



Who is more likely to feel ostracized? A latent class analysis of personality traits

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ABSTRACT

Perceived ostracism (e.g., feeling ignored or excluded) is a painful and distressing experience. However, little empirical research has investigated the types (profiles) of people more likely to perceive ostracism. The present study ($N = 395$) used latent class analysis to (a) identify potential classes based on the big five personality traits (i.e., openness, agreeableness, negative emotionality, extroversion, and conscientiousness) and (b) examine whether such classes could reliably differentiate levels of self-reported perceived ostracism. We extracted three classes: (a) Moderate Traits (MT), (b) the Quiet Over-Reacting Procrastinators (QORP), and (c) the Active and Adaptable Thinkers (AAT). Those in the QORP class reported the highest levels of perceived ostracism, whereas those in the AAT class reported the lowest levels of perceived ostracism compared to the MT class. This study provides new insight into the profiles of individuals who may be more likely to perceive ostracism. However, further research is needed to explore the association between personality and ostracism (e.g., as ostracism may lead to changes in personality), so that potential risk markers to trigger early psychological interventions of such ostracized individuals can be identified.

1. Introduction

Ostracism is a social exclusion experience primarily characterized by being ignored, rejected, or avoided by others (Riva & Eck, 2016; Rudert, Janke, & Greifeneder, 2020; Williams, 2009). Moreover, ostracism is a ubiquitous phenomenon that can occur across different situations (e.g., one's emails go unanswered, social media posts are not liked, avoided on the train) and contexts (e.g., at work, receiving the silent treatment at home by one's spouse, etc.; Williams, 2009). Perceiving that one is ostracized is related to negative psychological consequences such as increased levels of psychological distress (e.g., Ferris et al., 2008), paranoia (Waldeck et al., 2022) and aggression (e.g., Zhang et al., 2019). According to the Temporal Need Threat Model (TNTM; Williams, 2009), humans developed a hardwired *reflexive* mechanism to quickly detect ostracism, including an immediate depletion of primary psychological needs (belonging, self-esteem, control, and meaningful existence). Indeed, it has been hypothesized that without such a mechanism, people were at risk of death (e.g., starvation, predation) for not having the resources or protection of the group. After a short period, the TNTM

(Williams, 2009) suggests that ostracized individuals can reflect on such events and, in most circumstances, allow such psychological needs to be restored fairly quickly. If ostracism persists over time, this can lead to prolonged pain and feelings of alienation and resignation (Williams, 2009). Given that ostracism can be such a powerful stressor and negatively impacts psychological wellbeing, it would be beneficial to examine the potential antecedents to perceived ostracism. In this exploratory study, we examine the potential role of peoples' dispositional traits (i.e., personality factors) and how these are associated with perceived ostracism in the longer-term.

1.1. Personality

There is a paucity of research examining the links between personality factors/traits and perceived ostracism. Indeed, the limited literature to date has mostly focused on personality having a potential moderating role in the short-term distress associated with ostracism. For example, in a clinical personality context, people characterized by a Diagnostic and Statistical Manual of Mental Disorders (DSM) Cluster A

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personality type (i.e., Paranoid, Schizoid, Schizotypal) have been shown to recover more quickly from the immediate negative impact of ostracism (Wirth et al., 2010). Moreover, in a general non-clinical personality trait context, Yaakobi (2021) found that individuals who score more highly on agreeableness and conscientiousness were more likely to prolong their psychological distress following a brief experience of ostracism. By contrast, McDonald and Donnellan (2012) detected no significant interaction effects of personality factors on psychological coping following social exclusion conditions. As such, the current literature appears somewhat inconsistent regarding a possible link between personality traits and experiences of ostracism, at least in the short term.

