



Peer-reported personality problems of research nonparticipants: Are our samples biased?

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Abstract

Peer nominations of pathological personality traits were collected on 1442 freshmen participating in a study regarding personality and 283 students who initially provided consent to participate but failed to show up for the assessment. Ten peer-based personality disorder scales and eight IIP-64 scales were entered into two separate multiple logistic regression procedures to predict the probability of nonparticipation. There was a significantly higher probability of participation if peers nominated someone as having more histrionic, obsessive–compulsive, self-sacrificing, and intrusive/needy characteristics. Students were significantly less likely to participate if peers nominated them as being higher on narcissism or non-assertiveness. Results suggest it may be more difficult to obtain sufficient numbers of people high in narcissistic traits than individuals with other personality traits. Researchers may need to employ novel strategies to recruit individuals with narcissistic traits for experimental studies.

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1. Introduction

The willingness of participants to volunteer for and to complete research studies is of the utmost importance to psychological research. Despite the significance of this issue, investigators routinely struggle to recruit participants (Romans-Clarkson, Walton, Herbison, & Mullen, 1988). Participant cancellations and attrition often result in a loss of valuable data and can cost researchers a great deal of time and money. An investigation of participation rates in an undergraduate subject pool found that 24% of students did not attend the experiments for which they were scheduled (Butler, 1999). While some amount of nonparticipation is to be expected, levels such as this raise the question of whether there are systematic differences between those who do and do not take part in empirical research. If so, investigators must consider the possibility that the refusal of individuals to participate introduces sampling bias and skews the obtained results.

Beyond reasons such as forgetfulness and illness, why individuals fail to participate in studies is a complex and difficult question to answer. Investigators have examined the relationship between personality traits and participation as one possibility. These studies have found that those who volunteer tend to be less authoritarian, less conforming and anxious, less likely to use pathological defensive styles, and better adjusted overall (Macdonald, 1972; Waite, Claffey, & Hillbrand, 1998). Another research group found that student participants were higher in social conformity than nonparticipants (Norton, Booth, & Webster, 1976). The results of an in-class survey exercise, however, found no differences between those who did and did not participate in a subsequent research project on such factors as needs for achievement and affiliation (Coye, 1985). Thus, some personality traits appear related to whether individuals volunteer for research projects.

As some nonpathological personality traits are related to participation, it seems reasonable to investigate whether maladaptive personality traits show a similar relationship. An association between pathological personality features and volunteering could have serious implications for the representativeness of samples in personality research. The limited results available to address the potential association between pathological traits and participation are mixed and largely come from older research. Rosenthal and Rosnow (1975) reviewed 34 studies concerning the relationship between volunteering and psychopathology and found inconclusive results. Seventy-one percent of the reviewed studies reported significant differences between those who did and did not volunteer; however, nine (26%) studies showed volunteers to be better adjusted than nonvolunteers and 15 (44%) showed volunteers to have poorer adjustment.

More recent studies have also produced contradictory results. Two independent groups compiled psychiatric information from medical charts and found no differences between those individuals who went on to volunteer for a study versus those who did not (Kokes, Fremouw, & Strauss, 1977; Romans-Clarkson et al., 1988). On the other hand, undergraduates with self-reported paranoid personality traits showed significant differences in participation from non-paranoid controls: while 38% of the control group had participated in previous studies, none of the undergraduates with paranoid features had participated. When asked if they would participate in future projects, 100% of the control group agreed while only 29% of the paranoid group agreed (Turkat & Banks, 1987).

Despite these inconclusive findings, the possible presence of systematic differences in levels of psychopathology between those who do and do not participate has not been adequately addressed. The dearth of recent research has likely been due to assessment difficulties, as it is challenging to gather data about nonparticipants. Research on the characteristics of nonparticipants

has also been limited by an ethical dilemma: researchers typically cannot collect data on the traits of people who have not provided consent or who have expressly refused to participate. Some investigators have partially overcome these difficulties in novel ways, however, with the use of medical charts and school records (e.g., Kokes et al., 1977; Norton et al., 1976; Romans-Clarkson et al., 1988). Other researchers have devoted class-time to administering psychological inventories and then compared the characteristics of students who went on to volunteer for research with those who did not (e.g., Coye, 1985).

