1   Who needs privacy? Exploring the relations between need for privacy and personality

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12   Abstract

13   Privacy is defined as a voluntary withdrawal from society. While everyone needs some

14   degree of privacy, we currently know little about who needs how much. In this study, we

15   explored the relations between the need for privacy and personality. Personality was

16   operationalized using the HEXACO personality inventory. Need for privacy was measured

17   in relation to social, psychological, and physical privacy from other individuals (horizontal

18   privacy); need for privacy from government agencies and companies (vertical privacy); as

19   well as need for informational privacy, anonymity, and general privacy (both horizontal and

20   vertical privacy). A sample of 1,550 respondents representative of the U.S. in terms of age,

21   gender, and ethnicity was collected. The results showed several substantial relationships:

22   More extraverted and more agreeable people needed substantially less privacy. People less

23   fair and less altruistic needed more psychological privacy, social privacy, and anonymity,

24   lending some support to the 'nothing to hide-argument'. Emotionality and

25   conscientiousness showed varied relations with need for privacy. More conservative

26   respondents needed more privacy from the government.

27   *Keywords:* Privacy, need for privacy, personality, HEXACO

28   Who needs privacy? Exploring the relations between need for privacy and personality

29   Privacy is a major topic of public discourse and academic interest (Dienlin & Breuer,
30   2023). Yet despite its importance, to date we still know surprisingly little about the
31   relation between privacy and personality (Masur, 2018, p. 155). What can we infer about a
32   person if they desire more privacy? Are they more introverted, more risk-averse, or more
33   traditional? Asking these questions seems relevant, not least because people who desire
34   more privacy are often regarded with suspicion, having to justify why they want to be left
35   alone. Consider the "nothing-to-hide" argument (Solove, 2007), which is that people who
36   oppose state surveillance only do so because they have something to hide—because if you
37   have nothing to hide, you would have nothing to fear. Is it true that people who desire
38   more privacy are also more dishonest, greedy, or unfair? Or are people simply less
39   extraverted, more diligent, or more prudent? With this paper, we seek to answer the
40   following question: What can we learn about a person's personality if they say they desire
41   more privacy?

Privacy and Personality

43   Privacy captures a *withdrawal* from others or from society in general (Westin, 1967).
44   This withdrawal happens *voluntarily*, and it is under a person's *control* (Westin, 1967).
45   Privacy is also multi-dimensional. On the broadest level, we can differentiate the two
46   dimensions of horizontal and vertical privacy (Masur, Teutsch, & Dienlin, 2018; Schwartz,
47   1968). Whereas horizontal privacy captures withdrawal from other people or peers, vertical
48   privacy addresses withdrawal from superiors or institutions (e.g., government agencies or
49   businesses). In her theoretical analysis, Burgoon (1982) argued that privacy has four more
50   specific dimensions: informational, social, psychological, and physical privacy. Pedersen
51   (1979) conducted an empirical factor analysis of 94 privacy-related items, finding six
52   dimensions of privacy: reserve ("unwillingness to be with and talk with others, especially
53   strangers," p. 1293); isolation ("desire to be alone and away from others," p. 1293), solitude

54 ("being alone by oneself and free from observation by others," p. 1293), intimacy with

55 friends ("being alone with friends," p. 1293), intimacy with family ("being alone with

56 members of one's own family," p. 1293), and anonymity ("wanting to go unnoticed in a

57 crowd and not wishing to be the center of group attention," p. 1293). Building on these

58 understandings of privacy, in this study we employ a multifaceted model of need for

59 privacy. We focus on *vertical* privacy with regard to people's felt need for withdrawal from

60 surveillance by a) the government and b) private companies; *horizontal* privacy in terms of

61 the perceived need for (c) psychological, (d) social and/or (e) physical withdrawal from

62 other people; and *general* privacy as captured by people's felt need for (f) informational

63 privacy, (g) anonymity, and (h) privacy in general. Although all of these dimensions were

64 defined and established in prior research, combining these dimensions into one single

65 comprehensive measure of privacy represents a novel approach.

66   Acknowledging that various understandings of personality exist, we operationalize

67 personality using the factors and facets of the HEXACO inventory of personality (Lee &

68 Ashton, 2018). HEXACO is a large and comprehensive operationalization of personality,

69 and thus is less likely to miss potentially relevant aspects than other operationalizations.

70 The HEXACO model stands in the tradition of the Big Five approach (John & Srivastava,

71 1999). It includes six factors (discussed below), which have four specific facets each. In

72 addition, the HEXACO model includes a sixth factor not present in the Big Five labeled

73 honesty-humility, plus a meta-facet called altruism, which seem particularly well-suited to

74 investigate the nothing-to-hide-argument.

75   In predicting the need for privacy, we will primarily focus on the facets, because it is

76 unlikely that the very specific need for privacy dimensions will relate closely to more

77 general personality factors (Bansal, Zahedi, & Gefen, 2010; Junglas, Johnson, &

78 Spitzmüller, 2008). And for reasons of scope, below we cannot discuss all four facets for all

79 six factors. Instead, we focus on those we consider most relevant. However, all will be

80 analyzed empirically.

Predicting the Need for Privacy

So far, only a few studies have analyzed the relation between personality and need for privacy empirically (Hosman, 1991; Pedersen, 1982, see below). Moreover, we are not aware of a viable theory specifically connecting privacy and personality. Due to the dearth of empirical studies and the lack of theory, in this study we hence adopt an exploratory perspective.

In order to understand how personality might relate to privacy, we can ask the following question: Why do people desire privacy? Privacy is important. But according to Trepte and Masur (2017), the need for privacy is only a secondary need—not an end in itself. Accordingly, privacy satisfies other more fundamental needs such as safety, sexuality, recovery, or contemplation. Westin (1967) similarly defined four ultimate purposes of privacy: (1) self-development (the integration of experiences into meaningful patterns), (2) autonomy (the desire to avoid being manipulated and dominated), (3) emotional release (the release of tension from social role demands), and (4) protected communication (the ability to foster intimate relationships). Privacy facilitates self-disclosure (Dienlin, 2014), and thereby social support, relationships, and intimacy (Omarzu, 2000). But privacy can also have negative aspects. It is possible to have too much privacy. Being cut-off from others can diminish flourishing, nurture deviant behavior, or introduce power asymmetries (Altman, 1975). And privacy can also help conceal wrongdoing or crime.

Privacy has strong evolutionary roots (Acquisti, Brandimarte, & Hancock, 2022). Confronted with a threat—for example, the prototypical tiger—people are inclined to withdraw. In the presences of opportunities—for example, the unexpected sharing of resources—people open up and approach one another. Transferred to privacy, we could imagine that if other people, the government, or companies are considered a threat, people are more likely to withdraw and to desire more privacy. Conversely, if something is considered a resource, people might open up, approach others, and desire less privacy (Altman, 1976). Privacy also affords the opportunity to hide less socially desirable aspects

108 of the self from others, which may bestow evolutionary advantages in terms of sexual

109 selection or other social benefits and opportunities. Indeed, the need for privacy may have

110 evolved precisely because it offers such advantages.

111   In what follows, we briefly present each HEXACO factor and how it might relate to

112 need for privacy.

113   **Honesty-Humility & Altriusm.** Honesty-humility consists of the facets sincerity,

114 fairness, greed avoidance, and modesty. The meta-facet altruism measures benevolence

115 toward others and consists of items such as "It wouldn't bother me to harm someone I

116 didn't like" (reversed).

117   According to the nothing-to-hide argument, a person desiring more privacy might be

118 less honest, sincere, fair, or benevolent. People who commit crimes likely face greater risk

119 from some types of self-disclosure because government agencies and people would enforce

120 sanctions if their activities were revealed (Petronio, 2010). In those cases, the government

121 and other people may be perceived as a threat. As a consequence, people with lower

122 honesty and sincerity might desire more privacy as a means to mitigate their felt risk

123 (Altman, 1976).

