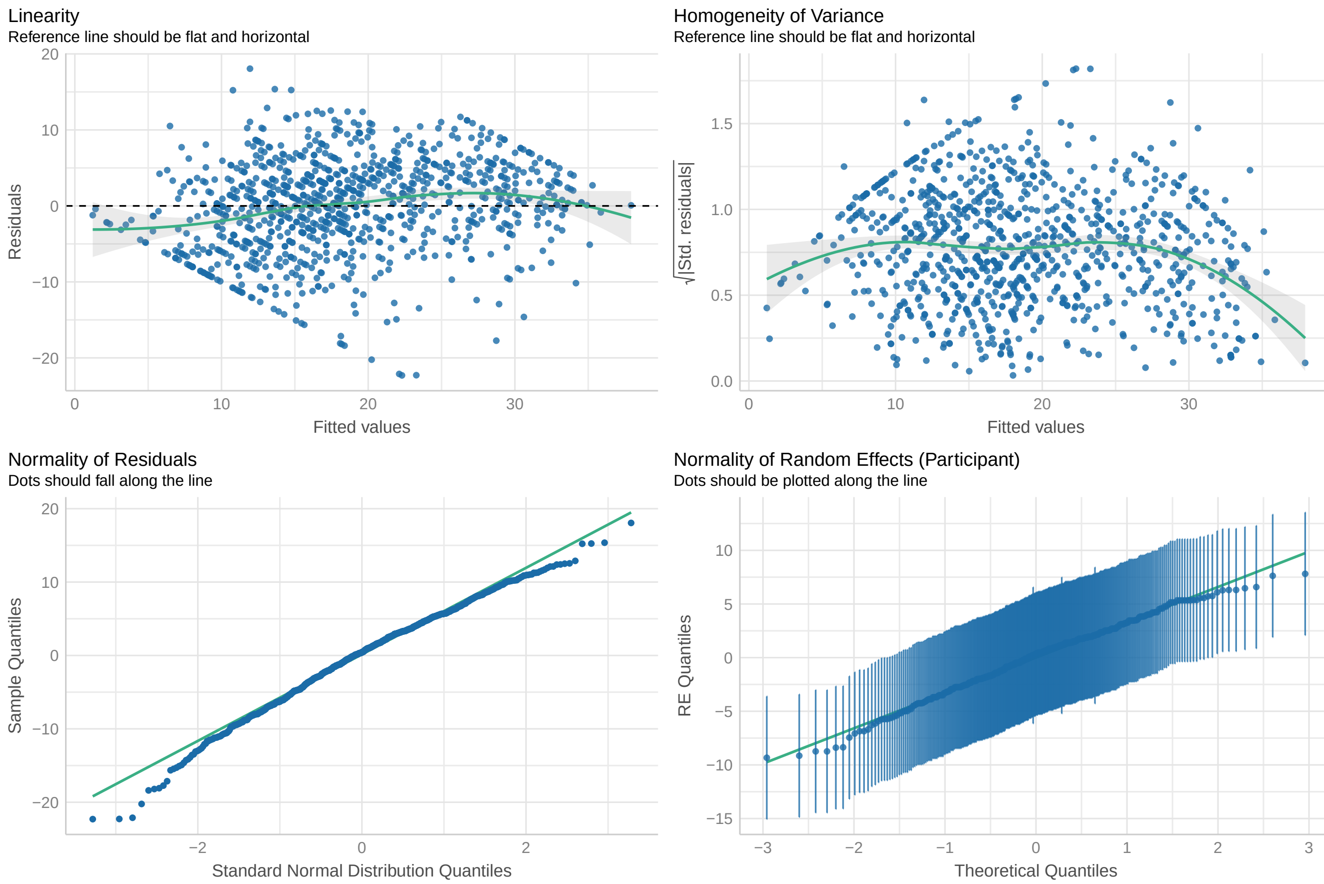

Figure S3. Model assumptions. Plots represent linearity, homogeneity of variance, and normality of both residuals and random effects (as QQ plots), respectively.

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.

3.1.2.3.1 Table S6. Estimated marginal means and contrasts between participants' genders.

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

```
emms.m1a <- emmeans(m1, ~ Gender,
                     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))

merge(emms.m1a.tab, t.m1a, by = 0, all = TRUE) |>
  select(-c(1,8,16)) |>
```

```
  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 each gender",
        col.names = c("Gender",
                      "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 each gender*

						Contrasts					
Gender	EMM	SE	df	$2.5\% CI$	$97.5\% CI$	Contrast	Difference	SE	df	t	p
Women	16.85	0.44	320.83	15.86	17.84	Women - Men	-4.26	0.67	319.63	-6.4	**< 0.0001**
Men	21.11	0.50	318.72	19.98	22.23						

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

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

Table of estimated marginal means and contrasts between the three types of 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, ~ 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)) |>
  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.m1b.tab, t.m1b, 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 S7. *Estimated marginal means for the three dimensions of sexual desire*

						Contrasts					
Dimension	EMM	*SE*	*df*	2.5%*CI*	97.5%*CI*	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.

3.1.2.3.3 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.m1c <- emmeans(m1, ~ Relationship | Dimension,
                    adjust = "bonferroni",
                    lmer.df = "satterthwaite")

emms.m1c.tab <- tibble(data.frame(emms.m1c)) |>
  mutate("Sexual desire" = emmean)

t.m1c <- contr.stars(emms.m1c) |>
  mutate(p.value = pval.lev(p.value))

t.m1c.f <- t.m1c |>
  insertRows(2, new = NA) |>
  insertRows(4, new = NA)

merge(emms.m1c.tab, t.m1c.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",
                      "$SE$",
                      "$df$",
                      "$t$",
                      "$p$"),
        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 S8. *Estimated marginal means for the three dimensions of sexual desire by relationship status*

						Contrasts					
Relationship	EMM	*SE*	*df*	2.5%CI	97.5%CI	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.

```
# Gender main effect
h1a <- ggplot(dat.comp, aes(x = Gender, y = `Sexual desire`, color = Gender)) +
  geom_violin() +
  geom_jitter(alpha = 0.3, width = 0.1) +
  scale_color_manual(values = color.Gender) +
  scale_fill_manual(values = color.Gender) +
  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 = 40,
                     tip.length = 0) +
  guides(color = "none") +
  theme_tq()

# Dimension main effect
h1b <- 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.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(44, 47, 41),
                     tip.length = 0) +
  scale_x_discrete(labels = label_wrap(25)) +
  guides(color = "none") +
  theme_tq()

# Relationship × Dimension interaction
h1c <- 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.m1c.tab,
                mapping = aes(ymin = lower.CL, ymax = upper.CL),
                colour = "black", width = 0.1) +
  geom_point(data = emms.m1c.tab,
             position = position_dodge(0.1),
             shape = 21, size = 3,
             color = "black", fill = "white") +
  stat_pvalue_manual(t.m1c,
                     label = "p.signif",
                     y.position = c(34, 40, 33),
                     tip.length = 0) +
  guides(color = "none") +
  theme_tq()