Notwithstanding the above findings with short-term experiences of ostracism, it is readily apparent that there has been little empirical focus on how personality is associated with how people perceive ostracism in the longer-term. This is an important consideration, as Williams (2009) highlighted how people could become resigned to their ostracism over time and lose motivation to attempt to redeem their depleted psychological needs (e.g., self-esteem, control, meaningful existence). Research on prolonged experiences of social exclusion has emerged only in recent years (Wesselmann et al., 2022). Riva et al. (2017) compared the effects of long-term experiences of social exclusion with that of patients with chronic physical pain, showing, on the one hand, that both these conditions can increase levels of psychological resignation (i.e., alienation, unworthiness, helplessness, and depression). However, on the other hand, reported experiences of long-term social exclusion are nonetheless associated with higher levels of these adverse outcomes (Riva et al., 2017). Subsequent studies have replicated these findings considering the experiences of chronic exclusion in prisoners (Aureli et al., 2020) and immigrants (Marinucci et al., 2022). Finally, ostracism and social exclusion, especially when sustained over time, have been associated with an increase in suicidal thoughts (Chen et al., 2020) and an increase in radicalism tendencies (Pfundmair et al., 2022). Starting from this mass of recent studies, a theme to be explored is that of the individual differences most associated with the perception of ostracism. Of direct relevance to the present study, Riva et al. (2014) suggested that certain types of people (e.g., those with different personality characteristics or traits) are more likely than others to perceive ostracism in the longer term.

Therefore, the present study explores how personality is associated with the perception of ostracism. In other words, we investigate whether certain self-reported personality traits may influence the risk of perception of *being ostracized* by others. Limited extant research has examined the relationships between *the big five* personality traits (see descriptions below, Soto & John, 2017) and perceived ostracism. For example, Hales et al. (2016) found in their correlational and experimental studies that disagreeable people are more likely to be ostracized than agreeable persons. Similarly, across six studies utilising four different paradigms, Rudert, Keller, et al. (2020) found that disagreeable people and those low in conscientiousness (e.g., disorganized, lazy) are at greater risk of being the target of ostracism, even across different cultural backgrounds. Indeed, Wesselmann et al. (2015) argue that perceiving others as burdensome (e.g., unlikeable) tends to be considered sufficient justification to ostracize such individuals.

However, other key personality traits purported to have strong effects on the likelihood of being ostracized, include neuroticism/negative emotionality and extraversion. Riva et al. (2014) purported that being high in neuroticism (e.g., habitually over-reacting to perceived stress) is a key antecedent to the perception of ostracism. To our knowledge, there are no empirical studies exploring personality as predictor of perceived ostracism in the longer term; however, there are examinations of somewhat related concepts. For example, research has shown that both high levels of negative emotionality and low levels of extraversion (e.g., more socially withdrawn) are strong predictors of loneliness (Buecker et al., 2020), which is theorized to be a negative outcome of longer-term experiences of ostracism (Williams, 2009).

It is important to note that although personality may influence the perception of ostracism, the reverse may also be true. Some researchers have observed that personality can change throughout one's lifetime, and into adulthood (e.g., Roberts & Mroczek, 2008; Robins et al., 2001). For some individuals, significant events of ostracism (e.g., persistent silent treatment by one's spouse; divorce) may constitute a stressful life event which then subsequently influence the expression of one's personality. Indeed, research has shown that stressful life events are associated with changes in personality (e.g., increased neuroticism; Riese et al., 2014). However, it should be acknowledged that we are not focusing on the potential directional effect of perceived ostracism on possible personality change in the present study.

1.2. The present study

The aim of the present exploratory study was to examine if different personality profiles could meaningfully discriminate levels of self-reported perceived ostracism. To achieve this aim, the current study focused on a latent class analysis (LCA) approach to identify potential sub-groups (classes) of the big five personality traits (Soto & John, 2017) within a sample and explore how these are associated with perceived ostracism. LCA is advantageous compared to competing analytic methods when examining multidimensional constructs like personality traits and observing their effects on an outcome variable such as perceived ostracism (see Lanza & Rhoades, 2013). Further, discrete patterns of responses are assumed to be *more meaningful* than aggregated response scores to specific variables, especially when investigating higher-order relationships. Put another way, a strength of the LCA approach for the present study is that it is a more person-centered statistical method that can help identify subgroups of individuals who share common personality characteristics (Djelantik et al., 2017). The five personality dimensions measured are as follows (Soto & John, 2017): *open-mindedness* (referring to a tendency to be curious and sensitive), *conscientiousness* (referring to a tendency to be persistent, organized, and achievement-oriented), *extraversion* (referring to a tendency to be social and active), *agreeableness* (referring to a tendency to be trustful, sympathetic, and cooperative), and *negative emotionality* (referring to a tendency to experience negative affect). Moreover, the LCA examined these classes concerning levels of perceived ostracism.

