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

2   Tobias Dienlin[1] & Miriam Metzger[2]

3   [1] University of Vienna

4   [2] University of California Santa Barbara

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6   Author Note

7   Tobias Dienlin, Department of Communication, University of Vienna, Austria;

8 Miriam Metzger, Department of Communication, University of California, Santa Barbara,

9 United States of America.

10   Correspondence concerning this article should be addressed to Tobias Dienlin,

11 University of Vienna, Department of Communication, 1090 Vienna, Austria. E-mail:

12 tobias.dienlin@univie.ac.at

Abstract

Privacy is defined as a voluntary withdrawal from society. While everyone needs some degree of privacy, we currently know little about who needs how much. In this study, we explored the relations between the need for privacy and personality. Personality was operationalized using the HEXACO personality inventory. Need for privacy was measured in relation to social, psychological, and physical privacy from other individuals (horizontal privacy); need for privacy from government agencies and companies (vertical privacy); as well as need for informational privacy, anonymity, and general privacy (both horizontal and vertical privacy). A sample of 1,576 respondents representative of the U.S. in terms of age, gender, and ethnicity was collected. The results showed several substantial relationships: More extraverted people needed substantially more privacy. People less honest, less fair, and less altruistic needed more privacy, lending some support to the nothing to hide-argument. More conservative respondents needed more privacy from the government.

Keywords: Privacy, need for privacy, personality, HEXACO

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

28   Privacy is a major topic of public discourse and academic interest (Dienlin & Breuer,

29 2023). Yet despite its importance, to date we still know surprisingly little about the

30 relation between privacy and personality (Masur, 2018, p. 155). What can we infer about a

31 person if they desire more privacy? Are they more introverted, more risk-averse, or more

32 traditional? Asking these questions seems relevant, not least because people who desire

33 more privacy are often regarded with suspicion, having to justify why they want to be left

34 alone. Consider the "nothing-to-hide" argument (Solove, 2007), which is that people who

35 oppose state surveillance only do so because they have something to hide—because if you

36 have nothing to hide, you would have nothing to fear. Is it true that people who desire

37 more privacy are also more dishonest, greedy, or unfair? Or are people simply less

38 extraverted, more diligent, or more prudent? With this paper, we seek to answer the

39 following question: What can we learn about a person's personality if they say they desire

40 more privacy?

41 **Privacy and Personality**

42   Privacy captures a *withdrawal* from others or from society in general (Westin, 1967).

43 This withdrawal happens *voluntarily*, and it is under a person's *control* (Westin, 1967).

44 Privacy is also multi-dimensional. On the broadest level, we can differentiate the two

45 dimensions of horizontal and vertical privacy (Masur, Teutsch, & Dienlin, 2018; Schwartz,

46 1968). Whereas horizontal privacy captures withdrawal from other people or peers, vertical

47 privacy addresses withdrawal from superiors or institutions (e.g., government agencies or

48 businesses). In her theoretical analysis, Burgoon (1982) argued that privacy has four more

49 specific dimensions: informational, social, psychological, and physical privacy. Pedersen

50 (1979) conducted an empirical factor analysis of 94 privacy-related items, finding six

51 dimensions of privacy: reserve ("unwillingness to be with and talk with others, especially

52 strangers," p. 1293); isolation ("desire to be alone and away from others," p. 1293), solitude

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

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

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

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

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

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

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

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

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

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

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

64 comprehensive measure of privacy represents a novel approach.

65   Acknowledging that various understandings of personality exist, we operationalize

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

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

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

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

70 1999). It includes six factors (discussed below), which have four specific facets each. In

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

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

73 investigate the nothing-to-hide-argument.

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

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

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

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

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

79 analyzed empirically.

Predicting the Need for Privacy

So far, only 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 (i.e., 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

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

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

109 evolved precisely because it offers such advantages.

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

111 need for privacy.

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

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

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

115 didn't like" (reversed).

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

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

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

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

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

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

122 (Altman, 1976).

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

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

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

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

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

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

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

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

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

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

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

privacy. Everyone, including law-abiding citizens, have legitimate reasons to hide specific aspects of their lives (Solove, 2007). A recent study confirmed this notion, finding that also those people who explicitly endorsed the statement that they would have nothing to hide still engaged in several privacy protective behaviors (Colnago, Cranor, & Acquisti, 2023). Our argument is rather that people lower on the honesty HEXACO factor may feel a greater need for privacy. Considering all the evidence, it seems more plausible to us that lack of honesty may indeed relate to an increased need for privacy, and perhaps especially when it comes to privacy from authorities such as government agencies.

Emotionality. Emotionality is captured by the facets fearfulness, anxiety, dependence, and sentimentality. People who are anxious may be more likely to view social interactions as risky or threatening (especially with strangers or weak ties, Granovetter, 1973). Anxious people might hence desire more privacy. People who are more concerned about their privacy (in other words, more anxious about privacy) are more likely to self-withdraw online, for example by deleting posts or untagging themselves from linked content to minimize risk (Dienlin & Metzger, 2016). On the other hand, the opposite may also be true: People who are more anxious in general may desire less privacy from others (especially their strong ties), as a means to cope better with their daily challenges or to seek social approval to either verify or dispel their social anxiety.