124   Empirical studies have linked privacy to increased cheating behaviors (Corcoran &

125 Rotter, 1987; Covey, Saladin, & Killen, 1989). Covey et al. (1989) asked students to solve

126 an impossible maze. In the surveillance condition, the experimenter stood in front of the

127 students and closely monitored their behavior. In the privacy condition, the experimenter

128 could not see the students. Results showed greater cheating among students in the privacy

129 condition, suggesting that in situations with more privacy people are less honest. In a

130 longitudinal sample with 457 respondents in Germany (Trepte, Dienlin, & Reinecke, 2013),

131 people who felt they needed more privacy were also less authentic (and therefore, arguably,

132 also less honest and sincere) on their online social network profiles ($r = $ -.48). People who

133 needed more privacy were also less authentic in their personal relationships ($r = $ -.28).

134   We do not mean to suggest that it is only dishonest people who feel a need for

135 privacy. Everyone, including law-abiding citizens, have legitimate reasons to hide specific

136 aspects of their lives (Solove, 2007). A recent study confirmed this notion, finding that

137 people who explicitly endorsed the statement that they would have nothing to hide still

138 engaged in several privacy protective behaviors (Colnago, Cranor, & Acquisti, 2023). Our

139 argument is rather that people lower on the honesty HEXACO factor may feel a greater

140 need for privacy. Considering all the evidence, it seems more plausible to us that lack of

141 honesty may indeed relate to an increased need for privacy, and perhaps especially when it

142 comes to privacy from authorities such as government agencies.

143 **Emotionality.**   Emotionality is captured by the facets of fearfulness, anxiety,

144 dependence, and sentimentality. People who are anxious may be more likely to view social

145 interactions as risky or threatening (especially with strangers or weak ties, Granovetter,

146 1973). Anxious people might hence desire more privacy. People who are more concerned

147 about their privacy (in other words, more anxious about privacy) are more likely to

148 self-withdraw online, for example by deleting posts or untagging themselves from linked

149 content to minimize risk (Dienlin & Metzger, 2016). On the other hand, the opposite may

150 also be true: People who are more anxious in general may desire less privacy from others

151 (especially their strong ties), as a means to cope better with their daily challenges or to

152 seek social approval to either verify or dispel their social anxiety.

153 People who are more anxious might also desire less privacy from government

154 surveillance. Despite the fact that only 18% of all Americans trust their government "to do

155 what is right," almost everyone agrees that "it's the government's job to keep the country

156 safe" (Pew Research Center, 2015, 2017). More anxious people might hence consider the

157 government a resource rather than a threat. They might more likely consent to government

158 surveillance, given that such surveillance could prevent crime or terrorism. On the other

159 hand, it could also be that more anxious people desire more privacy from government

160 agencies, at least on a personal level. For example, while they might favor government

161 surveillance of *others*, this does not necessarily include *themselves*. Especially if the

162 government is perceived as a threat, as often expressed by members of minority groups,

163 then anxiety might lead one to actually desire more personal privacy.

164 **Extraversion.** Comprising the facets social self-esteem, social boldness, sociability,

165 and liveliness, extraversion is arguably the factor that should correspond most closely to

166 need for privacy. Conceptually, social privacy and sociability are closely related. More

167 sociable people are likely more inclined to think of other people as a resource, and thus

168 they should desire less horizontal privacy and less anonymity (e.g., Buss, 2001). Given that

169 privacy is a voluntary withdrawal from society (Westin, 1967), people who are less sociable,

170 more reserved, or more shy should have a greater need for privacy from others.

171 This assumption is supported by several empirical studies. People who scored higher

172 on the personality meta-factor plasticity, which is a composite of the two personality

173 factors extraversion and openness, were found to desire less privacy (Morton, 2013). People

174 who described themselves as introverted thinkers were more likely to prefer social isolation

175 (Pedersen, 1982). Introverted people were more likely to feel their privacy was invaded

176 when they were asked to answer very personal questions (Stone, 1986). Pedersen (1982)

177 reported that the need for privacy related to general self-esteem (but not social self-esteem),

178 which in turn is a defining part of extraversion (Lee & Ashton, 2018). Specifically, he found

179 respondents who held a lower general self-esteem were more reserved ($r = .29$), and needed

180 more anonymity ($r = .21$) and solitude ($r = .24$). Finally, Larson and Bell (1988) and

181 Hosman (1991) suggested that people who are more shy also need more privacy.

182 As a result, we expect that people who are more extraverted also need less social

183 privacy and less privacy in general. Regarding the other dimensions of privacy, such as

184 privacy from governments or from companies, we do not expect specific effects.

185 **Agreeableness.** Agreeableness has the four facets of forgiveness, gentleness,

186 flexibility, and patience. It is not entirely clear whether or how agreeableness might relate

187 to the need for privacy, although people who are more agreeable are also moderately less

188 concerned about their privacy (Junglas et al., 2008). Thus, because need for privacy and

privacy concern are closely related, more agreeable people might desire less privacy. To explain, more agreeable people might hold more generous attitudes toward others and are less suspicious that others have malicious motives, and consequently perceive less risk from interacting with others.

Conscientiousness. Conscientiousness consists of the facets organization, diligence, perfectionism, and prudence. Arguably, all facets are about being in control, about reducing relevant risks and future costs. Because control is a central part of privacy (Westin, 1967), people who avoid risks, who deliberate, and who plan ahead carefully might prefer to have more privacy because it affords them greater control. Especially if others are considered a threat, being risk averse might increase the desire for more horizontal privacy. Similarly, if government agencies or private companies are considered a threat, risk averse people might have a stronger desire for vertical privacy. In either case, the most cautious strategy to minimize risks of information disclosure would be to keep as much information as possible private. Empirical studies have found that people with a stronger control motive require slightly more seclusion ($r = .12$) and anonymity ($r = .15$) (Hosman, 1991). People who considered their privacy at risk are less likely to disclose information online (e.g., Bol et al., 2018). Moreover, conscientious people are more concerned about their privacy (Junglas et al., 2008).

Openness to experience. Openness to experiences comprises the facets aesthetic appreciation, inquisitiveness, creativeness, and unconventionality. Openness to experience is also considered a measure of intellect and education. In one study it was found that more educated people have more knowledge about how to protect their privacy (Park, 2013), which could be the result of an increased need for privacy. Similarly, openness to experience is positively related to privacy concern (Junglas et al., 2008).

On the other hand, openness is conceptually the opposite of privacy. People more open to new experiences might not prioritize privacy. Many digital practices such as social media, online shopping, or online dating offer exciting benefits and new experiences, but

pose a risk to privacy. People who are more open to new experiences might focus on the benefits rather than the potential risks. Hence, either a positive or negative relationship between need for privacy and openness is possible.

Sociodemographic variables. The need for privacy should also be related to sociodemographic aspects, such as sex, age, education, and income. For example, a study of 3,072 people from Germany found that women desired more informational and physical privacy than men, whereas men desired more psychological privacy (Frener, Dombrowski, & Trepte, 2023). In a nationally representative study of the U.S. and Japan, people who were older and who had higher income reported more privacy concern. More educated people possess more privacy knowledge (Park, 2013), and as a consequence they might desire more privacy. Ethnicity might also correspond to the need for privacy, perhaps because members of minority groups desire more privacy from the government, although not necessarily from other people. Some minority groups (e.g., Black or Native Americans) often report lower levels of trust in white government representatives (Koch, 2019), which might increase the desire of privacy from government agencies. Last, we will examine whether one's political position is related to the need for privacy. We could imagine that more right-leaning people desire more privacy from the government, but not necessarily from other people. People who are more conservative tend to trust the government slightly less (Cook & Gronke, 2005), which might be associated with an increased need for privacy. We will also explore whether a person's romantic relationship status corresponds to their expressed need for privacy.