We focus on *perceived* ostracism as opposed to *actual* ostracism over the longer-term (i.e., over a six-month timeframe), given that when a person is objectively ignored, they may not interpret the event as being ostracism and vice versa. To the best of our knowledge, the present study is the first to explore classes or subgroups of personality and how these are associated with the perception of ostracism. As Riva et al. (2014) suggested negative emotionality as a key antecedent of perceived ostracism, we predicted that the classes observed would be differentiated based on high (vs) low levels of this trait. Moreover, as Buecker et al. (2020) found negative emotionality and extraversion to be strong predictors of a related concept - loneliness - we expected extraversion also to be a key distinguishing factor in forming the latent classes. Finally, as low levels of agreeableness (i.e., disagreeable people) are likely to be the targets of ostracism (e.g., Rudert, Keller, et al., 2020), we expected that classes comprising high negative emotionality, low agreeableness, and low extraversion would be associated with greater perceptions of ostracism (with the reverse of these traits predicting reduced perceptions of ostracism).

2. Method

2.1. Participants

Three hundred and ninety-five internet users¹ (291 female) were recruited using an online survey distributed through emails to Universities within the UK, websites, social media platforms, and Internet data collection sites designed for academic researchers (e.g., <http://www.findparticipants.com>). Most participants were obtained from online research platforms (35.7 %) or academic institutions (29.4 %). The participants ranged between 18 and 71 years of age ($M = 31.7$; $SD = 13$). Most participants were either of British (31.6 %) or American (41.5 %) nationality. Furthermore, 81 % of the sample identified themselves as being of white ethnic background. Participants were required to read an information sheet and then consent to the study. They were then presented with the survey measures and read the debrief sheet. Before data collection began, the study gained approval from the Institutional Research Ethics committee.

2.2. Materials

2.2.1. Predictor variables

2.2.1.1. Personality. The Big Five Inventory-2 (BFI-II) measured individual differences in personality domains (Soto & John, 2017). The BFI-II is purported to have a more robust hierarchical structure, minimizes the influence of biased responding, and provides greater psychometric properties than the original BFI-I (Soto & John, 2017). The BFI-II consists of five personality dimensions: open-mindedness, conscientiousness, extraversion, agreeableness, and negative emotionality. The BFI-II is a 60-item measure where participants respond to items using a 5-point Likert scale from 1 (disagree strongly) to 5 (agree strongly). Internal reliability ranged from good to excellent; open-mindedness ($\alpha = 0.83$), conscientiousness ($\alpha = 0.88$), extraversion ($\alpha = 0.86$), agreeableness ($\alpha = 0.80$), and negative emotionality ($\alpha = 0.90$).

2.2.2. Outcome variable

2.2.2.1. Perceived ostracism. This study used the 10-item Workplace Ostracism Scale (WOS; Ferris et al., 2008) to measure perceived ostracism over the last six months. We used a modified version of the WOS to assess the frequency of perceived ostracism in any context rather than being restricted to a specific context (i.e., within the workplace). As ostracism is a ubiquitous phenomenon and can occur in several contexts and situations (Nezlek et al., 2012), it was essential to broaden the range of perceived ostracism experienced by participants. Previous research has shown that the WOS has good reliability and construct validity (Ferris et al., 2008). Participants responded using a 7-point Likert scale from 1 = "never" to 7 = "always" ($\alpha = 0.93$). Sample items include "others ignored you" and "others avoided you". Higher scores indicate greater levels of perceived ostracism.