People who are more anxious might also desire less privacy from government surveillance. Despite the fact that only 18% of all Americans trust their government "to do what is right," almost everyone agrees that "it's the government's job to keep the country safe" (Pew Research Center, 2015, 2017). More anxious people might hence consider the government a resource rather than a threat. They might more likely consent to government surveillance, given that such surveillance could prevent crime or terrorism. On the other hand, it could also be that more anxious people desire more privacy from government agencies, at least on a personal level. For example, while they might favor government surveillance of *others*, this does not necessarily include *themselves*. Especially if the

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

188 privacy concern are closely related, more agreeable people might desire less privacy. To

189 explain, more agreeable people might hold more generous attitudes toward others and are

190 less suspicious that others have malicious motives, and consequently perceive less risk from

191 interacting with others.

192 **Conscientiousness.** Conscientiousness consists of the facets organization,

193 diligence, perfectionism, and prudence. Arguably, all facets are about being in control,

194 about reducing relevant risks and future costs. Because control is a central part of privacy

195 (Westin, 1967), people who avoid risks, who deliberate, and who plan ahead carefully

196 might prefer to have more privacy because it affords them greater control. Especially if

197 others are considered a threat, being risk averse might increase the desire for more

198 horizontal privacy. Similarly, if government agencies or private companies are considered a

199 threat, risk averse people might have a stronger desire for vertical privacy. In either case,

200 the most cautious strategy to minimize risks of information disclosure would be to keep as

201 much information as possible private. Empirical studies have found that people with a

202 stronger control motive require slightly more seclusion ($r = .12$) and anonymity ($r = .15$)

203 (Hosman, 1991). People who considered their privacy at risk are less likely to disclose

204 information online (e.g., Bol et al., 2018). Moreover, conscientious people are more

205 concerned about their privacy (Junglas et al., 2008).

206 **Openness to experience.** Openness to experiences comprises the facets aesthetic

207 appreciation, inquisitiveness, creativeness, and unconventionality. Openness to experience

208 is also considered a measure of intellect and education. In one study it was found that

209 more educated people have more knowledge about how to protect their privacy (Park,

210 2013), which could be the result of an increased need for privacy. Similarly, openness to

211 experience is positively related to privacy concern (Junglas et al., 2008).

212 On the other hand, openness is conceptually the opposite of privacy. People more

213 open to new experiences might not prioritize privacy. Many digital practices such as social

214 media, online shopping, or online dating offer exciting benefits and new experiences, but

215 pose a risk to privacy. People who are more open to new experiences might focus on the

216 benefits rather than the potential risks. Hence, either a positive or negative relationship

217 between need for privacy and openness is possible.

218   **Socio-demographic variables.**   The need for privacy should also be related to

219 sociodemographic aspects, such as sex, age, education, and income. For example, a study

220 of 3,072 people from Germany found that women desired more informational and physical

221 privacy than men, whereas men desired more psychological privacy (Frener, Dombrowski,

222 & Trepte, 2023). In a nationally representative study of the U.S. and Japan, people who

223 were older and who had higher income reported more privacy concern. More educated

224 people possess more privacy knowledge (Park, 2013), and as a consequence they might

225 desire more privacy. Ethnicity might also correspond to the need for privacy, perhaps

226 because members of minority groups desire more privacy from the government, although

227 not necessarily from other people. Some minorities groups (e.g., Black or Native

228 Americans) often report lower levels of trust in white government representatives (Koch,

229 2019), which might increase the desire of privacy from government agencies. Last, we will

230 examine whether one's political position is related to the need for privacy. We could

231 imagine that more right-leaning people desire more privacy from the government, but not

232 necessarily from other people. People who are more conservative tend to trust the

233 government slightly less (Cook & Gronke, 2005), which might be associated with an

234 increased need for privacy. We will also explore whether a person's romantic relationship

235 status corresponds to their expressed need for privacy.

236   **Overview of expectations.**   The arguments discussed above lead to a number of

237 expectations for our data which we delineate below, in order from most to least confidence

238 in terms of identifying significant effects. First, we strongly assume that more extraverted

239 people will desire less privacy, especially less social privacy. We also expect that people

240 who are less honest will express greater need for privacy. We further assume that more

241 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 oversampled by five percent, leading to a planned sample size of N = 1576. In the end, 1569 respondents successfully finished our study, slightly exceeding our plans.

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. However, as no clear patterns emerged we maintained all participants. We automatically excluded participants who missed the two attention checks we

implemented. Overall, 30 participants were filtered out automatically by Prolific, not counting toward our quota. Participants who missed one attention check were checked individually regarding response patterns. Again, no clear patterns emerged. We planned to remove participants below the minimum participation age of 18 years. As no minors took part in our study we did not exclude any participant for this reason. We planned to remove respondents with unrealistically fast responses (three standard deviations below the median response time). The median response time was 14 minutes and the standard deviation 11 minutes. Hence, three SDs below median was -19 minutes, hence not informative. Instead, we decided to remove respondents who took less than five minutes answering the questionnaire, which we considered unreasonably fast. We removed ten participants for this reason.

We planned to impute missing responses using multiple imputation with predictive mean matching (ten datasets, five iterations, using variables that correlate at least with r = .10). However, as there were only 27 answers missing in total (0.01 percent), we decided not to impute any data. The final sample size was $N = 1559$.