# Full figure for hypothesis 1 (a, b and c)
p1f <- ggarrange(ggarrange(h1a, h1b, labels = "auto"),
                 h1c,
                 labels = c("", "c"),
                 legend = "bottom",
                 nrow = 2)
p1f
```

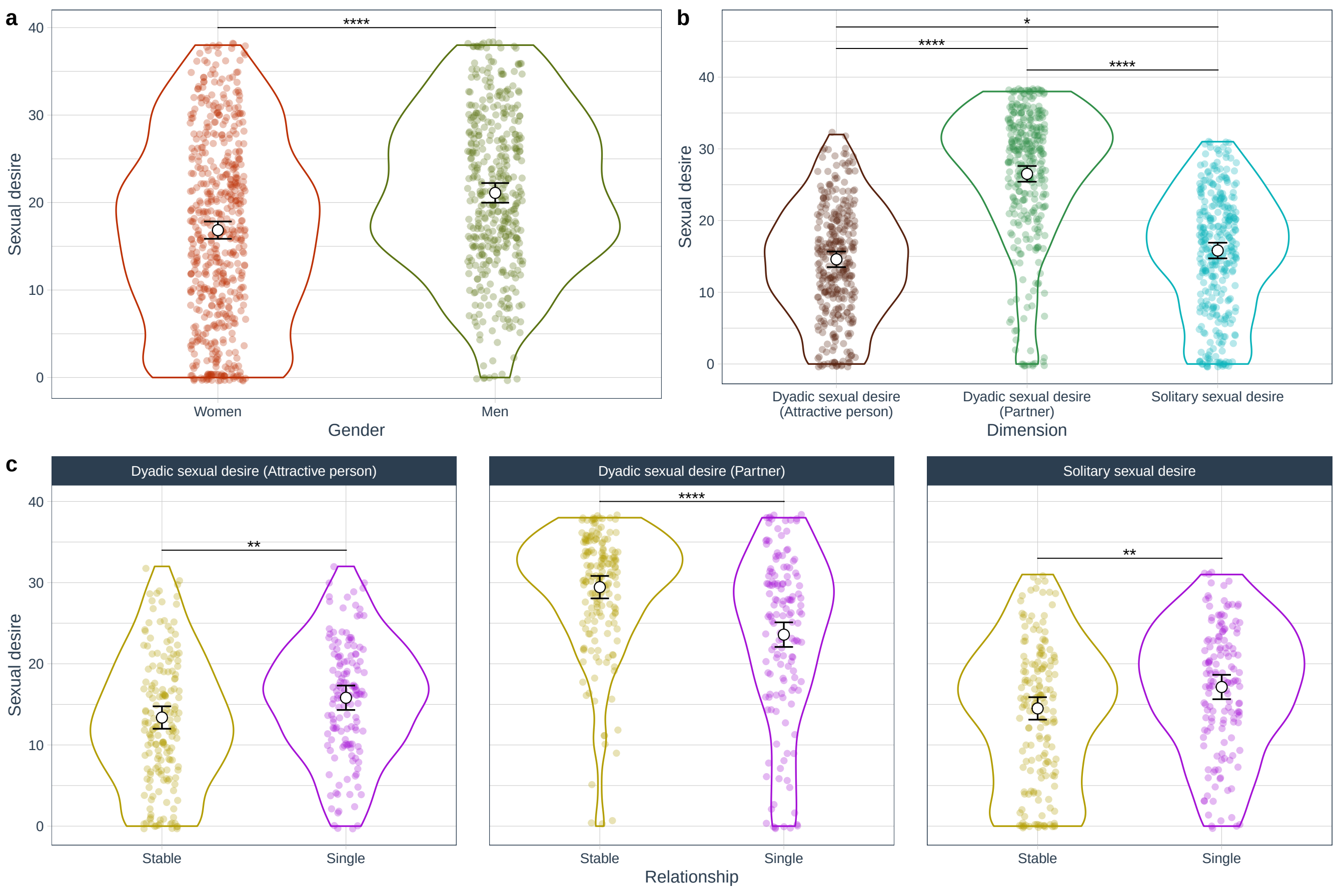

Figure S4. Differences among the three dimensions of sexual desire (Solitary sexual desire, Dyadic sexual desire (Partner), dyadic sexual desire (Attractive person)). **(a)** Simple comparison between sexual desire by gender (for detailed results, see Table S6); **(b)** Simple comparison between dimensions of sexual desire (for detailed results, see Table S7); **(c)** Interaction between relationship type and sexual desire dimension (see Table S5; for detailed results, see Table S8). 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 S9.

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"))
```