Overview of expectations. The arguments discussed above lead to a number of expectations for our data which we delineate below, in order from most to least confidence in terms of identifying significant effects. First, we strongly assume that more extraverted people will desire less privacy, especially less social privacy. We also expect that people who are less honest will express greater need for privacy. We further assume that more conscientious people will desire more privacy and that more agreeable people may desire

less privacy. Yet it is largely unclear how privacy needs relate to openness to experience

and emotionality. In terms of the sociodemographic variables, we expect females likely

need more informational and physical privacy, while males will likely report needing more

psychological privacy. Older, more highly educated, and affluent people are also expected

to need more privacy, and we anticipate that people who are ethnic minorities or are

politically conservative will express greater need for privacy from the government than

from other people.

Method

This section describes how we determined the sample size, data exclusions, the

analyses, and all measures in the study. The study was conducted as an online

questionnaire, programmed with Qualtrics. The survey can be found in the online

supplementary material.

Prestudy

This study builds on a prior project in which we analyzed the same research question

(Dienlin & Metzger, 2019). This study was already submitted to Collabra but rejected.

The main reasons were that the sample was too small, that not one coherent personality

inventory was used, that most privacy measures were designed ad-hoc, and that the

inferences were too ambitious. We hence decided to treat our prior project as a pilot study

and to address the criticism by conducting a new study. In this new study, we redeveloped

our study design, collected a larger sample, implemented the HEXACO inventory together

with established need for privacy measures, and overall adopted a more exploratory

perspective. Being our central construct of interest, we also developed a small number of

new items to have a more comprehensive measure of need for privacy.

Sample

Participants were collected from the professional online survey panel Prolific. The sample was representative of the US in terms of age, gender, and ethnicity. The study received IRB approval from the University of Vienna (#20210805_067). Participation took on average 16 minutes. We paid participants $2.00 for participation, which equals an hourly wage of $8.00.

To determine sample size, we ran a priori power analyses using the R package *simsem* (Pornprasertmanit, Miller, Schoemann, & Jorgensen, 2021). We based our power analysis on a smallest effect size of interest (SESOI; see below). We only considered effects at least as great as $r = .10$ as sufficiently relevant to support an effect's existence (Cohen, 1992). To estimate power, we simulated data. We set the correlation between two exemplary latent factors of personality and privacy variable to be $\Psi = .10$ (the SESOI). We furthermore set the latent factor loadings to be $\lambda = .85$. Adopting an exploratory perspective, and not wanting to miss actually existing effects, we considered both alpha and beta errors to be equally relevant, resulting in balanced/identical alpha and beta errors (Rouder, Morey, Verhagen, Province, & Wagenmakers, 2016). Because balanced alpha and beta errors of 5% were outside of our budget, we opted for balanced alpha and beta errors of 10%. A power analysis with an alpha and beta error of 10% and an effect size of $r = .10$ revealed that we required a sample size of $N = 1501$. To account for potential attrition (see below), we over-sampled by five percent, leading to a planned sample size of $N = 1576$. In the end, 1569 respondents finished our study, of which we could use 1550, which slightly exceeds our required sample size.

Exclusions and Imputation

We individually checked answers for response patterns such as straight-lining or missing of inverted items. We planned to conservatively remove participants with clear response patterns. Nine participants were excluded because they showed clear patterns,

₂₉₂ such as straight-lining. We automatically excluded participants who missed the two

₂₉₃ attention checks we implemented. Overall, 30 participants were filtered out automatically

₂₉₄ by Prolific, not counting toward our quota. Participants who missed one attention check

₂₉₅ were checked individually regarding response patterns. No clear patterns emerged. We

₂₉₆ planned to remove participants below the minimum participation age of 18 years. As no

₂₉₇ minors took part in our study we did not exclude any participant for this reason. We

₂₉₈ planned to remove respondents with unrealistically fast responses (three standard

₂₉₉ deviations below the median response time). The median response time was 14 minutes

₃₀₀ and the standard deviation 11 minutes. Hence, three SDs below median was -19 minutes,

₃₀₁ hence not informative. Instead, we decided to remove respondents who took less than five

₃₀₂ minutes answering the questionnaire, which we considered unreasonably fast. We removed

₃₀₃ ten participants for this reason.

₃₀₄   We planned to impute missing responses using multiple imputation with predictive

₃₀₅ mean matching (ten data-sets, five iterations, using variables that correlate at least with r

₃₀₆ $= .10$). However, as there were only 27 answers missing in total (0.01 percent), we decided

₃₀₇ not to impute any data. The final sample size was $N = 1550$.

Analyses

₃₀₉   The factorial validity of the measures and the relations were tested using structural

₃₁₀ equation modeling. If Mardia's test showed that the assumption of multivariate normality

₃₁₁ was violated, we used the more robust Satorra-Bentler scaled and mean-adjusted test

₃₁₂ statistic (MLM) as estimator (or, in the few cases of missing data MLR plus FIML

₃₁₃ estimation). We tested each scale in a confirmatory factor analysis. To assess model fit, we

₃₁₄ used more liberal fit criteria to avoid over-fitting (CFI $> .90$, TLI $> .90$, RMSEA $< .10$,

₃₁₅ SRMR $< .10$) (Kline, 2016). In cases of misfit, we conservatively altered models using an a

₃₁₆ priori defined analysis pipeline (see online supplementary material). As a "reality check,"

₃₁₇ we tested items for potential ceiling and floor effects. If means were below 1.5 or above 6.5,

318 we preregistered to exclude these items. However, as no item was outside these thresholds,

319 no items were excluded.

320   We wanted to find out *who* needs privacy, and not so much *what causes* the need for

321 privacy. Hence, to answer our research question, in a joint model combining all variables

322 (including sociodemographic variables) we analyzed the variables' bivariate relations. To

323 predict the need for privacy, we first used the six personality factors. Afterward, we

324 predicted privacy using the more specific facets. To get a first idea of the variables'

325 potential causal relations (Grosz, Rohrer, & Thoemmes, 2020), we also planned to run

326 latent structural regression models. However, because model fit was not acceptable, in

327 exploratory analyses we investigated the potential effects in a multiple regression using the

328 mean values of the observed scores.

329   We used two measures as inference criteria: statistical significance and effect size.

330 Regarding statistical significance, we used an alpha value of 10%. Regarding effect size, we

331 defined a SESOI of $r = .10$, and thereby a null-region ranging from -.10 to .10. As

332 proposed by Dienes (2014), we considered effects to be meaningful if the confidence interval

333 fell outside of the null region (e.g., .15 to .25 or -.15 to -.25). We considered effects

334 irrelevant if the confidence interval fell completely within the null region (e.g., .02 to .08).

335 And we suspended judgement if the confidence intervals partially included the null region

336 (e.g., .05 to .15).

337   Fully latent SEMs seldom work instantly, often requiring modifications to achieve

338 satisfactory model fit. Although we explicated our analysis pipeline, there still remained

339 several researcher degrees of freedom. We planned to use fully latent SEM because we

340 consider it superior to regular analyses such as correlation or regression using manifest

341 variables (Kline, 2016). However, when all measures were analyzed together in one single

342 SEM model fit was subpar. We hence decided to report the more conservative correlations

343 of average scores. In the online supplementary material, we also share the results of

344 alternative analyses, such as fully latent SEMs.

Measures

All items were answered on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).[1] A list of all items that we were used are reported in the online supplementary material. The personality and privacy items were presented in random order, and the sociodemographic questions were asked at the end. In the online supplementary material we also report all item statistics and their distribution plots.

Need for privacy. Although there exist several operationalizations of need for privacy (Buss, 2001; Frener et al., 2023; Marshall, 1974; Pedersen, 1979), we are not aware of one encompassing, comprehensive, and up-to-date scale. Hence, we used both existing scales and self-developed items, some of which were tested in our pilot study. Ad-hoc scales were validated using the following procedure: We (a) collected qualitative feedback from three privacy experts;[2] (b) followed the procedure implemented by Patalay, Hayes, and Wolpert (2018) to test (and adapt) the items using four established readability indices (i.e., Flesch–Kincaid reading grade, Gunning Fog Index, Coleman Liau Index, and the Dale–Chall Readability Formula); (c) like Frener et al. (2023), assessed convergent validity by collecting single-item measures of privacy concern and privacy behavior, for which we expect to find small to moderate correlations; and (d) analyzed all items in confirmatory factor analyses as outlined above.