Analyses

The factorial validity of the measures and the relations were tested using structural equation modeling. If Mardia's test showed that the assumption of multivariate normality was violated, we used the more robust Satorra-Bentler scaled and mean-adjusted test statistic (MLM) as estimator (or, in the few cases of missing data MLR plus FIML estimation). We tested each scale in a confirmatory factor analysis. To assess model fit, we used more liberal fit criteria to avoid overfitting (CFI > .90, TLI > .90, RMSEA < .10, SRMR < .10) (Kline, 2016). In cases of misfit, we conservatively altered models using an a priori defined analysis pipeline (see online supplementary material). As a "reality check," we tested items for potential ceiling and floor effects. If means were below 1.5 or above 6.5, we preregistered to exclude these items. However, as no item was outside these threshold,

317 no items were excluded.

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

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

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

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

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

323 potential causal relations, we also planned to run latent structural regression models.

324 However, because model fit was not acceptable we analyzed the potential effects in a

325 multiple regression using the mean values of the observed scores.

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

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

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

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

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

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

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

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

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

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

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

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

338 variables (Kline, 2016). However, as several of the scales showed suboptimal fit, we decided

339 to report the more conservative correlations of average scores. In the online supplementary

340 material (OSM) we also share the results of 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 the 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. Online 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 different 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; (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

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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 across all items.

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

364   on Burgoon (1982) we self-designed a new social privacy dimension, which in the prestudy

365   showed satisfactory fit. Two subdimensions measured vertical privacy. The first

366   subdimension was *government surveillance*, which represents the extent to which people

367   want the government to abstain from collecting information about them. The scale was

368   pretested and showed good factorial validity. The second subdimension was need for

369   privacy from *companies*, which we measured using four new self-designed items. Finally,

370   three subdimensions captured general privacy. The first subdimension was *informational*

371   privacy, with items adopted from Frener et al. (2023). The second subdimension was

372   *anonymity*, which captured the extent to which people feel the need to avoid identification

373   in general. The scale was pretested and showed good factorial validity; one new item was

374   designed for this study. Third, we also collected a new self-developed measure of *general*

375   need for privacy.

376   **Personality.**   Personality were measured using the HEXACO personality inventory.

377   The inventory consists of six factors with four facets each, including the additional meta

378   scale of "altruism".

379   **Results**

380   We first tested the factorial validity of all measures. When analyzed individually,

381   most measures showed satisfactory model fit, not requiring any changes. Some measures

382   showed satisfactory model fit after small adaptions, such as allowing items to covary. In

383   terms of reliability, most measures showed satisfactory results. However, some measures

384   such as altruism, unconventionality, or anonymity showed insufficient reliability. Instead of

385   strongly adapting measures, we decided to maintain the initial factor structure and did not

386   delete any items or did not introduce substantial changes to the factors. For an overview of

387   all measures, their descriptives and factorial validity, see Table 1. Although individually

388   most of the measures showed good fit, when analyzed together fit decreased substantially,

389   below acceptable levels. As a result, we conservatively decided to analyze our data using

390   the variables' observed mean scores.

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

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

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

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

395   if respondents reported higher needs of privacy they also engaged in more privacy

396   behaviors, with coefficients ranging from $r = .20$ to $r = .71$ The only exception was the

397   relation between privacy behavior and the need for social privacy, which was virtually

398   nonexistent ($r = .01$), and the need for physical privacy, which was very small ($r = .09$).

399   See online supplementary material for all results.

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

401   90% CI -.21, -.13). Looking at facets, more anonymity was needed by people who reported

402   being less fair ($r = -.19$, 90% CI -.23, -.15), less modest ($r = -.16$, 90% CI -.20, -.12), and

403   less altruistic ($r = -.25$, 90% CI -.29, -.21). However, less sincere people needed less privacy

404   from companies ($r = .16$, 90% CI .12, .20) and less privacy in general ($r = .14$, 90% CI .10,

405   .18). Effects were small or small-to-medium sized.

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

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

408   privacy from the government ($r = -.14$, 90% CI -.18, -.10), less anonymity ($r = -.14$, 90%

409   CI -.18, -.10)—but also more physical privacy ($r = .19$, 90% CI .15, .23). More anxious

410   respondents needed substantially more social ($r = .32$, 90% CI .28, .36) and physical

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

412   ($r = .14$, 90% CI .10, .18) and physical privacy ($r = .26$, 90% CI .22, .30). More dependent

413   participants generally needed less privacy, including less psychological ($r = -.48$, 90% CI

414   -.51, -.44) and social privacy ($r = -.29$, 90% CI -.33, -.25), less privacy from the government