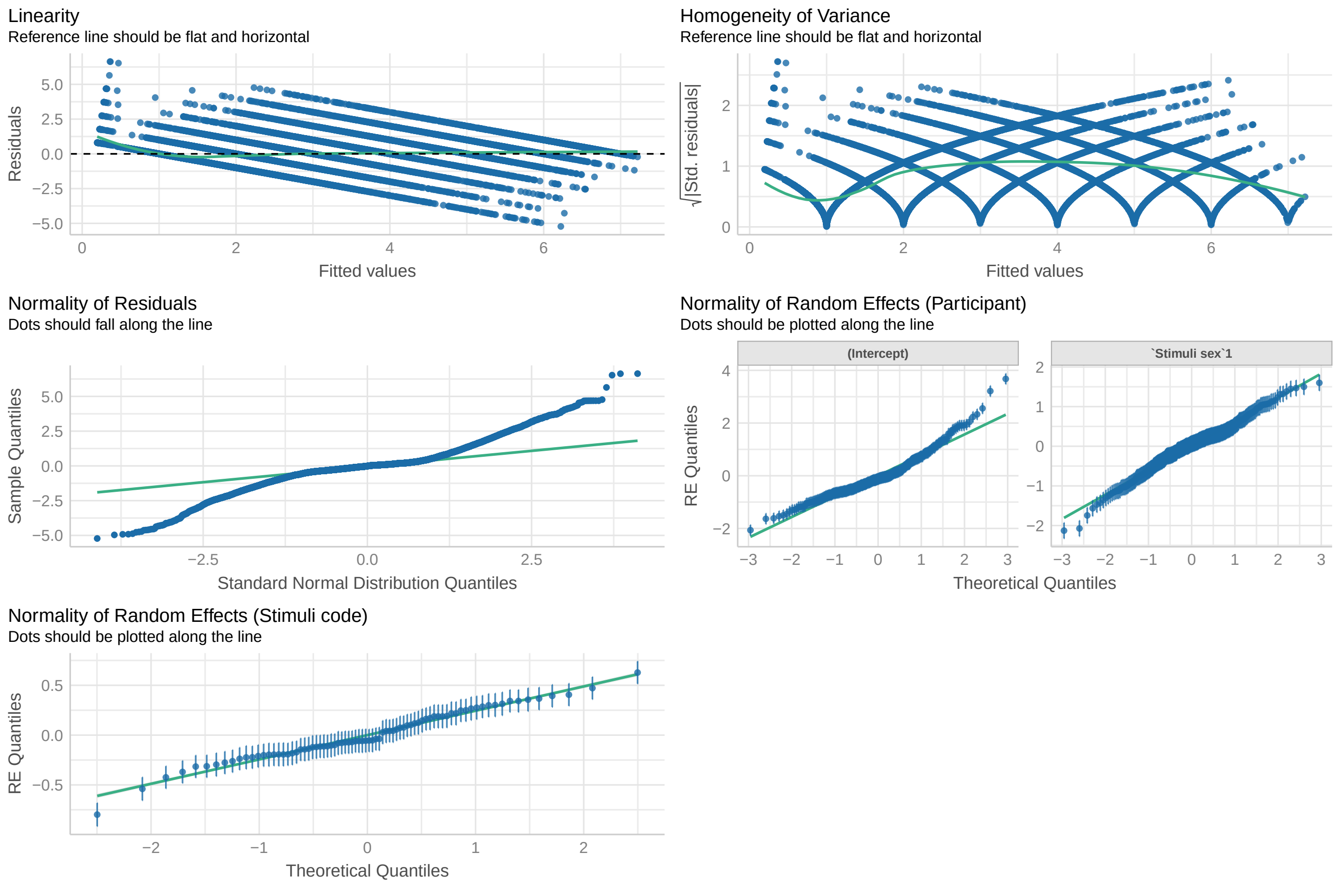

Figure S5. Model assumptions. Plots represent linearity, homogeneity of variance, and normality of both residuals and random effects (as QQ plots), respectively.

Table S9. 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 S9. *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

```r
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 S10. Regression-type table for the interaction between `Relationship type`, `Sexual desire dimension`, and `Gender`

This tables summarizes the results of the model.

```r
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 S10. *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 intervales 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 S11. 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_a <- emmeans(m2a, ~ factor(`Stimuli sex`) | Gender,
                    adjust = "bonferroni") #asymptotic degrees of freedom

emms.m2a_a.tab <- tibble(data.frame(emms.m2a_a)) |>
  rename("Stimuli sex" = Stimuli.sex) |>
  mutate("Subjective sexual arousal (p)" = emmean)

t.m2a_a <- contr.stars(emms.m2a_a) |>
  mutate(p.value = pval.lev(p.value))

t.m2a_a.f <- t.m2a_a |>
  insertRows(2, new = NA)

merge(emms.m2a_a.tab, t.m2a_a.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 that \\\\textit{t} scores are reported.
           Bonferroni adjustment was used.",
           threeparttable = TRUE,
           footnote_as_chunk = TRUE,
           escape = FALSE)
```

Table S11. *Estimated marginal means of subjective sexual arousal for gender by stimuli sex, in response to erotic stimuli*

					Contrasts				
Stimuli sex	EMM	SE	$2.5\% CI$	$97.5\% CI$	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 that t scores are reported. Bonferroni adjustment was used.

Table S12. 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).

```r
slop.m2a_del <- sim_slopes(m2a,
                          pred = "Dyadic sexual desire (Attractive person) (C)",
                          modx = "Stimuli sex")