Overall, we collected 32 items measuring need for privacy, with eight subdimensions that all consisted of four items each. Three subdimensions captured horizontal privacy—namely *psychological*, *social*, and *physical* privacy from other individuals. Psychological and physical privacy were adopted from Frener et al. (2023). Because Frener et al. (2023) could not successfully operationalize the dimension of social privacy, building on Burgoon (1982) we self-designed a new social privacy dimension, which in the prestudy

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[1] Note that the HEXACO inventory normally uses 5-point scales. Because we were not interested in comparing absolute values across studies, we used 7-point scales to have a uniform answer format.

[2] The three experts who provided feedback were Moritz Büchi (University of Zurich), Regine Frener (University of Hohenheim), and Philipp Masur (VU Amsterdam).

showed satisfactory fit. Two subdimensions measured vertical privacy. The first subdimension was *government surveillance*, which represents the extent to which people want the government to abstain from collecting information about them. The scale was pretested and showed good factorial validity. The second subdimension was need for privacy from *companies*, which we measured using four new self-designed items. Finally, three subdimensions captured general privacy. The first subdimension was *informational* privacy, with items adopted from Frener et al. (2023). The second subdimension was *anonymity*, which captured the extent to which people feel the need to avoid identification in general. The scale was pretested and showed good factorial validity; one new item was designed for this study. Third, we also collected a new self-developed measure of *general* need for privacy.

Personality. Personality was measured using the HEXACO personality inventory. The inventory consists of six factors with four facets each, including the additional meta scale of "altruism."

Results

We first tested the factorial validity of all measures. When analyzed individually, most measures showed satisfactory model fit, not requiring any changes. Some measures showed satisfactory model fit after small adaptions, such as allowing items to covary. In terms of reliability, most measures showed satisfactory results. However, some measures such as altruism, unconventionality, or anonymity showed insufficient reliability. Instead of strongly adapting measures, we decided to maintain the initial factor structure and did not delete any items and we did not introduce substantial changes to the factors. For an overview of all measures, their descriptives and factorial validity, see Table 1. Although individually most of the measures showed good fit, when analyzed together fit decreased substantially, below acceptable levels. As a result, we conservatively decided to analyze our data using the variables' observed mean scores.

Table 1

Factorial validity of all measures.

Variable	M	SD	REL	CFI	TLI	SRMS	RMSEA
Personality							
Honesty humility	4.96	0.96	0.89	0.94	0.93	0.06	0.06
Sincerity	4.74	1.36	0.75	1.00	0.99	0.01	0.05
Fairness	5.27	1.57	0.87	0.99	0.98	0.02	0.07
Greed avoidance	4.36	1.42	0.74	1.00	1.00	0.00	0.00
Modesty	5.46	1.14	0.75	0.99	0.96	0.02	0.07
Altruism	5.45	1.00	0.54	1.00	1.01	0.00	0.00
Emotionality	4.50	0.90	0.89	0.89	0.87	0.06	0.07
Fearfulness	4.61	1.24	0.70	1.00	1.01	0.00	0.00
Anxiety	4.78	1.37	0.80	0.99	0.98	0.02	0.06
Dependence	3.84	1.19	0.80	0.99	0.96	0.02	0.07
Sentimentality	4.79	1.16	0.79	1.00	0.99	0.01	0.03
Extraversion	4.20	1.07	0.92	0.91	0.89	0.06	0.08
Social self-esteem	5.04	1.27	0.76	0.99	0.93	0.01	0.10
Social boldness	3.58	1.34	0.72	1.00	0.98	0.01	0.06
Sociability	3.77	1.38	0.81	1.00	0.99	0.02	0.05
Liveliness	4.40	1.30	0.86	0.99	0.92	0.03	0.12
Agreeableness	4.21	0.92	0.90	0.92	0.90	0.05	0.06
Forgiveness	3.39	1.26	0.84	0.99	0.98	0.02	0.07
Gentleness	4.61	1.13	0.74	0.99	0.96	0.02	0.07
Flexibility	4.26	1.10	0.65	0.99	0.96	0.02	0.05
Patience	4.60	1.21	0.83	1.00	1.00	0.01	0.00
Conscientiousness	5.15	0.86	0.88	0.91	0.88	0.06	0.06
Organization	5.23	1.25	0.79	0.98	0.93	0.03	0.09
Diligence	5.17	1.13	0.70	1.00	0.99	0.01	0.03
Perfectionism	5.13	0.95	0.54	1.00	0.97	0.01	0.04
Prudence	5.07	1.07	0.73	0.97	0.91	0.04	0.10
Openness	4.79	0.97	0.89	0.92	0.91	0.04	0.05
Aesth. appreciation	4.90	1.30	0.70	0.99	0.98	0.02	0.04
Inquisitiveness	4.94	1.31	0.74	0.98	0.93	0.03	0.09
Creativeness	4.72	1.32	0.79	1.00	0.99	0.01	0.04
Unconventionality	4.58	1.07	0.53	1.00	0.98	0.01	0.03
Need for Privacy							
Psychological	4.29	1.16	0.73	1.00	0.99	0.01	0.04
Social	4.31	1.29	0.73	1.00	1.00	0.00	0.00
Physical	5.06	1.19	0.77	1.00	0.99	0.01	0.03
Government	4.58	1.33	0.85	0.98	0.93	0.02	0.10
Companies	4.49	1.09	0.72	0.98	0.95	0.02	0.07
Informational	5.47	1.01	0.72	0.99	0.96	0.01	0.06
Anonymity	3.29	1.08	0.48	0.99	0.93	0.01	0.07
General	5.20	1.09	0.82	1.00	1.00	0.01	0.03

Note. REL: Reliability measured via McDonald's Omega; CFI =
Comparative Fit Index; TLI = Tucker-Lewis Index; SRMR =
Standardized Root Mean Square Residual; RMSEA = Root Mean
Square Error of Approximation

395   The need for privacy measures showed good convergent validity. If respondents

396 reported higher needs for privacy they were also more concerned about their privacy, with

397 coefficients ranging from $r = .21$ to $r = .73$. The only exception was the relation between

398 privacy concerns and the need for social privacy, which was very small ($r = .09$). If

399 respondents reported higher needs for privacy they also engaged in more privacy behaviors,

400 with coefficients ranging from $r = .20$ to $r = .71$ The only exception was the relation

401 between privacy behavior and the need for social privacy, which was virtually nonexistent

402 ($r = .01$), and the need for physical privacy, which was very small ($r = .09$). See online

403 supplementary material for all results.

404   People who reported being less honest and humble needed more anonymity ($r = -.17$,

405 90% CI -.21, -.13). Looking at facets, more anonymity was needed by people who reported

406 being less fair ($r = -.18$, 90% CI -.22, -.14), less modest ($r = -.16$, 90% CI -.20, -.12), and

407 less altruistic ($r = -.25$, 90% CI -.29, -.21). People who reported being less fair needed

408 more psychological ($r = -.17$, 90% CI -.21, -.13), social ($r = -.23$, 90% CI -.27, -.19), and

409 physical privacy ($r = -.17$, 90% CI -.22, -.13). Similarly, people who reported being less

410 altruistic also needed substantially more psychological ($r = -.28$, 90% CI -.32, -.24), social

411 ($r = -.28$, 90% CI -.32, -.24), and physical privacy ($r = -.14$, 90% CI -.18, -.10). However,

412 less sincere people needed less privacy from companies ($r = .16$, 90% CI .12, .20) and less

413 privacy in general ($r = .15$, 90% CI .11, .19). Effects were small to medium in size.