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

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

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	0.74	1.00	0.99	0.01	0.04
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	0.06
Altruism	5.45	1.00	0.55	1.00	1.01	0.00	0.00
Emotionality	4.50	0.90	0.89	0.88	0.84	0.07	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	0.95	0.02	0.07
Sentimentality	4.79	1.16	0.79	1.00	0.99	0.01	0.03
Extraversion	4.20	1.07	0.91	0.88	0.85	0.08	0.09
Social self-esteem	5.04	1.27	0.75	0.99	0.93	0.01	0.09
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	0.93	0.03	0.11
Agreeableness	4.21	0.92	0.91	0.89	0.86	0.06	0.07
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	0.66	0.99	0.96	0.02	0.05
Patience	4.60	1.21	0.83	1.00	1.00	0.01	0.01
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	0.10
Diligence	5.17	1.13	0.70	1.00	0.98	0.01	0.04
Perfectionism	5.13	0.95	0.60	0.95	0.86	0.04	0.10
Prudence	5.07	1.07	0.73	0.97	0.91	0.04	0.09
Openness	4.79	0.97	0.89	0.93	0.91	0.04	0.05
Aesthetic appreciation	4.90	1.30	0.71	0.99	0.98	0.02	0.04
Inquisitiveness	4.94	1.31	0.75	0.98	0.93	0.03	0.09
Creativeness	4.72	1.32	0.79	1.00	0.99	0.01	0.03
Unconventionality	4.58	1.07	0.54	1.00	0.98	0.01	0.03
Need for Privacy							
Psychological	4.29	1.16	0.74	0.99	0.98	0.02	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	0.04
Government	4.58	1.33	0.85	0.98	0.94	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	0.91	0.02	0.07
General	5.20	1.09	0.82	1.00	0.99	0.01	0.03

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

418 privacy ($r = $ -.19, 90% CI -.23, -.14) and less anonymity ($r = $ -.18, 90% CI -.22, -.14).

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

420 psychological privacy ($r = $ -.46, 90% CI -.49, -.42), social privacy ($r = $ -.77, 90% CI -.79,

421 -.75), and physical privacy ($r = $ -.56, 90% CI -.59, -.53), less informational privacy ($r = $

422 -.22, 90% CI -.26, -.18) and less anonymity ($r = $ -.20, 90% CI -.24, -.16). Effect sizes were

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

424 effect sizes.

425   More agreeable participants showed a similar pattern, needing less psychological ($r = $

426 -.21, 90% CI -.25, -.17), social privacy ($r = $ -.38, 90% CI -.41, -.34), and physical privacy (r

427 $ = $ -.38, 90% CI -.41, -.34). The facets showed virtually the same pattern. Effect sizes were

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

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

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

431 -.19, -.11) and less social privacy ($r = $ -.24, 90% CI -.28, -.20), as well as less anonymity (r

432 $ = $ -.17, 90% CI -.21, -.13). However, when asked about privacy in general more

433 conscientious people responded to need more ($r = $ .17, 90% CI .13, .21). Looking at facets

434 of conscientiousness, more organized people needed less social privacy ($r = $ -.24, 90% CI

435 -.28, -.20) and less anonymity ($r = $ -.14, 90% CI -.18, -.10). More prudent participants

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

437 psychological ($r = $ -.21, 90% CI -.25, -.17), social ($r = $ -.32, 90% CI -.36, -.29), and physical

438 privacy ($r = $ -.18, 90% CI -.22, -.14) as well as less anonymity ($r = $ -.16, 90% CI -.21, -.12).

439 At the same time, more perfectionist respondents reported needing more informational (r

440 $ = $ .20, 90% CI .16, .24) and more general privacy ($r = $ .25, 90% CI .21, .29).

441   Whether or not respondents were open to new experiences was largely unrelated to

442 how much privacy they needed. Only three facets showed relevant but still small relations.

443 Respondents who reported being more creative needed less psychological ($r = $ -.15, 90% CI

Table 2

Predicting the need for privacy dimensions using personality factors.

	Need for privacy							
Personality factors	Psych.	Social	Phys.	Gov.	Comp.	Inform.	Anonym.	General
Honesty humility	-0.11	-0.04	-0.05	0.00	0.13	0.10	-0.17	0.07
Emotionality	-0.20	0.01	0.19	-0.14	-0.08	0.02	-0.14	-0.03
Extraversion	-0.46	-0.77	-0.56	-0.08	0.00	-0.22	-0.20	-0.10
Agreeableness	-0.21	-0.38	-0.38	-0.02	0.02	-0.10	-0.13	-0.01
Conscientiousness	-0.15	-0.24	-0.09	0.02	0.13	0.13	-0.17	0.17
Openness	-0.12	-0.09	-0.13	0.09	0.13	0.05	0.03	0.13

-.19, -.11) and less social privacy (r = -.16, 90% CI -.20, -.12). More inquisitive

respondents needed less physical privacy (r = -.16, 90% CI -.20, -.12).

Not many meaningful relations between sociodemographic variables and need for

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

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

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

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

-.10), and with higher income (r = -.21, 90% CI -.25, -.17). People with higher income also

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

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

90% CI .14, .22).

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

Table 3, we report how the personality facets predicted need for privacy. In Table 4, we

report how sociodemographics predicted need for privacy. In Figure 1, you can find how all

variables—dimensions, facets, and sociodemographics—predicted the need for privacy.