slop.m2a_del.tab <- data.frame(slop.m2a_del$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_del.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 S12. *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 S13. 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).

```r
slop.m2a_d <- sim_slopes(m2a,
                        pred = "Dyadic sexual desire (Attractive person) (C)",
                        mod2 = "Gender",
                        modx = "Stimuli sex")

slop.m2a_d.tab <- rbind(data.frame(slop.m2a_d$slopes[1]),
                       data.frame(slop.m2a_d$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_d.int <- rbind(data.frame(slop.m2a_d$ints[1]),
                        data.frame(slop.m2a_d$ints[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_d.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 S13. *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 S14. 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_e <- sim_slopes(m2a,
                         pred = "Dyadic sexual desire (Partner) (C)",
                         mod2 = "Gender",
                         modx = "Relationship")

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("Relationship" = "Value.of.Relationship") |>
  rename(Coefficient = Est.) |>
  mutate(Gender = rep(c("Women", "Men"), each = 2)) |>
  select(8,1:7)

slop.m2a_e.int <- rbind(data.frame(slop.m2a_e$ints[1]),
                        data.frame(slop.m2a_e$ints[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_e.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 S14. *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 S15. 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_f <- sim_slopes(m2a,
                         pred = "Dyadic sexual desire (Partner) (C)",
                         mod2 = "Stimuli sex",
                         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("Stimuli sex" = rep(c("Female", "Male"), each = 2)) |>
  select(8,1:7)

slop.m2a_f.int <- rbind(data.frame(slop.m2a_f$ints[1]),
                        data.frame(slop.m2a_f$ints[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_f.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 S15. *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))

# Figure interaction between Stimuli sex and gender
p2a.a <- 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_a.tab,
                mapping = aes(ymin = asymp.LCL, ymax = asymp.UCL),
                colour = "black", width = 0.1) +
  geom_point(data = emms.m2a_a.tab,
             shape = 21, size = 3,
             color = "black", fill = "white") +
  stat_pvalue_manual(t.m2a_a,
                     label = "p.signif",
                     y.position = c(7.4,7.8),
                     tip.length = 0) +
  labs(y = "Subjective sexual\narousal (predicted)") +
  ylim(c(0, 8.5)) +
  theme_tq() +
```

```
  theme(legend.position = "none")

## Extract slope data from model summary for main effects of continuous predictors
slop.m2a_bc.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.b <- 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 = "")  +
  geom_text(data = slop.m2a_bc.tab[1,],
            mapping = aes(x = -Inf, y =Inf,
                          vjust = 2, hjust = -0.03),
            label = paste("B = ", slop.m2a_bc.tab[1,]$Estimate,
                          ", IC 95%[",
                          paste(slop.m2a_bc.tab[1,]$X2.5..,
                                slop.m2a_bc.tab[1,]$X97.5..,
                                sep = ", "),
                          "], p", slop.m2a_bc.tab[1,]$Pr...t.., "*"),
            size = 3) +
  theme_tq()

# Figure main effect of Dyadic sexual desire (Attractive person) on Subjective sexual arousal
p2a.c <- 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 = "")  +
  geom_text(data = slop.m2a_bc.tab[2,],
            mapping = aes(x = -Inf, y = Inf,
            vjust = 2, hjust = -0.03),
            label = paste("B = ", slop.m2a_bc.tab[2,]$Estimate,
                          ", IC 95%[", paste(slop.m2a_bc.tab[2,]$X2.5..,
                                             slop.m2a_bc.tab[2,]$X97.5..,
                                             sep = ", "),
                          "], p", slop.m2a_bc.tab[2,]$Pr...t.., "****"),
            size = 3) +
  theme_tq()

# Figure interaction between Stimuli sex, gender and Dyadic sexual desire (Attractive person)
## Extract data for by stimuli sex
slop.m2a_d.tab.plot_f <- filter(slop.m2a_d.tab, `Stimuli sex` == "Female") |>
  mutate(p = pval.lev2(p))
slop.m2a_d.tab.plot_m <- filter(slop.m2a_d.tab, `Stimuli sex` == "Male") |>
  mutate(p = pval.lev2(p))

slop.m2a_d.tab.plot <- slop.m2a_d.tab |>
  mutate(Int = slop.m2a_d.int$Coefficient) |>
```

```
  arrange(desc(Gender)) |>
  mutate(p = pval.lev2(p))
slop.m2a_d.tab.plot_f <- filter(slop.m2a_d.tab.plot, `Stimuli sex` == "Female")
slop.m2a_d.tab.plot_m <- filter(slop.m2a_d.tab.plot, `Stimuli sex` == "Male")
## 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_abline(data = slop.m2a_d.tab.plot_f,
              aes(slope = Coefficient,
                  intercept = Int,
                  color = `Stimuli sex`),
              show.legend = NA,
              color = color.StimuliSex[1],
              size = 1) +
  geom_abline(data = slop.m2a_d.tab.plot_m,
              aes(slope = Coefficient,
                  intercept = Int,
                  color = `Stimuli sex`),
              show.legend = NA,
              color = color.StimuliSex[2],
              size = 1) +
  guides(colour = guide_legend(override.aes = list(alpha = 1, size = 3))) +
  scale_color_manual(values = color.StimuliSex) +
  facet_wrap(~fct_relevel(Gender, "Women", "Men")) +
  geom_text(data = slop.m2a_d.tab.plot_f,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 2, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2a_d.tab.plot_f$Coefficient,
                          ", IC 95%[", paste(slop.m2a_d.tab.plot_f$X2.5.,
                                             slop.m2a_d.tab.plot_f$X97.5., sep = ", "),
                          "], p", slop.m2a_d.tab.plot_f$p,
                          ifelse(is.na(slop.m2a_d.tab.plot_f$sig), "", slop.m2a_d.tab.plot_f$sig)),
            color = color.StimuliSex[1], size = 2.5) +
  geom_text(data = slop.m2a_d.tab.plot_m,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 4, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2a_d.tab.plot_m$Coefficient,
                          ", IC 95%[", paste(slop.m2a_d.tab.plot_m$X2.5.,
                                             slop.m2a_d.tab.plot_m$X97.5., sep = ", "),
                          "], p", slop.m2a_d.tab.plot_m$p,
                          ifelse(is.na(slop.m2a_d.tab.plot_m$sig), "", slop.m2a_d.tab.plot_m$sig)),
            color = color.StimuliSex[2], size = 2.5) +
  labs(y = "Subjective sexual\narousal (predicted)") +
  theme_tq()

# Figure interaction between Relationship, gender and Dyadic sexual desire (Partner)
## Extract data by relationship type
slop.m2a_e.tab.plot <- slop.m2a_e.tab |>
  mutate(Int = slop.m2a_e.int$Coefficient) |>
  arrange(desc(Gender)) |>
  mutate(p = pval.lev2(p))
slop.m2a_e.tab.plot_sta <- filter(slop.m2a_e.tab.plot, Relationship == "Stable")
```

```r
slop.m2a_e.tab.plot_sin <- filter(slop.m2a_e.tab.plot, Relationship == "Single")
## Plot
p2a.e <- 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_abline(data = slop.m2a_e.tab.plot_sta,
              aes(slope = Coefficient,
                  intercept = Int,
                  color = `Stimuli sex`),
              show.legend = NA,
              color = color.Relationship[1],
              size = 1) +
  geom_abline(data = slop.m2a_e.tab.plot_sin,
              aes(slope = Coefficient,
                  intercept = Int,
                  color = `Stimuli sex`),
              show.legend = NA,
              color = color.Relationship[2],
              size = 1) +
  guides(colour = guide_legend(override.aes = list(alpha = 1, size = 3))) +
  scale_color_manual(values = color.Relationship) +
  scale_fill_manual(values = color.Relationship) +
  facet_wrap(~fct_relevel(Gender, "Women", "Men")) +
  geom_text(data = slop.m2a_e.tab.plot_sta,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 2, hjust = -0.03),
            label = paste("B = ", slop.m2a_e.tab.plot_sta$Coefficient,
                          ", IC 95%[", paste(slop.m2a_e.tab.plot_sta$X2.5.,
                                             slop.m2a_e.tab.plot_sta$X97.5., sep = ", "),
                          "], p", slop.m2a_e.tab.plot_sta$p,
                          ifelse(is.na(slop.m2a_e.tab.plot_sta$sig), "",
                                 slop.m2a_e.tab.plot_sta$sig)),
            color = color.Relationship[1], size = 2.5) +
  geom_text(data = slop.m2a_e.tab.plot_sin,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 4, hjust = -0.03),
            label = paste("B = ", slop.m2a_e.tab.plot_sin$Coefficient,
                          ", IC 95%[", paste(slop.m2a_e.tab.plot_sin$X2.5.,
                                             slop.m2a_e.tab.plot_sin$X97.5., sep = ", "),
                          "], p", slop.m2a_e.tab.plot_sin$p,
                          ifelse(is.na(slop.m2a_e.tab.plot_sin$sig), "", slop.m2a_e.tab.plot_sin$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 by relationship type
slop.m2a_f.tab.plot <- slop.m2a_f.tab |>
  mutate(Int = slop.m2a_f.int$Coefficient) |>
  arrange(`Stimuli sex`) |>
  mutate(p = pval.lev2(p))
slop.m2a_f.tab.plot_sta <- filter(slop.m2a_f.tab.plot, Relationship == "Stable")
slop.m2a_f.tab.plot_sin <- filter(slop.m2a_f.tab.plot, Relationship == "Single")
## 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_abline(data = slop.m2a_f.tab.plot_sta,
              aes(slope = Coefficient,
                  intercept = Int,
                  color = Relationship),
              show.legend = NA,
              color = color.Relationship[1],
              size = 1) +
  geom_abline(data = slop.m2a_f.tab.plot_sin,
              aes(slope = Coefficient,
                  intercept = Int,
                  color = Relationship),
              show.legend = NA,
              color = color.Relationship[2],
              size = 1) +
  guides(colour = guide_legend(override.aes = list(alpha = 1, size = 3))) +
  scale_color_manual(values = color.Relationship) +
  scale_fill_manual(values = color.Relationship) +
  facet_wrap(~~fct_relevel(`Stimuli sex`, "Female", "Male")) +
  geom_text(data = slop.m2a_f.tab.plot_sta,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 2, hjust = -0.03),
            label = paste("B = ", slop.m2a_f.tab.plot_sta$Coefficient,
                          ", IC 95%[", paste(slop.m2a_f.tab.plot_sta$X2.5.,
                                             slop.m2a_f.tab.plot_sta$X97.5., sep = ", "),
                          "], p", slop.m2a_f.tab.plot_sta$p,
                          ifelse(is.na(slop.m2a_f.tab.plot_sta$sig), "",
                                 slop.m2a_f.tab.plot_sta$sig)),
            color = color.Relationship[1], size = 2.5) +
  geom_text(data = slop.m2a_f.tab.plot_sin,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 4, hjust = -0.03),
            label = paste("B = ", slop.m2a_f.tab.plot_sin$Coefficient,
                          ", IC 95%[", paste(slop.m2a_f.tab.plot_sin$X2.5.,
                                             slop.m2a_f.tab.plot_sin$X97.5., sep = ", "),
                          "], p", slop.m2a_f.tab.plot_sin$p,
                          ifelse(is.na(slop.m2a_f.tab.plot_sin$sig), "",
                                 slop.m2a_f.tab.plot_sin$sig)),
            color = color.Relationship[2], size = 2.5) +
  labs(y = " \n ")  +
  theme_tq()

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