2.3. Procedure

2.3.1. Analytic strategy

Subpopulations within the data were identified using a Latent Class Analysis (LCA) (for an overview, see Hagenaars & McCutcheon, 2002) approach and results were reported using the guide as set down in Schreiber (2017). In this case, classes were identified based on their responses to the Big 5 personality inventory II (Soto & John, 2017). Using MPlus numerous class solutions were extracted and tested for fit.

¹ According to Nylund-Gibson and Choi (2018), sample sizes above 300 are recommended for sufficient statistical power and adequate fit for a latent class analysis.

The most appropriate class solution was identified using a combination of fit statistics, with consideration also given to interpretability and parsimony. The battery of fit statistics examined included the "Bayesian Information Criteria" (BIC), which is a method of comparing competing models with the value closest to zero representing the most appropriate solution, Entropy which measures class distinction, with "values approaching 1 indicate clear delineation of classes" (Celeux & Soromenho, 1996), and the Lo Mundel Ruben which directly compares class solutions with one class lower than the tested class.

Once an appropriate class solution was extracted, a one-way ANOVA was conducted to analyse differences between the classes in relation to ostracism. This part of the analysis was conducted using SPSS. Bonferroni post hoc tests were planned to investigate where and to what extent any significant differences emerged across classes.²

3. Results

3.1. Identification of appropriate profiles

Table 1 details the fit statistics which were calculated for the various class solutions, with 2, 3, 4 and 5 class solutions tested, labelled C2-C5. No more class solutions were tested as the LMR returned non-significant results after the 3-class solution; thus, it was unlikely that another class would be necessary. Class proportions were given the label K and showed that a clear reference class was evident in most classes, with numerous smaller classes identified. AIC, BIC, and SSBIC values returned the lowest value at class 5; however, BIC and SSBIC returned their lowest results at 3- and 4-classes, respectively, effectively ruling out a 5-class solution as the most appropriate. Entropy figures also suggested that a 3-class solution extracted more distinctive classes than a four-class solution. Based on the figures extracted, it was evident that a 3-class solution was a more appropriate and parsimonious solution to the data than other competing class solutions.

While a statistical basis for the selection of a 3-class solution was explained above, it is also important to consider the theoretical basis for a class solution. Fig. 1 provides a graphical representation of the 3-class solution.

The three-class solution suggested that there was little difference between two of the classes in relation to agreeableness and openness but that otherwise, the classes could be conceptualised as a reference class of average/moderate levels of the traits (MT), which comprised the largest proportion of the sample ($N = 44.3$ %), with a second slightly smaller class ($N = 36.2$ %), and a final smaller class ($N = 19.5$ %). The smaller classes represent deviations from the MT class, with one reporting higher scores on Extraversion, Agreeableness, Conscientiousness, and Openness, with lower scores being reported in relation to Negative Emotionality, which we termed 'The Active and Adaptable Thinkers' (AAT) class. The remaining class reported lower scores on Extraversion and Conscientiousness, with higher scores in relation to Negative Emotionality, which we termed 'The Quiet Over-Reacting Procrastinators (QORP)' class. The 4-class solution³ contained a similar class structure to the 3-class, with the inclusion of an extra class that displayed similar characteristics to the MT class, albeit scoring slightly lower on all dimensions except conscientiousness, which was marginally higher.

² A Harmon one-factor test revealed that 16.3 % of the variance in the dataset was accounted for by one factor. This is substantially lower than the recommended 50 % threshold for common method variance to be a major validity concern (Podsakoff et al., 2003)

³ The addition of the extra class for the 4-class solution was viewed to add little extra utility to the model and as a result, the qualitative investigation of the theoretical and interpretable qualities of the two models. See Supplementary data for a visual depiction of the 4-class solution.

Table 1
Fit statistics for the various class solutions identified in the sample.