In exploratory analyses we analyzed how personality facets might have potentially

caused need for privacy. We found that the psychological need for privacy was explained by

two variables. The need for psychological privacy was potentially reduced by extraversion

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	-0.02	0.00	-0.04	0.07	0.16	0.11	-0.06	0.14
Fairness	-0.17	-0.24	-0.18	-0.04	0.13	0.06	-0.19	0.12
Greed avoidance	-0.05	0.06	0.01	0.00	0.07	0.01	-0.08	-0.04
Modesty	-0.06	0.12	0.11	-0.03	-0.01	0.10	-0.16	-0.06
Altruism	-0.29	-0.28	-0.15	-0.09	0.03	0.03	-0.25	0.01
Emotionality								
Fearfulness	0.02	0.14	0.26	-0.10	-0.07	0.10	-0.07	0.05
Anxiety	0.09	0.32	0.38	-0.06	-0.07	0.10	-0.04	0.00
Dependence	-0.48	-0.29	-0.09	-0.15	-0.10	-0.18	-0.13	-0.16
Sentimentality	-0.27	-0.19	-0.04	-0.10	0.01	0.02	-0.18	0.01
Extraversion								
Social self-esteem	-0.36	-0.54	-0.38	-0.07	0.00	-0.12	-0.22	-0.04
Social boldness	-0.36	-0.58	-0.44	-0.03	0.02	-0.19	-0.09	-0.08
Sociability	-0.40	-0.76	-0.55	-0.07	0.00	-0.24	-0.11	-0.13
Liveliness	-0.35	-0.60	-0.43	-0.08	-0.01	-0.17	-0.21	-0.08
Agreeableness								
Forgiveness	-0.19	-0.35	-0.37	-0.02	0.03	-0.14	-0.07	-0.05
Gentleness	-0.14	-0.26	-0.22	0.02	0.01	-0.03	-0.10	0.01
Flexibility	-0.24	-0.34	-0.32	-0.09	-0.02	-0.10	-0.18	-0.01
Patience	-0.10	-0.24	-0.25	0.02	0.02	-0.04	-0.09	0.01
Conscientiousness								
Organization	-0.13	-0.24	-0.11	-0.01	0.07	0.06	-0.14	0.10
Diligence	-0.21	-0.32	-0.18	0.01	0.13	0.05	-0.16	0.12
Perfectionism	-0.02	-0.02	0.09	0.07	0.13	0.20	-0.03	0.25
Prudence	-0.08	-0.14	-0.06	-0.01	0.08	0.11	-0.17	0.08
Openness to experiences								
Aesthetic appreciation	-0.08	-0.06	-0.08	0.05	0.12	0.06	0.00	0.13
Inquisitiveness	-0.07	-0.10	-0.16	0.06	0.13	0.01	0.04	0.09
Creativeness	-0.15	-0.16	-0.13	0.07	0.10	0.03	0.02	0.11
Unconventionality	-0.07	0.06	-0.01	0.09	0.05	0.04	0.07	0.08

Table 4

Predicting the need for privacy dimensions using sociodemographic variables.

Sociodemographics	Need for privacy							
	Psych.	Social	Phys.	Gov.	Comp.	Inform.	Anonym.	General
Age	-0.07	-0.14	-0.16	0.00	0.03	0.02	-0.07	0.05
Male	0.09	-0.06	-0.11	0.12	0.07	-0.03	0.14	0.05
White	-0.09	0.00	0.06	-0.02	-0.05	-0.09	-0.14	-0.13
Relationship	-0.09	-0.19	-0.09	-0.03	-0.03	-0.08	-0.10	-0.10
College	-0.04	-0.14	-0.13	-0.07	-0.03	-0.11	0.01	-0.07
Income	-0.06	-0.21	-0.18	-0.04	-0.01	-0.10	-0.03	-0.05
Conservatism	0.06	-0.11	-0.05	0.18	0.12	0.06	0.08	0.13

462   (β = -.55, 90% CI -.59, -.50) and by emotionality (β = -.29, 90% CI -.33, -.24). The need

463   for informational privacy was also potentially affected by extraversion and emotionality.

464   Being more extraverted substantially decreased the need for psychological privacy (β =

465   -.80, 90% CI -.83, -.77), as did being more emotional (β = -.16, 90% CI -.20, -.13). Physical

466   privacy was determined by again extraversion, but also by agreeableness and

467   conscientiousness. Being more extraverted potentially decreased the need for physical

468   privacy (β = -.54, 90% CI -.58, -.49); being more agreeable likewise decreased the need for

469   physical privacy (β = -.17, 90% CI -.21, -.12); however, being more conscientious increased

470   the need for physical privacy (β = .17, 90% CI .12, .21). The need for privacy from the

471   government was potentially affected by the two factors of openness and conservatism.

472   Being more open to new experiences potentially increased the need for privacy from the

473   government (β = .16, 90% CI .11, .21), as did being more politically conservative (β = .22,

474   90% CI .17, .27). The need for privacy from companies was potentially affected by the

475   same two factors. Being more open to new experiences potentially increased the need for

476   privacy from companies (β = .15, 90% CI .10, .21), as did being more politically

477   conservative (β = .15, 90% CI .10, .20). Being extraverted and conscientious potentially