```
                              common.legend = TRUE,
                              legend = "bottom"),
                              ncol = 1)
p2af
```

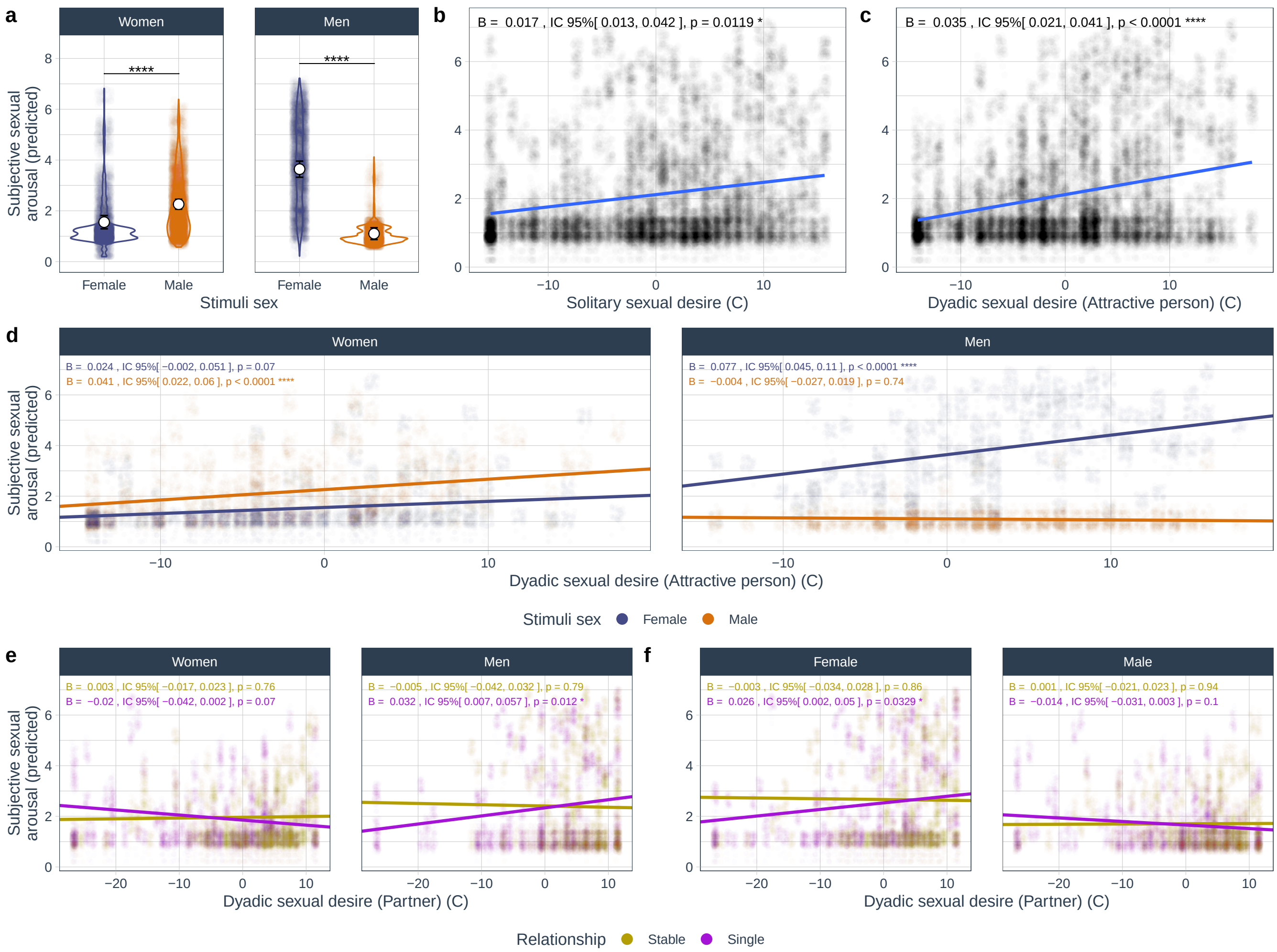

Figure S6. Subjective sexual arousal to erotic stimuli: Significant main effects and interactions of model 2A. For detailed results of the model, see Table S10. **(a)** Interaction between Stimuli sex and gender (significant effects of stimuli sex by participant gender are represented with lines and stars. White dots and black bars represent estimated marginal means and 95% CI, calculated from 1000 bootstraped simulations; for detailed results, see Table S11); **(b)** main effect of Solitary sexual desire on Subjective sexual arousal (for detailed results, see Table S10); **(c)** main effect of Dyadic sexual desire (Attractive person) on Subjective sexual arousal (for detailed results, see Table S10); **(d)** interaction between Stimuli sex, gender and Dyadic sexual desire (Attractive person) (for detailed results, see Table S13; slopes for the two-way interaction between Stimuli sex and gender —not plotted— are detailed in Table S12); **(e)** interaction between Relationship, gender and Dyadic sexual desire (Partner) (for detailed results, see Table S14); **(f)** interaction between Relationship, Stimuli sex and Dyadic sexual desire (Partner) (for detailed results, see Table S15). *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 S16.

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"))
```