	AIC	BIC	SSBIC	LMRp	BLRTp	Entropy	N (%)
C2	13,990.860	14,054.523	14,003.755	<0.001	<0.001	0.699	
C2 _{K1}							126 (31.9)
C2 _{K2}							269 (68.1)
C3	13,960.842	14,048.377	13,978.571	0.025	<0.001	0.671	
C3 _{K1}							175 (44.3)
C3 _{K2}							143 (36.2)
C3 _{K3}							77 (19.5)
C4	13,948.539	14,059.948	13,971.104	0.613	<0.001	0.640	
C4 _{K1}							97 (24.56)
C4 _{K2}							73 (18.48)
C4 _{K3}							149 (37.72)
C4 _{K4}							76 (16.24)
C5	13,930.616	14,065.898	13,958.016	0.401	<0.001	0.692	
C5 _{K1}							101 (25.57)
C5 _{K2}							30 (7.60)
C5 _{K3}							56 (14.18)
C5 _{K4}							114 (28.86)
C5 _{K5}							94 (23.80)

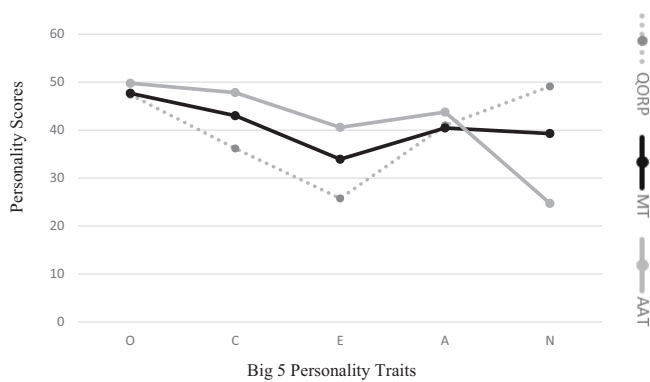


Fig. 1. Profiles of latent class membership based on ostracism scores.

3.2. Relationship between personality profiles and ostracism

After the 3-class solution was viewed as the most appropriate solution for the data, participants' class membership was extracted, and a one-way ANOVA conducted. The results revealed a significant main effect of class membership on perceived ostracism [F (2,392) = 18.047; $p < .001$; $\eta^2 = 0.08$].

Post-hoc tests identified that the largest difference in magnitude and significance was between QORP ($M = 26.58$; $SD = 11.34$) and AAT ($M = 17.70$; $SD = 7.28$); $p < .001$, $d = 0.95$. Therefore, individuals in QORP reported significantly higher levels of perceived ostracism compared to those in the AAT class. Further, the Moderate Traits class ($M = 22.59$; $SD = 11.08$) had significantly lower levels of perceived ostracism compared to the QORP class; $p = .003$, $d = 0.35$, and significantly higher levels of perceived ostracism compared to the AAT; $p = .002$, $d = 0.53$.⁴

4. Discussion

In the present study, we sought to identify classes (profiles) of personality traits that could reliably discriminate levels of self-reported perceived ostracism. Three distinct classes emerged from the LCA.

⁴ We ran a direct-entry multiple regression analysis to explore how the big-five personality dimensions predicted perceived ostracism. As seen in the supplementary file, we noticed no discernible differences in the results compared to our LCA findings. However, given that multiple regression can be unreliable (e.g., McElreath, 2020) and the LCA approach is preferred (as stated earlier), we only present our LCA as our main analysis for this paper.

First, the *Quiet Over-Reacting Procrastinators* (QORP) comprised individuals who were high in negative emotionality (NE), low in extraversion, and low in conscientiousness. Those in the QORP class reported significantly higher levels of perceived ostracism compared to the other two classes. Second, the *Active and Adaptable Thinkers* (AAT) class comprised individuals who were low in negative emotionality but high in the other big-five traits (i.e., open-mindedness, conscientiousness, extraversion, agreeableness). Those in the AAT group had significantly lower perceived ostracism levels than the other two classes.