414   Several relations between emotionality and need for privacy were found. More

415 emotional people needed less psychological privacy ($r = -.20$, 90% CI -.24, -.16), less privacy

416 from the government ($r = -.14$, 90% CI -.18, -.10), less anonymity ($r = -.15$, 90% CI -.19,

417 -.11)—but also needed more physical privacy ($r = .20$, 90% CI .16, .24). More anxious

418 respondents needed substantially more social ($r = .33$, 90% CI .29, .36) and physical

419 privacy ($r = .38$, 90% CI .34, .41). Similarly, more fearful respondents needed more social

420 ($r = .14$, 90% CI .10, .18) and physical privacy ($r = .27$, 90% CI .23, .30). More dependent

421 participants generally needed less privacy, including less psychological ($r = -.47$, 90% CI

422 -.51, -.44) and social privacy (r = -.29, 90% CI -.32, -.25), less privacy from the government

423 (r = -.15, 90% CI -.19, -.11), and less informational (r = -.18, 90% CI -.22, -.14) and

424 general privacy (r = -.16, 90% CI -.20, -.12). A similar picture for more sentimental

425 participants emerged, who needed less psychological (r = -.27, 90% CI -.31, -.23) and social

426 privacy (r = -.18, 90% CI -.22, -.14) and less anonymity (r = -.18, 90% CI -.22, -.14).

427   More extraverted people reported they needed a lot less privacy. They wanted less

428 psychological privacy (r = -.46, 90% CI -.49, -.42), social privacy (r = -.77, 90% CI -.78,

429 -.75), and physical privacy (r = -.55, 90% CI -.58, -.53), less informational privacy (r =

430 -.22, 90% CI -.26, -.18) and less anonymity (r = -.19, 90% CI -.23, -.15). Effect sizes were

431 oftentimes large. All facets showed virtually the same relations, with small differences in

432 effect sizes.

433   More agreeable participants showed a similar pattern. They needed less psychological

434 (r = -.21, 90% CI -.25, -.17), social (r = -.37, 90% CI -.41, -.34), and physical privacy (r =

435 -.38, 90% CI -.41, -.34). The facets showed virtually the same pattern. Effect sizes were

436 substantial, but on the whole smaller than those for extraversion.

437   Although more conscientious respondents generally needed less privacy, the pattern

438 was varied. More conscientious respondents needed less psychological (r = -.15, 90% CI

439 -.19, -.11) and less social privacy (r = -.24, 90% CI -.28, -.20), as well as less anonymity (r

440 = -.17, 90% CI -.21, -.12). However, when asked about privacy in general more

441 conscientious people responded to need more (r = .17, 90% CI .13, .21). More

442 conscientious people also needed more privacy from companies (r = .14, 90% CI .10, .18).

443 Looking at facets of conscientiousness, more organized people needed less social privacy (r

444 = -.24, 90% CI -.28, -.20) and less anonymity (r = -.14, 90% CI -.18, -.10). More prudent

445 participants needed less anonymity (r = -.17, 90% CI -.21, -.13). More diligent people

446 needed less psychological (r = -.21, 90% CI -.25, -.17), social (r = -.32, 90% CI -.36, -.29),

447 and physical privacy (r = -.18, 90% CI -.22, -.14) as well as less anonymity (r = -.16, 90%

448 CI -.20, -.12)—but also more privacy from companies (r = .14, 90% CI .10, .18) At the

Table 2

Predicting the need for privacy dimensions using personality factors.

Personality factors	Need for privacy							
	Psych.	Social	Phys.	Gov.	Comp.	Inform.	Anonym.	General
Honesty humility	-0.11	-0.03	-0.05	0.00	0.13	0.10	-0.17	0.07
Emotionality	-0.20	0.02	0.20	-0.14	-0.08	0.02	-0.15	-0.03
Extraversion	-0.46	-0.77	-0.55	-0.08	0.01	-0.22	-0.19	-0.10
Agreeableness	-0.21	-0.37	-0.38	-0.03	0.02	-0.10	-0.13	-0.01
Conscientiousness	-0.15	-0.24	-0.09	0.01	0.14	0.13	-0.17	0.17
Openness	-0.11	-0.09	-0.12	0.10	0.15	0.05	0.03	0.15

449   same time, more perfectionist respondents reported needing more informational ($r = .20$,

450   90% CI .16, .24) privacy, privacy from companies ($r = .14$, 90% CI .10, .18), and more

451   general privacy ($r = .26$, 90% CI .22, .30).

452   Whether or not respondents were open to new experiences was in most cases

453   unrelated to how much privacy they needed. People more open to experiences needed more

454   privacy from companies ($r = .15$, 90% CI .10, .19) and more privacy in general ($r = .15$,

455   90% CI .10, .19). Three facets showed relevant but still small relations. Respondents who

456   reported being more creative needed less psychological ($r = -.15$, 90% CI -.19, -.11) and

457   less social privacy ($r = -.16$, 90% CI -.20, -.12). More inquisitive respondents needed less

458   physical privacy ($r = -.15$, 90% CI -.20, -.11) but more privacy from companies ($r = .14$,

459   90% CI .10, .18).

460   In Table 2, we report how the personality dimensions predicted need for privacy. In

461   Table 3, we report how the personality facets predicted need for privacy.

462   Not many meaningful relations between sociodemographic variables and need for

463   privacy were found. Older participants needed less social ($r = -.14$, 90% CI -.18, -.10) and

464   less physical privacy ($r = -.16$, 90% CI -.20, -.12). Male participants needed more

465   anonymity ($r = .14$, 90% CI .10, .18). Less social privacy was needed by people in a

466   relationship ($r = -.19$, 90% CI -.23, -.15), with a college degree ($r = -.14$, 90% CI -.18,

Table 3

Predicting the need for privacy dimensions using personality facets.

Personality factors	Need for privacy							
	Psych.	Social	Phys.	Gov.	Comp.	Inform.	Anonym.	General
Honesty humility								
Sincerity	-0.01	0.00	-0.04	0.08	0.16	0.12	-0.06	0.15
Fairness	-0.17	-0.23	-0.17	-0.04	0.13	0.07	-0.18	0.12
Greed avoidance	-0.06	0.07	0.01	0.00	0.06	0.01	-0.07	-0.04
Modesty	-0.06	0.12	0.10	-0.03	0.00	0.10	-0.16	-0.06
Altruism	-0.28	-0.28	-0.14	-0.09	0.04	0.04	-0.25	0.02
Emotionality								
Fearfulness	0.02	0.14	0.27	-0.11	-0.06	0.10	-0.08	0.04
Anxiety	0.09	0.33	0.38	-0.05	-0.07	0.11	-0.05	0.01
Dependence	-0.47	-0.29	-0.09	-0.15	-0.10	-0.18	-0.13	-0.16
Sentimentality	-0.27	-0.18	-0.03	-0.10	0.01	0.02	-0.18	0.01
Extraversion								
Social self-esteem	-0.36	-0.54	-0.38	-0.08	0.00	-0.12	-0.22	-0.04
Social boldness	-0.36	-0.58	-0.44	-0.03	0.03	-0.19	-0.09	-0.08
Sociability	-0.40	-0.76	-0.55	-0.06	0.01	-0.24	-0.11	-0.13
Liveliness	-0.35	-0.59	-0.42	-0.08	-0.01	-0.16	-0.20	-0.08
Agreeableness								
Forgiveness	-0.19	-0.34	-0.38	-0.02	0.03	-0.14	-0.07	-0.05
Gentleness	-0.14	-0.25	-0.22	0.01	0.01	-0.04	-0.10	0.01
Flexibility	-0.23	-0.33	-0.32	-0.09	-0.01	-0.09	-0.17	0.00
Patience	-0.09	-0.24	-0.25	0.01	0.03	-0.04	-0.08	0.01
Conscientiousness								
Organization	-0.13	-0.24	-0.11	-0.02	0.08	0.06	-0.14	0.10
Diligence	-0.21	-0.32	-0.18	0.01	0.14	0.06	-0.16	0.13
Perfectionism	-0.01	-0.01	0.09	0.07	0.14	0.20	-0.03	0.26
Prudence	-0.09	-0.14	-0.06	-0.01	0.09	0.11	-0.17	0.08
Openness to experiences								
Aesth. appreciation	-0.06	-0.05	-0.07	0.06	0.13	0.07	-0.01	0.14
Inquisitiveness	-0.06	-0.11	-0.15	0.07	0.14	0.02	0.03	0.10
Creativeness	-0.15	-0.16	-0.12	0.07	0.10	0.03	0.01	0.12
Unconventionality	-0.05	0.07	0.00	0.10	0.07	0.05	0.07	0.10

Table 4

Predicting the need for privacy dimensions using sociodemographic variables.