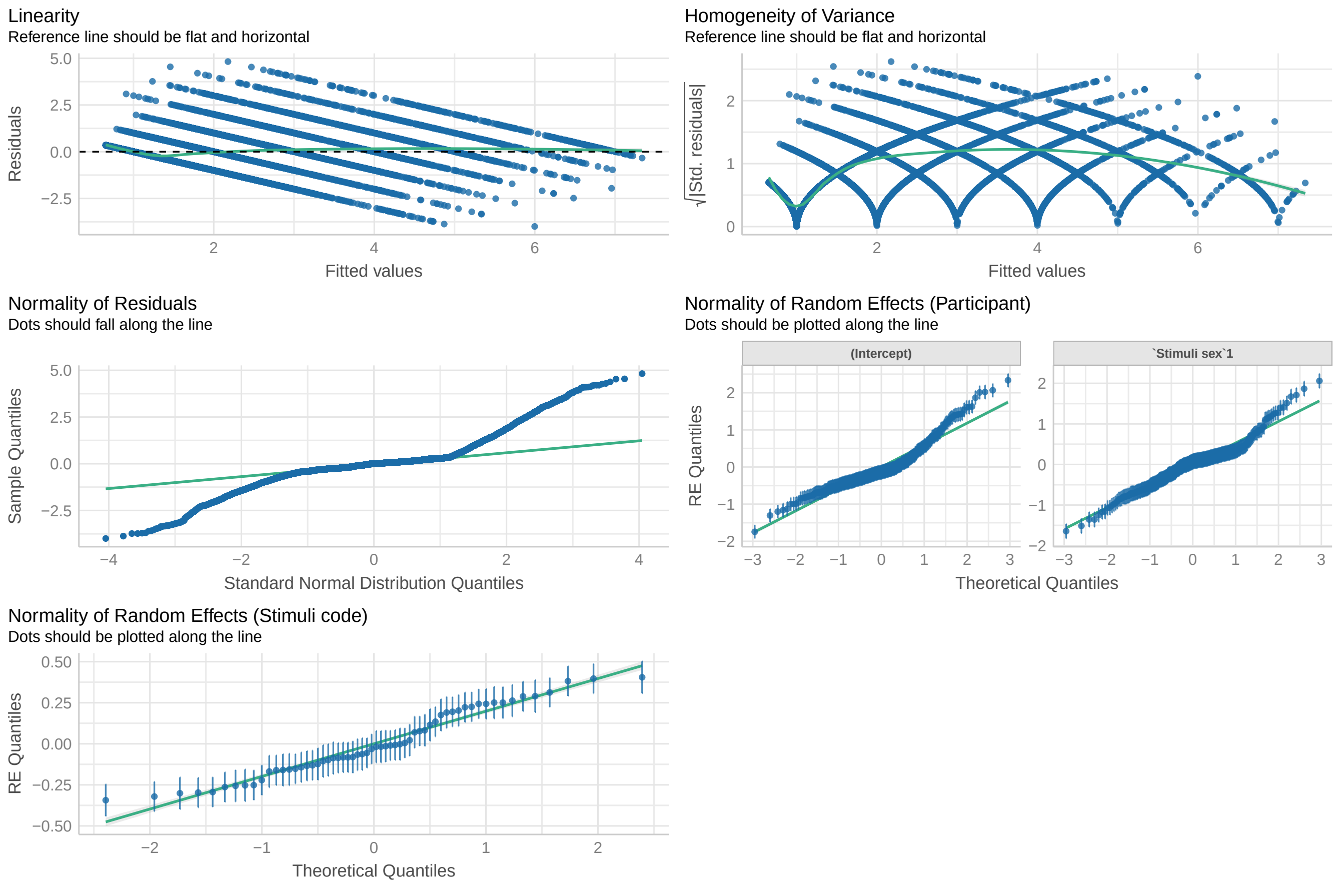

Figure S7. Model assumptions. Plots represent linearity, homogeneity of variance, and normality of both residuals and random effects (as QQ plots), respectively.

Table S16. 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 = "",
        caption = "Variance inflation factors for the model of hypothesis 2a",
        col.names = c(" ",
                      "$VIF$"),
        escape = FALSE) |>
  kable_styling(latex_options = "HOLD_position")
```

Table S16. *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 method for 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 S17. 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 S17. *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 intervales 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 S18. 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_a <- emmeans(m2b, ~ factor(`Stimuli sex`) | Gender,
                    adjust = "bonferroni") #asymptotic degrees of freedom

emms.m2b_a.tab <- tibble(data.frame(emms.m2b_a)) |>
  rename("Stimuli sex" = Stimuli.sex) |>
  mutate("Subjective sexual arousal (p)" = emmean)

t.m2b_a <- contr.stars(emms.m2b_a) |>
  mutate(p.value = pval.lev(p.value))

t.m2b_a.f <- t.m2b_a |>
  insertRows(2, new = NA)

merge(emms.m2b_a.tab, t.m2b_a.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)),
```

```r
        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 that \\\\textit{t} scores are reported.
           Bonferroni adjustment was used.",
           threeparttable = TRUE,
           footnote_as_chunk = TRUE,
           escape = FALSE)
```

Table S18. *Estimated marginal means of subjective sexual arousal for gender by stimuli sex, in response to non-erotic stimuli*

					Contrasts				
Stimuli sex	EMM	SE	$2.5\% CI$	$97.5\% CI$	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 that t scores are reported. Bonferroni adjustment was used.