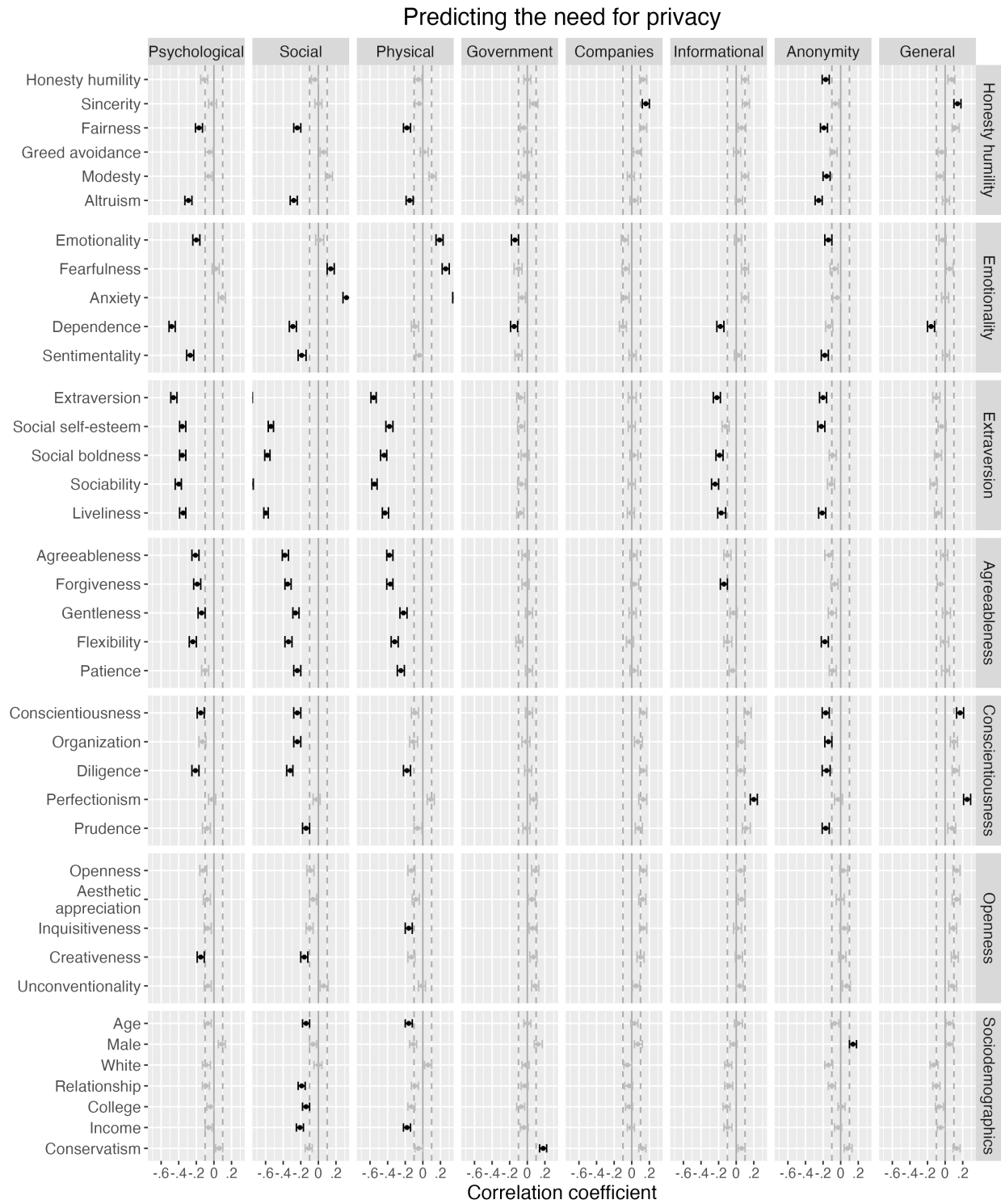478   affected the need for informational privacy.

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

479   Whereas being more extraverted likely decreased the need for informational privacy

480 (β = -.30, 90% CI -.36, -.25), being more conscientious likely increased the need for

481 informational privacy (β = .22, 90% CI .17, .27). The need for anonymity was potentially

482 affected by extraversion. More extraverted people need less anonymity (β = -.21, 90% CI

483 -.27, -.16). Finally, the general need for privacy was potentially affected by four variables.

484 Being extraverted again likely decreased the general need for privacy (β = .15, 90% CI .10,

485 .20). However, the general need for privacy was potentially increased by being more

486 conscientious (β = .21, 90% CI .16, .27), more conservative (β = .18, 90% CI .13, .23), and

487 more open to experiences (β = .18, 90% CI .13, .23).