	Need for privacy							
Sociodemographics	Psych.	Social	Phys.	Gov.	Comp.	Inform.	Anonym.	General
Age	-0.07	-0.14	-0.16	-0.01	0.03	0.02	-0.07	0.05
Male	0.10	-0.06	-0.11	0.13	0.08	-0.03	0.14	0.05
White	-0.09	-0.01	0.06	-0.02	-0.05	-0.09	-0.14	-0.12
Relationship	-0.09	-0.19	-0.09	-0.04	-0.04	-0.09	-0.10	-0.11
College	-0.04	-0.14	-0.13	-0.08	-0.03	-0.12	0.00	-0.07
Income	-0.06	-0.22	-0.18	-0.04	-0.01	-0.10	-0.04	-0.05
Conservatism	0.06	-0.11	-0.05	0.18	0.12	0.06	0.09	0.13

467 -.10), and with higher income ($r = $ -.22, 90% CI -.26, -.18). People with higher income also

468 reported needing less physical privacy ($r = $ -.18, 90% CI -.22, -.14). More politically

469 conservative respondents reported needing more privacy from the government ($r = $ .18,

470 90% CI .14, .22).

471   In Table 4, we report how sociodemographics predicted need for privacy. Figure 1

472 summarizes how all of the variables—dimensions, facets, and

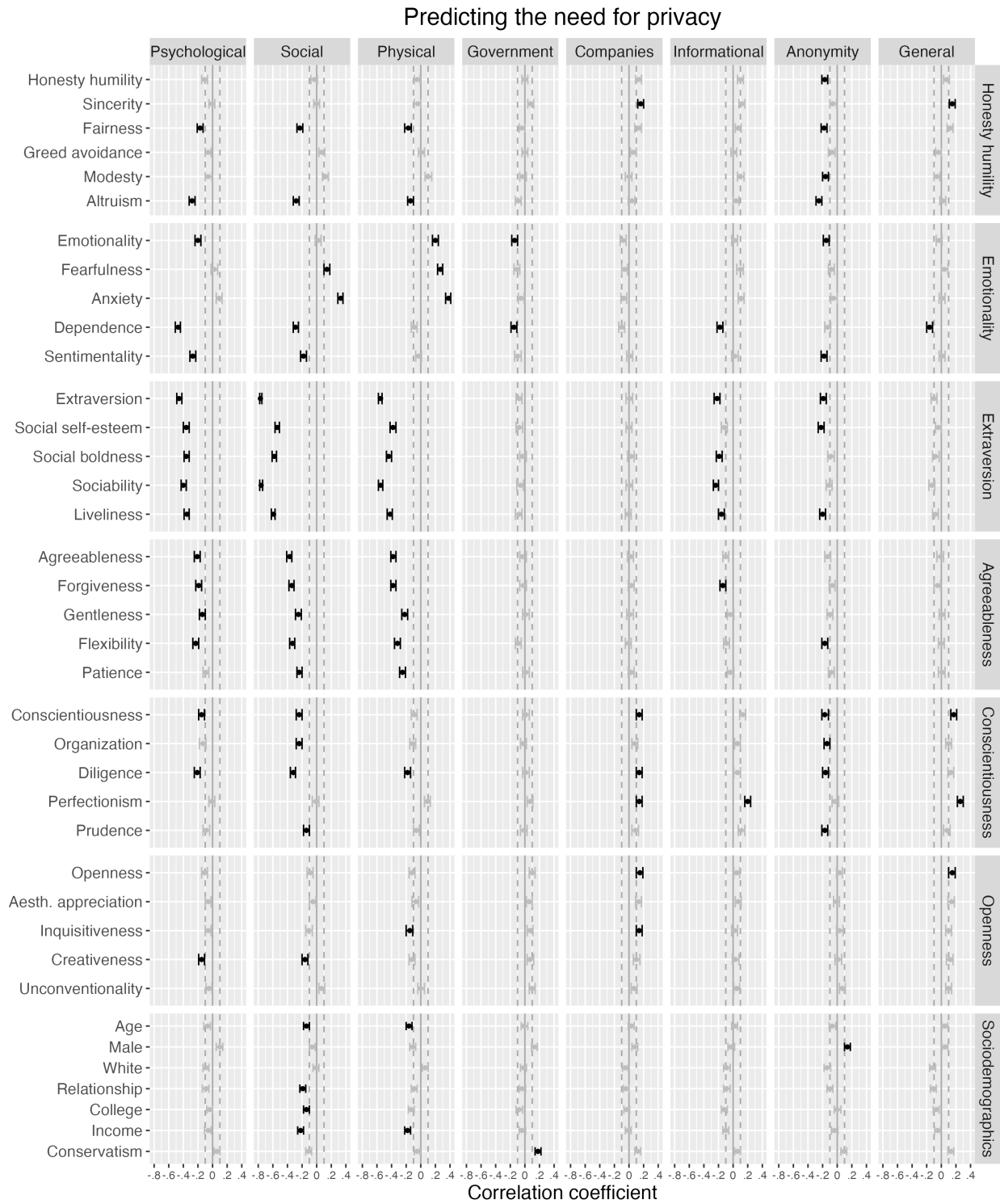473 sociodemographics—predicted the need for privacy.

Figure 1. Results of bivariate correlations between personality and need for privacy. Bold: Effects that are statistically significant and larger than $r = .10$ / -.10.

₄₇₄   In exploratory analyses we analyzed how personality facets might have potentially

₄₇₅ caused need for privacy, using multiple regressions in which we controlled for all personality

₄₇₆ dimensions and sociodemographic variables. We found that the need for psychological

₄₇₇ privacy was explained by two variables: extraversion (β = -.55, 90% CI -.60, -.50) and

₄₇₈ emotionality (β = -.28, 90% CI -.33, -.24). The need for social privacy was also potentially

₄₇₉ affected by extraversion and emotionality. Being more extraverted substantially decreased

₄₈₀ the need for psychological privacy (β = -.80, 90% CI -.83, -.77), as did being more

₄₈₁ emotional (β = -.16, 90% CI -.19, -.12). Physical privacy was determined by again

₄₈₂ extraversion, but also by agreeableness and conscientiousness. Being more extraverted

₄₈₃ appeared to decrease the need for physical privacy (β = -.53, 90% CI -.58, -.49); being

₄₈₄ more agreeable likewise decreased the need for physical privacy (β = -.17, 90% CI -.22,

₄₈₅ -.12); however, being more conscientious increased the need for physical privacy (β = .17,

₄₈₆ 90% CI .12, .21). The need for privacy from the government was affected by the two

₄₈₇ factors of openness and conservatism. Being more open to new experiences potentially

₄₈₈ increased the need for privacy from the government (β = .17, 90% CI .12, .22), as did

₄₈₉ being more politically conservative (β = .22, 90% CI .17, .27). The need for privacy from

₄₉₀ companies was affected by the openness to new experiences only. Being more open to new

₄₉₁ experiences potentially increased the need for privacy from companies (β = .17, 90% CI

₄₉₂ .12, .22). Being extraverted and conscientious affected the need for informational privacy.