Table S19. 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. Solitary sexual desire 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.int <- data.frame(slop.m2b_c$ints) |>
  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 S19. *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 S20. 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. Solitary sexual desire 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.int <- data.frame(slop.m2b_d$ints) |>
  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 S20. *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 S21. 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).

```r
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.int <- rbind(data.frame(slop.m2b_e$ints[1]),
                        data.frame(slop.m2b_e$ints[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", 5)),
        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 S21. *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))

# Figure interaction between Stimuli sex and gender
p2b.a <- 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) +
  facet_wrap(~Gender) +
  geom_errorbar(data = emms.m2b_a.tab,
                mapping = aes(ymin = asymp.LCL, ymax = asymp.UCL),
                colour = "black", width = 0.1) +
  geom_point(data = emms.m2b_a.tab,
             shape = 21, size = 3,
             color = "black", fill = "white") +
  stat_pvalue_manual(t.m2b_a,
                     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")

## Extract slope data from model summary for main effects of continuous predictors
slop.m2b_b.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.b <- 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\narousal (predicted)") +
  geom_text(data = slop.m2b_b.tab[6,],
            mapping = aes(x = -Inf, y =Inf,
                          vjust = 2, hjust = -0.03),
            label = paste("B = ", slop.m2b_b.tab[6,]$Estimate,
                          ", IC 95%[",
                          paste(slop.m2b_b.tab[6,]$X2.5..,
                                slop.m2b_b.tab[6,]$X97.5..,
                                sep = ", "),
                          "], p", slop.m2b_b.tab[6,]$Pr...t.., "****"),
            size = 3) +
  theme_tq()

# Figure interaction between gender and Solitary sexual desire
## Extract data for by stimuli sex
slop.m2b_c.tab.plot <- slop.m2b_c.tab |>
  mutate(Int = slop.m2b_c.int$Coefficient) |>
  arrange(desc(Gender)) |>
  mutate(p = pval.lev2(p))
slop.m2b_c.tab.plot_wom <- filter(slop.m2b_c.tab.plot, Gender == "Women")
slop.m2b_c.tab.plot_men <- filter(slop.m2b_c.tab.plot, Gender == "Men")
## Plot
p2b.c <- ggplot(m2b.dat, aes(x = `Solitary sexual desire (C)`,
                             y = `Subjective sexual arousal (p)`,
                             color = Gender, fill = Gender)) +
  geom_jitter(alpha = 0.01, size = 1, width = 0.4) +
  geom_abline(data = slop.m2b_c.tab.plot,
              aes(slope = Coefficient,
                  intercept = Int,
                  color = Gender),
              show.legend = NA,
              color = color.Gender,
              size = 1) +
  guides(colour = guide_legend(override.aes = list(alpha = 1, size = 3))) +
  scale_color_manual(values = color.Gender) +
  geom_text(data = slop.m2b_c.tab.plot_wom,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 2, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2b_c.tab.plot_wom$Coefficient,
                          ", IC 95%[", paste(slop.m2b_c.tab.plot_wom$X2.5.,
                                             slop.m2b_c.tab.plot_wom$X97.5., sep = ", "),
                          "], p", slop.m2b_c.tab.plot_wom$p,
                          ifelse(is.na(slop.m2b_c.tab.plot_wom$sig), "",
                                 slop.m2b_c.tab.plot_wom$sig)),
            color = color.Gender[1], size = 3) +
  geom_text(data = slop.m2b_c.tab.plot_men,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 4, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2b_c.tab.plot_men$Coefficient,
                          ", IC 95%[", paste(slop.m2b_c.tab.plot_men$X2.5.,
                                             slop.m2b_c.tab.plot_men$X97.5., sep = ", "),
                          "], p", slop.m2b_c.tab.plot_men$p,
```

```
                          ifelse(is.na(slop.m2b_c.tab.plot_men$sig), "",
                                 slop.m2b_c.tab.plot_men$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.plot <- slop.m2b_d.tab |>
  mutate(Int = slop.m2b_d.int$Coefficient) |>
  arrange(`Stimuli sex`) |>
  mutate(p = pval.lev2(p))
slop.m2b_d.tab.plot_f <- filter(slop.m2b_d.tab.plot, `Stimuli sex` == "Female")
slop.m2b_d.tab.plot_m <- filter(slop.m2b_d.tab.plot, `Stimuli sex` == "Male")
## Plot
p2b.d <- ggplot(m2b.dat, aes(x = `Solitary sexual desire (C)`,
                             y = `Subjective sexual arousal (p)`,
                             color = `Stimuli sex`, fill = `Stimuli sex`)) +
  geom_jitter(alpha = 0.01, size = 1, width = 0.4) +
  geom_abline(data = slop.m2b_d.tab.plot,
              aes(slope = Coefficient,
                  intercept = Int,
                  color = `Stimuli sex`),
              show.legend = NA,
              color = color.StimuliSex,
              size = 1) +
  guides(colour = guide_legend(override.aes = list(alpha = 1, size = 3))) +
  scale_color_manual(values = color.StimuliSex) +
  geom_text(data = slop.m2b_d.tab.plot_f,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 2, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2b_d.tab.plot_f$Coefficient,
                          ", IC 95%[", paste(slop.m2b_d.tab.plot_f$X2.5.,
                                             slop.m2b_d.tab.plot_f$X97.5., sep = ", "),
                          "], p", slop.m2b_d.tab.plot_f$p,
                          ifelse(is.na(slop.m2b_d.tab.plot_f$sig), "",
                                 slop.m2b_d.tab.plot_f$sig)),
            color = color.StimuliSex[1], size = 3) +
  geom_text(data = slop.m2b_d.tab.plot_m,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 4, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2b_d.tab.plot_m$Coefficient,
                          ", IC 95%[", paste(slop.m2b_d.tab.plot_m$X2.5.,
                                             slop.m2b_d.tab.plot_m$X97.5., sep = ", "),
                          "], p", slop.m2b_d.tab.plot_m$p,
                          ifelse(is.na(slop.m2b_d.tab.plot_m$sig), "",
                                 slop.m2b_d.tab.plot_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.plot <- slop.m2b_e.tab |>
```

```r
  mutate(Int = slop.m2b_e.int$Coefficient) |>
  arrange(`Stimuli sex`) |>
  mutate(p = pval.lev2(p))
slop.m2b_e.tab.plot_f <- filter(slop.m2b_e.tab.plot, `Stimuli sex` == "Female")
slop.m2b_e.tab.plot_m <- filter(slop.m2b_e.tab.plot, `Stimuli sex` == "Male")
## Plot
p2b.e <- ggplot(m2b.dat, aes(x = `Dyadic sexual desire (Attractive person) (C)`,
                             y = `Subjective sexual arousal (p)`,
                             color = `Stimuli sex`, fill = `Stimuli sex`)) +
  geom_jitter(alpha = 0.01, size = 1, width = 0.4) +
  geom_abline(data = slop.m2b_e.tab.plot_f,
              aes(slope = Coefficient,
                  intercept = Int,
                  color = `Stimuli sex`),
              show.legend = NA,
              color = color.StimuliSex[1],
              size = 1) +
  geom_abline(data = slop.m2b_e.tab.plot_m,
              aes(slope = Coefficient,
                  intercept = Int,
                  color = `Stimuli sex`),
              show.legend = NA,
              color = color.StimuliSex[2],
              size = 1) +
  guides(colour = guide_legend(override.aes = list(alpha = 1, size = 3))) +
  scale_color_manual(values = color.StimuliSex) +
  facet_wrap(~fct_relevel(Gender, "Women", "Men")) +
  geom_text(data = slop.m2b_e.tab.plot_f,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 2, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2b_e.tab.plot_f$Coefficient,
                          ", IC 95%[", paste(slop.m2b_e.tab.plot_f$X2.5.,
                                             slop.m2b_e.tab.plot_f$X97.5., sep = ", "),
                          "], p", slop.m2b_e.tab.plot_f$p,
                          ifelse(is.na(slop.m2b_e.tab.plot_f$sig), "", slop.m2b_e.tab.plot_f$sig)),
            color = color.StimuliSex[1], size = 2.5) +
  geom_text(data = slop.m2b_e.tab.plot_m,
            mapping = aes(x = -Inf, y = Inf,
            vjust = 4, hjust = -0.03),
            inherit.aes = FALSE,
            label = paste("B = ", slop.m2b_e.tab.plot_m$Coefficient,
                          ", IC 95%[", paste(slop.m2b_e.tab.plot_m$X2.5.,
                                             slop.m2b_e.tab.plot_m$X97.5., sep = ", "),
                          "], p", slop.m2b_e.tab.plot_m$p,
                          ifelse(is.na(slop.m2b_e.tab.plot_m$sig), "", slop.m2b_e.tab.plot_m$sig)),
            color = color.StimuliSex[2], size = 2.5) +
  labs(y = "Subjective sexual\narousal (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
```