488   In Figure 2, you can find how privacy dimensions and sociodemographics potentially

489 affected the need for privacy.
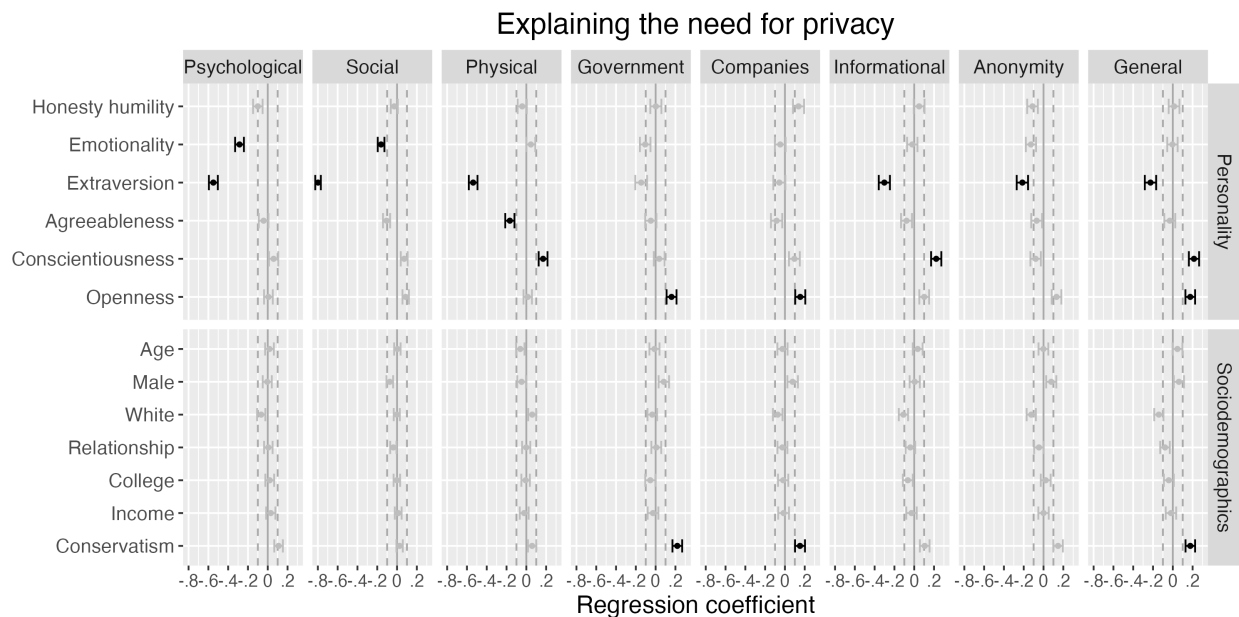
Figure 2. Results of multiple regression. Bold: Effects that are statistically significant and larger than β = .10 / -.10.

Discussion

In this study we analyzed the relation between personality and need for privacy. The data came from $N = 1559$ respondents from the US, representative in terms of age, gender, and ethnicity. The results showed several meaningful relations between personality and need for privacy that were statistically significant ($p < 10\%$) and not trivial in size (i.e., 90% CI $r \geq .10$). In a multiple regression with all personality dimensions and sociodemographic variables, we also explored potential causal effects.

As expected, the need for privacy was most closely related to extraversion. Participants who were more extraverted generally needed substantially less privacy. The relation between extraversion and social privacy was particularly large, suggesting that social privacy and extraversion overlap conceptually. In addition, almost all subscales of extraversion showed similar patterns: People with greater social boldness, self-esteem, or liveliness all needed substantially less privacy from other people and less physical, psychological, and informational privacy. Extraverted people reach out to others, share their inner lives, are confident around others—which reflects in a reduced need for privacy.

The personality factor next closely related to need for privacy was agreeableness. Although this finding aligned with our prior expectation, we were surprised by the strength of the relations. More agreeable respondents needed less privacy in general. In particular, more agreeable respondents needed substantially less psychological, social, and physical privacy. More agreeable people have fewer conflicts with others, are more easy to get along with. They likely see others less as a threat, and hence have a reduced need for privacy. No relevant relations with need for privacy from government and companies exist, suggesting that agreeableness—a personality trait mostly relevant in interpersonal contexts—might not extend to the need for privacy in these public domains.

In analyzing how the honesty humility factor relates to need for privacy, we analyzed the nothing-to-hide argument. As expected, our results provided support for the nothing-to-hide argument, especially with regard to the need for anonymity. Respondents

517   who needed more anonymity were less honest, less fair, less modest, and less altruistic.

518   Respondents who were less fair and less altruistic also needed more psychological, social,

519   and physical privacy. Less honest participants required more anonymity and privacy from

520   other people, be it psychologically, socially, or physically. However, honesty was unrelated

521   to the need for privacy from government and companies or informational and general

522   privacy. If anything, people who were more sincere actually desired more privacy from

523   companies and more privacy in general. So although less honest people needed more

524   privacy in several dimensions, this pattern is not general but varied and nuanced.

525   Emotionality showed mixed relations with need for privacy, which confirmed our

526   ambivalent a priori expectations. More emotional people desired less psychological privacy,

527   less privacy from the government, and less anonymity. At the same time, they needed more

528   physical privacy. Whereas they want closer bonds to people close to them, they are wary of

529   strangers entering their personal spaces. Fearful and anxious people wanted more social

530   and more physical privacy, while dependent and sensitive people wanted less. It seems that

531   more emotional people have subtle and varied approach- versus avoidance preferences.

532   Contrary to our expectations, conscientiousness showed a varied relation with need

533   for privacy. More conscientious people needed less psychological and social privacy and less

534   anonymity. Asked about privacy in general, however, they answered they needed more.

535   This relations was driven by the subscale perfectionism. More perfectionist people

536   preferred both more informational privacy and more privacy in general—perhaps to have

537   more options and leeway to adapt plans. More diligent people needed less privacy from

538   other people, less psychological privacy, and less physical privacy. Speculating about a

539   potential explanation, we could imagine that similar to the nothing-to-hide argument more

540   diligent people might have less to be afraid of.