₄₉₃ Whereas being more extraverted decreased the need for informational privacy (β = -.29,

₄₉₄ 90% CI -.35, -.24), being more conscientious increased the need for informational privacy

₄₉₅ (β = .22, 90% CI .17, .27) in our data. The need for anonymity was meaningfully affected

₄₉₆ only by extraversion. More extraverted people need less anonymity (β = -.20, 90% CI -.26,

₄₉₇ -.15). Finally, the general need for privacy was affected by four variables. Being

₄₉₈ extraverted again decreased the general need for privacy (β = -.22, 90% CI -.28, -.17).

₄₉₉ However, the general need for privacy was increased by being more conscientious (β = .22,

₅₀₀ 90% CI .17, .27), more conservative (β = .18, 90% CI .13, .22), and more open to

₅₀₁ experiences ($\beta = .19$, 90% CI .14, .23).

₅₀₂   Figure 2 shows how privacy dimensions and sociodemographics potentially affected
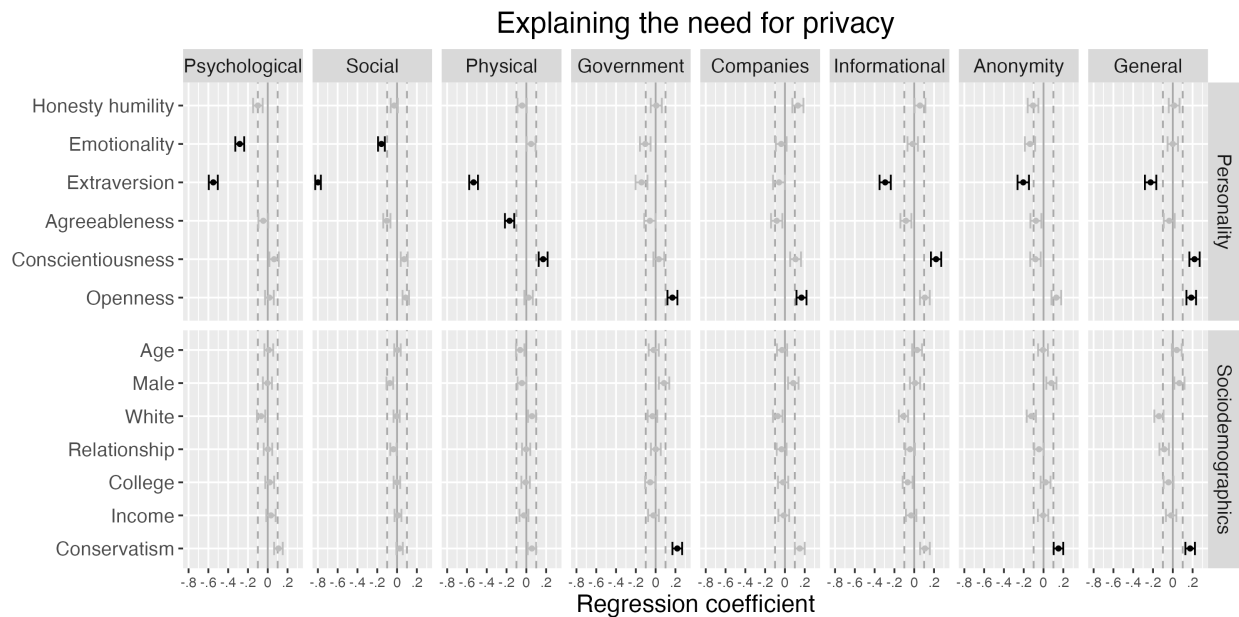
₅₀₃ the need for privacy.

Figure 2. Results of multiple regression. Bold: Effects that are statistically significant and larger than $\beta = .10$ / -.10.

Discussion

₅₀₄

₅₀₅   In this study we analyzed the relation between personality and need for privacy. The

₅₀₆ data came from $N = 1550$ respondents from the US, representative in terms of age, gender,

₅₀₇ and ethnicity. The results showed several meaningful relations between personality and

₅₀₈ need for privacy that were statistically significant and not trivial in size (i.e., 90% CI $r \geq$

₅₀₉ .10).

₅₁₀   As expected, the need for privacy was most closely related to extraversion.

₅₁₁ Participants who were more extraverted generally needed substantially less privacy. The

₅₁₂ relation between extraversion and social privacy was particularly large, suggesting that

₅₁₃ social privacy and extraversion overlap conceptually. In addition, almost all subscales of

514 extraversion showed similar patterns: People with greater social boldness, self-esteem, or

515 liveliness all needed substantially less privacy from other people and less physical,

516 psychological, and informational privacy. Extraverted people reach out to others, share

517 their inner lives, are confident around others—which reflects in a reduced need for privacy.

518   The personality factor next closely related to need for privacy was agreeableness.

519 More agreeable respondents needed less privacy in general. In particular, more agreeable

520 respondents needed substantially less psychological, social, and physical privacy. Although

521 this finding aligned with our prior expectation, we were surprised by the strength of the

522 relations. Because more agreeable people have fewer conflicts with others and are more

523 easy to get along with, they likely see others less as a threat, and hence have a reduced

524 need for privacy. Like as was found for extraversion, no relevant relations with need for

525 privacy from government and companies exist, suggesting that agreeableness and

526 extraversion—personality traits mostly relevant in interpersonal contexts—might not

527 extend to the need for privacy in these public domains.

528   In analyzing how the honesty humility factor relates to need for privacy, we

529 investigated the nothing-to-hide argument. As expected, our results provided support for

530 the nothing-to-hide argument, especially with regard to the need for anonymity.

531 Respondents who needed more anonymity were less honest, less fair, less modest, and less

532 altruistic. Respondents who were less fair and less altruistic also needed more psychological,

533 social, and physical privacy. Less honest participants desired more anonymity and privacy

534 from other people, be it psychologically, socially, or physically. These findings align with a

535 recent study indicating that individuals with lower levels of honesty are more inclined to

536 seek anonymity online, for example to engage in toxic communication (Nitschinsk, Tobin,

537 Varley, & Vanman, 2023). However, honesty was unrelated to the need for privacy from

538 government and companies or informational and general privacy. If anything, people who

539 were more sincere actually desired more privacy from companies and more privacy in

540 general. So although less honest people needed more privacy in several dimensions, this

541 pattern is not uni-dimensional but somewhat varied and nuanced.

542 Emotionality showed mixed relations with need for privacy, which confirmed our
543 ambivalent a priori expectations. More emotional people desired less psychological privacy,
544 less privacy from the government, and less anonymity. At the same time, they needed more
545 physical privacy. Whereas they may want tighter relational bonds to people close to them,
546 they appear to be warier of strangers entering their personal physical spaces. Fearful and
547 anxious people wanted more social and more physical privacy, while dependent and
548 sensitive people wanted less. It seems that more emotional people have a subtle and varied
549 approach to privacy depending on the nature of their emotionality. This is consistent with
550 research on discrete emotions which finds that certain negative emotions—fear and anxiety
551 in particular—evoke the aversive motivational system that facilitates avoidance behaviors,
552 whereas other emotions, possibly including dependence and social sensitivity, activate an
553 appetitive motivational system that facilitates approach behaviors (Phaf, Mohr, Rotteveel,
554 & Wicherts, 2014).

555 Contrary to our expectations, conscientiousness showed varied relations with need for
556 privacy. More conscientious people needed less psychological and social privacy and less
557 anonymity. Asked about privacy from companies and privacy in general, however, they
558 answered they needed more. More perfectionist people preferred both more informational
559 privacy, privacy from companies, and more privacy in general—perhaps to have more
560 options and leeway to adapt plans or hide imperfections. More diligent people needed less
561 privacy from other people, less psychological privacy, and less physical privacy. Speculating
562 about a potential explanation, we could imagine that similar to the nothing-to-hide
563 argument more diligent people might have less to be afraid of and so are more open to
564 public scrutiny.