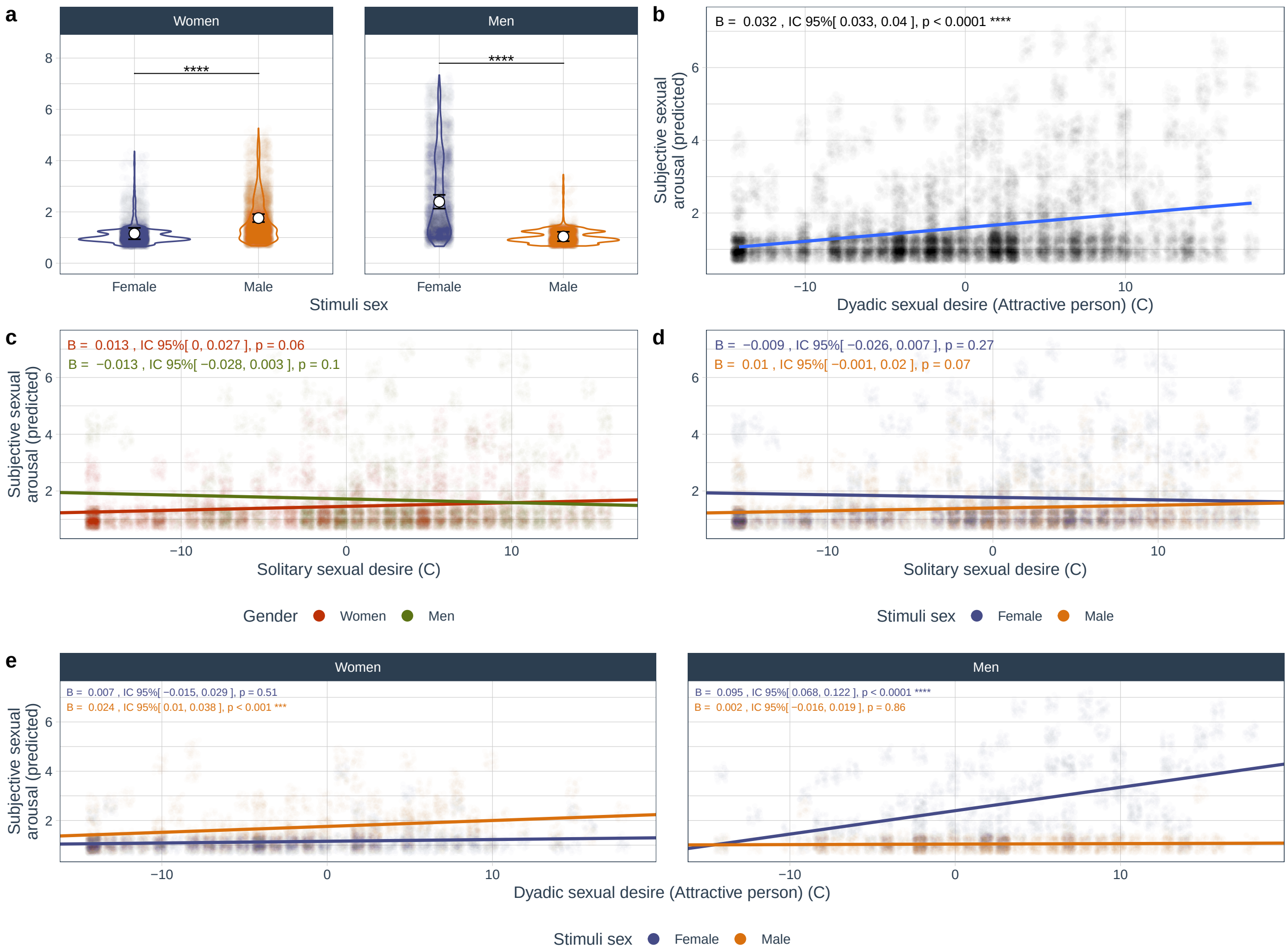

Figure S8. Subjective sexual arousal to non-erotic stimuli: Significant main effects and interactions of model 2B. For detailed results of the model, see Table S17. **(b)** Interaction between Stimuli sex and gender (significant effects of stimuli sex by participant gender are represented with lines and stars. White dots and black bars represent estimated marginal means and 95% CI, calculated from 1000 bootstraped simulations; for detailed results, see Table S18); **(a)** main effect of Dyadic sexual desire (Attractive person) on Subjective sexual arousal (for detailed results, see Table S17); **(c)** interaction between Gender and Solitary sexual desire (for detailed results, see Table S19); **(d)** interaction between Stimuli sex and Solitary sexual desire (for detailed results, see Table S20); **(e)** interaction between Stimuli sex, gender and Dyadic sexual desire (Attractive person) (for detailed results, see Table S21). *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 4.2.3 (2023-03-15 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)*, *kableExtra(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)*, *ggpubr(v.0.6.0)*, *lubridate(v.1.9.2)*, *forcats(v.1.0.0)*, *stringr(v.1.5.0)*, *dplyr(v.1.1.1)*, *purrr(v.1.0.1)*, *readr(v.2.1.4)*, *tidyr(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.7.3-58.2)*, *readxl(v.1.4.2)* and *knitr(v.1.42)*

loaded via a namespace (and not attached): *TH.data(v.1.1-1)*, *minqa(v.1.2.5)*, *colorspace(v.2.1-0)*, *ggsignif(v.0.6.4)*, *htmlTable(v.2.4.1)*, *estimability(v.1.4.1)*, *base64enc(v.0.1-3)*, *parameters(v.0.20.2)*, *rstudioapi(v.0.14)*, *farver(v.2.1.1)*, *MatrixModels(v.0.5-1)*, *fansi(v.1.0.4)*, *mvtnorm(v.1.1-3)*, *xml2(v.1.3.3)*, *codetools(v.0.2-19)*, *splines(v.4.2.3)*, *mnormt(v.2.1.1)*, *Formula(v.1.2-5)*, *jsonlite(v.1.8.4)*, *nloptr(v.2.0.3)*, *broom(v.1.0.4)*, *cluster(v.2.1.4)*, *compiler(v.4.2.3)*, *httr(v.1.4.5)*, *backports(v.1.4.1)*, *fastmap(v.1.1.1)*, *cli(v.3.6.1)*, *quantreg(v.5.94)*, *admisc(v.0.31)*, *htmltools(v.0.5.5)*, *tools(v.4.2.3)*, *coda(v.0.19-4)*, *gtable(v.0.3.3)*, *glue(v.1.6.2)*, *Rcpp(v.1.0.10)*, *cellranger(v.1.1.0)*, *vctrs(v.0.6.1)*, *svglite(v.2.1.1)*, *nlme(v.3.1-162)*, *insight(v.0.19.1)*, *xfun(v.0.38)*, *rvest(v.1.0.3)*, *timechange(v.0.2.0)*, *lifecycle(v.1.0.3)*, *hms(v.1.1.3)*, *parallel(v.4.2.3)*, *sandwich(v.3.0-2)*, *SparseM(v.1.81)*, *expm(v.0.999-7)*, *yaml(v.2.3.7)*, *curl(v.5.0.0)*, *see(v.0.7.5)*, *gridExtra(v.2.3)*, *rpart(v.4.1.19)*, *stringi(v.1.7.12)*, *highr(v.0.10)*, *bayestestR(v.0.13.0)*, *checkmate(v.2.1.0)*, *boot(v.1.3-28.1)*, *rlang(v.1.1.0)*, *pkgconfig(v.2.0.3)*, *systemfonts(v.1.0.4)*, *evaluate(v.0.20)*, *lattice(v.0.20-45)*, *patchwork(v.1.1.2)*, *htmlwidgets(v.1.6.2)*, *labeling(v.0.4.2)*, *cowplot(v.1.1.1)*, *tidyselect(v.1.2.0)*, *magrittr(v.2.0.3)*, *bookdown(v.0.33)*, *R6(v.2.5.1)*, *generics(v.0.1.3)*, *multcomp(v.1.4-23)*, *mgcv(v.1.8-42)*, *foreign(v.0.8-84)*, *pillar(v.1.9.0)*, *withr(v.2.5.0)*, *jtools(v.2.2.1)*, *nnet(v.7.3-18)*, *datawizard(v.0.7.0)*, *survival(v.3.5-3)*, *abind(v.1.4-5)*, *crayon(v.1.5.2)*, *Quandl(v.2.11.0)*, *utf8(v.1.2.3)*, *tzdb(v.0.3.0)*, *rmarkdown(v.2.21)*, *grid(v.4.2.3)*, *data.table(v.1.14.8)*, *digest(v.0.6.31)*, *webshot(v.0.5.4)*, *xtable(v.1.8-4)*, *numDeriv(v.2016.8-1.1)*, *munsell(v.0.5.0)*, *viridisLite(v.0.4.1)* and *quadprog(v.1.5-8)*

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