The detection of these classes partially supports our hypothesis as it shows that negative emotionality discriminated levels of perceived ostracism. Such findings are consistent with prior theory (e.g., Riva et al., 2014), which suggests that high levels of negative emotionality may be a key antecedent of longer-term ostracism. Moreover, the findings are partially consistent with research suggesting that negative emotionality and extraversion are the strongest 'big five' predictors of related longer-term outcomes such as loneliness (Buecker et al., 2020). However, due to similarities in agreeableness within extracted classes, we could not support past research suggesting that this factor is a key predictor of social exclusion (Rudert, Keller, et al., 2020). Indeed, Rudert, Keller, et al. (2020) focused on intentions to ostracize and the observable ostracism of others. We argue, however, that the perception of being ostracized is also relevant given that, for example, a disagreeable person may be more likely to be rejected by others, but still not perceive such events as meaningful.

Our study has some limitations that should be acknowledged. First, we adopted a cross-sectional correlation design, with all data collected simultaneously. As such, we cannot establish cause-and-effect relationships. Indeed, an alternative explanation of our findings could be that self-reported personality had *changed* as a result of recent significant events of ostracism that occurred in the last six months (see Luhmann et al., 2014). Therefore, future researchers may consider further investigating the bidirectionality of personality and perceived ostracism by adopting longitudinal designs. Second, we have focused exclusively on the big-five personality traits. Future researchers may also consider examining alternative dimensional representations of personality (e.g., HEXACO [Ashton & Lee, 2007], the dark tetrad [Paulhus et al., 2020]) to explore how profiles associated with those models predict perceived ostracism. Importantly, there are other potential factors that are likely to influence sensitivity to perceive ostracism which were not measured in the present investigation, such as: attachment history (e.g., Yaakobi, 2022; Yaakobi & Williams, 2016), rejection sensitivity (e.g., Gao et al., 2021), self-control (Stavrova et al., 2022), social anxiety (e.g., Oaten et al., 2008), and depression (Rudert et al., 2021). We recommend future researchers account for such factors in identifying predictors or classes of those who experience and perceive ostracism in the longer term.

Third, our findings only partially relate to one stage of the TNTM (i. e., the so-called *resignation stage*; Williams, 2009). Our measurement of perceived ostracism was only within a six-month timeframe, so it may not capture chronic ostracism experienced over much more extended periods (e.g., years, decades; Waldeck et al., 2015). However, some researchers have observed that major life events (e.g., ostracism by a spouse) has more of an effect on changes in personality (e.g., neuroticism) when more recent (e.g. within the last 6 months) as opposed to when more distant (e.g., beyond 6 months; Riese et al., 2014). As such, a 6-month timeframe may be appropriate within the context of this study. Finally, although we have identified latent class profiles that relate to differences in perceived ostracism, our study does not provide information regarding the outcome of those perceptions (e.g., psychological distress, alienation, depression). We recommend future researchers consider potential path analytic models whereby the personality profiles can predict the perception of ostracism (and vice versa) but also capture the impact of distress and other possible moderating or mediating influences. Such investigations may also partially support a recent call in the empirical literature to explore perceived ostracism as a key vulnerability factor in the development of negative outcomes, such as radicalism (e.g., Pfundmair et al., 2022). Indeed, gaining more insight into *who* (profiles of individuals) is more likely to perceive ostracism, and how personality may *change* as a result of such experiences, may allow for more targeted identification of those at risk of other future adverse psychological outcomes.

4.1. Conclusions

In summary, the present study extended previous literature as it provides the first LCA in relation to profiles of personality traits that can discriminate the perception of ostracism over the longer-term. Indeed, we observed that some people (e.g., high in negative emotionality, low in extraversion) report higher levels of perceived ostracism compared to others. We hope the current study stimulates more research on the factors that sensitize people to perceive ostracism and how personality may change as a result of such experiences.

CRediT authorship contribution statement

All authors contributed to the conceptualization and design of the study, data interpretation, and manuscript write-up. Data collection and statistical analyses were led by Daniel Waldeck and Chris Smyth.

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Declaration of competing interest

All authors have no conflict of interest to declare.

Data availability

Data files in Supplementary Materials.

Appendix A. Supplementary direct entry regression analysis

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2023.112325>.

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