565 Although openness might be the opposite of privacy semantically, empirically only a
566 handful of meaningful relations with need for privacy were found. And interestingly, the
567 main dimension showed that more open people actually wanted more privacy from

companies and more privacy in general. The facet creativity was meaningfully related to psychological and social privacy, such that more creative people needed less psychological and social privacy. It might be that more creative people generally think of others as resources, thriving from their inputs and exchanges. More inquisitive people needed less physical privacy from others. They, too, might see others as a resource, valuing closer exchanges with people unknown to them.

In addition, we looked at relations between need for privacy and various sociodemographic variables. Contrary to our expectations, older participants desired less privacy from others, both socially and physically. This was surprising, for example given that older people report increased online privacy concern (Kezer, Sevi, Cemalcilar, & Baruh, 2016). It is an open question as to whether this relation represents a developmental mechanism or a difference between cohorts. Research suggests that older people have fewer social interactions than younger people (Ortiz-Ospina, Giattino, & Roser, 2024), which could result in a lower need for social and physical privacy. But it could also be a difference between cohorts. Younger people nowadays have fewer in-person social contacts than before, often attributed to increases in time spent online (Twenge, Spitzberg, & Campbell, 2019). Hence, it could also be that younger generations prefer more solitude than the generations beforehand.

We expected that males would desire more psychological privacy but less social and physical privacy than females. Although in our data these relations were statistically significant, the effects sizes were too small to be considered meaningful. The only meaningful gender effect we found was with regard to anonymity. Males needed more anonymity than females. This finding is in line with the fact that women more readily view themselves as vulnerable and targets for victimization than do men (Lewyn, 1993).

People in relationships needed less social privacy. This makes sense as being in a relationship implies a minimum commitment of openness to others. Contrary to our expectations, respondents with a college degree and with greater income all reported lower

595 levels of need for social privacy. Having fewer educational and financial resources might

596 result in greater social stigma, leading to an increased need for social privacy. More

597 politically conservative respondents needed more privacy from the government—which we

598 expected given the general political tendencies of conservatives to prefer fewer state

599 regulations and interferences. Finally, no meaningful relations with ethnicity were found.

600 For example, contrary to what we expected we did not find that minority groups desired

601 more privacy from the government in our data.

602   The results above are based on correlations and analyzed the variables' relationships.

603 To analyze the potential impact of personality on need for privacy, in exploratory analyses

604 we also ran several multiple regression analyses. Here, we estimated the relations between

605 each personality and need for privacy dimension while controlling for all other personality

606 dimensions and sociodemographics. Results were comparable, in that extraversion turned

607 out to be the major potential cause of need for privacy. However, there were also some

608 differences. Most notably, results implied that being more conscientious increases the need

609 for physical, informational, and general privacy. Similarly, being more open to new

610 experiences might increase the need for privacy from the government, from companies, and

611 for privacy in general. Finally, multiple regression results suggested that being conservative

612 does not only increase the need for privacy from the government but also for privacy in

613 general. All other sociodemographic variables ceased to be significant.

614   Looking at the results more broadly, we make five general observations. First, it

615 makes sense to differentiate different levels of need for privacy. Many personality traits

616 showed meaningful relations with some dimension, yet no or even opposite relations with

617 others. To illustrate, whereas more conscientious people desired less psychological privacy

618 and less privacy from other, when asked about privacy in general and privacy from

619 companies they needed more. General need for privacy may rather represent a cognitive

620 appraisal, whereas social or psychological privacy might be more experienced-based and

621 psychological. In any case, our results argue for a more rather than less nuanced strategy

622 for measuring privacy attitudes.y

623   Second, the need for privacy from companies and the government, both vertical forms
624 of privacy, showed only a couple of meaningful relations with personality. The most
625 notable relation was that conservative people needed substantially more privacy from the
626 government. Most relations between privacy needs and personality were found for forms of
627 horizontal privacy, suggesting that personality has more influence on the more social and
628 interpersonal aspects of privacy. So while the demographic variable of political ideology
629 more strongly affected vertical privacy needs, personality aspects appear to better explain
630 horizontal privacy needs.

631   Third, although we found support for the nothing-to-hide-argument, our results also
632 support the reasoning of the argument's critics. Although desiring more anonymity was
633 related to less honesty, fairness, and altruism, these relations were not particularly large.
634 Next, it is insufficient to assume that anonymity is needed only by people with reduced
635 honesty. Less emotional, less extraverted, and more conscientious people also needed more
636 anonymity. Finally, when analyzed together with the other predictors, honesty and
637 humility ceased to be a relevant predictor.

638   This leads to our fourth general observation. Our main interest was to determine the
639 personality factors predicting the need for privacy. What can we learn about a person
640 given their need for privacy? We first analyzed this question in correlation analyses.
641 However, when we further explored potential causal effects using multiple regression
642 analysis (Grosz et al., 2020), a somewhat different picture emerged. Several of the bivariate
643 relationships we initially observed disappeared. These results suggest that some of the
644 correlations we found might not be due to a direct causal process but could instead be
645 explained by shared variance with a third confounding factor. Additionally, some causal
646 effects that were not apparent in the correlation analyses became significant in the multiple
647 regressions. Specifically, conservatism became more relevant when we included additional
648 control variables, suggesting that an increase in conservatism leads to a greater desire for

649 anonymity and privacy in general.

650   Finally, our results have significant implications for privacy theory, suggesting new
651 avenues for further research. Given the close relationship between personality and privacy,
652 it is worthwhile to examine how personality traits interact with specific privacy models and
653 theories. For instance, personality could influence the privacy calculus model (Kezer,
654 Dienlin, & Baruh, 2022). Extraverted individuals, who tend to view others as resources,
655 might perceive greater benefits in sharing information online and therefore be more open in
656 their sharing behaviors. Conversely, anxious individuals, who are more likely to see others
657 as threats, might have heightened concerns about privacy, leading to a reduced willingness
658 to share information online.

Limitations

660   Not all personality and privacy measures showed good fit. Especially when analyzed
661 together, fit was not satisfactory. Likewise, some measures such as altruism,
662 unconventionality, or anonymity showed low reliability. The results of these variables thus
663 need to be interpreted more cautiously.

664   Instead of deleting items or changing the factor structure, to avoid over-fitting we
665 decided to maintain the measures' original factor structure. For this reason, instead of
666 reporting the results from latent structural equation modelling, we reported the results of
667 the correlations of the observed variables' means. Interested readers can find the results of
668 the latent analyses in our online supplementary material. The results are highly
669 comparable, with the major difference that effect sizes in the latent models tended to be
670 larger. The results reported here are hence more conservative and likely underestimate the
671 true effect sizes. This underscores the need for further optimizing measures of personality
672 and privacy.

673   In our exploratory analyses, we aimed to investigate the potential causal effects of
674 personality on the need for privacy by controlling for potential confounders, including other

₆₇₅ personality dimensions and sociodemographic variables. However, it is important to note

₆₇₆ that this is only a preliminary approach, as there are likely additional variables that could

₆₇₇ further explain the relationships. Future research should explore the potential causal

₆₇₈ relationships in a more systematic and comprehensive manner.

₆₇₉   Our findings are specific to the U.S. context. Previous research indicates that

₆₈₀ although privacy is a universal concept, attitudes and practices vary significantly across

₆₈₁ different cultures and countries (Altman, 1977). It is possible that the relationship between

₆₈₂ personality and the need for privacy manifests differently in various settings. We hope this

₆₈₃ study will serve as a catalyst for future research in this area.

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Conflict of Interests

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Supplementary Material

All the stimuli, presentation materials, analysis scripts, and a reproducible version of the manuscript can be found on the open science framework (https://osf.io/e47yw/). The paper also has a companion website where all materials can be accessed (https://tdienlin.github.io/Who_Needs_Privacy_RR).

Data Accessibility Statement

The data are shared as a scientific use file on AUSSDA at https://doi.org/10.11587/IC66GC (Dienlin & Metzger, 2024).