541   Although openness might be the opposite of privacy semantically, empirically next to

542   no meaningful relations with need for privacy were found. The main dimension showed no

543   relevant relationships. The facet creativity was meaningfully related to psychological and

544 social privacy, such that more creative people needed less psychological and social privacy.

545 It might be that more creative people generally think of others as resources, thriving from

546 their inputs and exchanges. More inquisitive people needed less physical privacy from

547 others. They might see others as a resource, valuing closer exchanges with people unknown

548 to them.

549 In addition, we looked at relations between need for privacy and various

550 sociodemographic variables. Contrary to our expectations, older participants desired less

551 privacy from others, both socially and physically. It is an open question as to whether this

552 relation represents a developmental mechanism or a difference between cohorts. With

553 increasing age social relations become more sparse, and perhaps to compensate older

554 people prefer more contact with others. But it could also be a difference between cohorts.

555 Younger people nowadays have fewer social contacts than before, often attributed to

556 increases in time spent online. Hence, it could also be that younger generations prefer more

557 solitude than the generations beforehand.

558 We expected that males would desire more psychological privacy but less social and

559 physical privacy than females. Although in our data these relations were statistically

560 significant as well, the effects sizes were too small to be considered meaningful. The only

561 meaningful gender effect we found was with regard to anonymity. Males needed more

562 anonymity than females.

563 People in relationships needed less social privacy. This makes sense as being in a

564 relationship implies a minimum openness to committing to others. Contrary to our

565 expectations, respondents with a college degree and with greater income all reported lower

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

567 result in fewer social opportunities, reflecting in an increased need for social privacy. More

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

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

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

571 For example, contrary to what we expected we did not find that minority groups desired
572 more privacy from the government.

573   Finally, we also looked at the potential impact of personality on need for privacy.
574 Results were comparable, in that extraversion turned out to be the major cause of need for
575 privacy. However, there were also some changes. Most notably, when controlling for other
576 personality dimensions and sociodemographics, results implied that being more
577 conscientious increases the need for physical, informational, and general privacy. Similarly,
578 being more open to new experiences might increase the need for privacy from the
579 government, from companies, and for privacy in general. Finally, multiple regression results
580 suggested that being conservative does not only increase the need for privacy from the
581 government, but also from companies and for privacy in general. All other
582 sociodemographic variables ceased to be significant.

583   Looking at the results more broadly, we make four general observations. First, it
584 makes sense to differentiate different levels of need for privacy. Many personality traits
585 showed meaningful relations with some dimension, but no or even opposite relations with
586 others. To illustrate, whereas more conscientious people desired less psychological privacy
587 and less privacy from other, when asked about privacy in general they needed more.
588 General need for privacy rather represents a cognitive appraisal, whereas social or
589 psychological privacy might be more experienced and psychological.

590   Second, the need for privacy from companies and the government, both vertical forms
591 of privacy, showed next to no meaningful relations with personality. Most relations were
592 found on the horizontal level, suggesting that personality shows more strongly in these
593 more social and interpersonal aspects of privacy.

594   Third, although we found support for the nothing-to-hide-argument, our results also
595 support the reasoning of the argument's critics. Although desiring more anonymity was
596 related to less honesty, fairness, and altruism, these relations were not particularly large.
597 Next, needing anonymity is insufficient to assume reduced honesty. Our results underscore

⁵⁹⁸ that many other personality aspects related to an increased need of anonymity. Less

⁵⁹⁹ emotional, less extraverted, and more conscientious people also needed more anonymity.

⁶⁰⁰ Finally, when analyzed together with the other predictors, honesty and humility ceased to

⁶⁰¹ be a relevant predictor.

⁶⁰² This leads to our fourth general observation. Our main interest was to determine

⁶⁰³ what predicts the need for privacy. What can we learn about a person given their need for

⁶⁰⁴ privacy? We analyzed these questions in correlation analyses. In addition, we also explored

⁶⁰⁵ the potential causal effects in a multiple regression. Here, a somewhat different picture

⁶⁰⁶ emerged. Several correlations we found might not be the results of a causal processes. At

⁶⁰⁷ the same time, some causal effects might also be surpressed in correlation analyses.

Limitations

⁶⁰⁹ Not all personality and privacy measures showed good fit. Especially when analyzed

⁶¹⁰ together, fit was not satisfactory. Likewise, some measures such as altruism,

⁶¹¹ unconventionality, or anonymity showed low reliability. The results of these variables need

⁶¹² to be interpreted more cautiously. Instead of deleting items or changing the factor

⁶¹³ structure, to avoid overfitting we decided to maintain the measures' original factor

⁶¹⁴ structure.

⁶¹⁵ For this reason, instead of reporting the results from latent structural equation

⁶¹⁶ modelling, we reported the results of the correlations of the observed variables' means. We

⁶¹⁷ report the results of the latent analyses online. The results are highly comparable, with the

⁶¹⁸ major difference that effect sizes in the latent models tended to be larger. The results

⁶¹⁹ reported here are hence more conservative and likely underestimate the true effect sizes.

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Supplementary Material

All the stimuli, presentation materials, participant data, 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/proposal.html).

Data Accessibility Statement

The data are shared on the open science framework (https://osf.io/e47yw/) and on github.