The current study attempted to address the question of over- and under-sampling of psychopathology in personality research samples in a unique way. We made use of peer-reported personality traits in a large sample of undergraduates to assess whether those who chose not to participate differed significantly from those who participated. Although peer-reports of personality pathology have limitations, previous research has shown that peer nominations of personality disorder (PD) traits can provide more accurate predictions about future behavior than self-reports of the same traits. For instance, in a sample of military recruits, higher peer-reports of antisocial PD predicted involuntary discharges due to discipline problems better than the analogous self-reports (Fiedler, Oltmanns, & Turkheimer, 2004). Peer-reports of PD traits may be preferable in many respects to self-report data given that people with PDs may have poor insight into their own pathology (Grove & Tellegen, 1991; Widiger & Frances, 1987; Zimmerman, 1994). The present research project does not suffer from the potential ethical dilemmas of studying those who have refused to participate because even nonparticipants provided informed consent.

2. Methods

2.1. *Participants and procedures*

Researchers held informative recruitment meetings about the study design on each freshman dormitory floor. Informed consent was obtained from interested students. We required at least 80% of the individuals on a dormitory floor to participate. Approximately two weeks after obtaining informed consent, dormitory groups who had been living together for five to seven months were screened in a nearby computer lab for personality pathology. Using a round robin design, participants nominated those on their dorm floor who exhibited pathological personality traits as well as provided self-report ratings of the same traits. Additional details about the study and our assessment procedures have been reported elsewhere (Clifton, Turkheimer, & Oltmanns, 2004; Oltmanns & Turkheimer, 2006; Thomas, Turkheimer, & Oltmanns, 2003). Of the 2041 undergraduate students (33% male, 79% Caucasian, 9% African American, 6% Asian, and 6% “other”) providing informed consent, 350 students (referred to as “no shows”) chose not to participate for unknown reasons when the screening procedure was administered. As a result, peer-reports of PD traits, but not self-reports, were available for the no shows.

2.2. *Measures*

Multi-Source Assessment of Personality Pathology (MAPP). The MAPP consists of 105 items, 81 of which are lay translations of the 10 *DSM-IV* PD criteria. It includes both peer-report and

self-report versions of identical items presented to participants in a quasi-random order. Only peer nominations were used in the present analyses. For each item, participants were shown a list of all members of their group and were required to nominate at least one individual who exhibited the characteristic in question. Participants assigned each nominee a score (1, 2, or 3), indicating how often the nominee displayed the characteristic. Dimensional peer-report scales, based on the *DSM-IV* criteria sets, were calculated by summing the total number of peer nominations received for the items in each PD scale, weighted by the score assigned by each nominator (i.e., 1, 2, or 3). These scores were then divided by the total number of possible nominators in the group. More detailed information regarding the procedure and psychometric properties of the MAPP are described elsewhere (Oltmanns & Turkheimer, 2006; Thomas et al., 2003).

Inventory of Interpersonal Problems (IIP; Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988). The IIP is a widely used measure of interpersonal difficulties that also captures most of the features found in the *DSM-IV-TR* PDs (Alden & Capreol, 1993; Horowitz, Alden, Wiggins, & Pincus, 2000; Pincus & Wiggins, 1990). Participants completed self- and peer-report versions of a modified form of the IIP comprising 93 of the original 127 items. These items were selected to keep the battery as short as possible while including all of the overlapping and non-overlapping items of two subscales: the IIP-64 (Horowitz et al., 2000) and the IIP-Personality Disorder (IIP-PD; Pilkonis, Kim, Proietti, & Barkham, 1996). The present study utilized peer-report data from the IIP-64 administered to first-year students participating in the third and fourth years of data collection (991 participants, 279 no shows). The IIP-64 is a 64 item version based on Wiggins' (1979) interpersonal circumplex and contains eight subscales: (1) Domineering/Controlling; (2) Vindictive/Self-Centered; (3) Cold/Distant; (4) Socially Inhibited; (5) Non-assertive; (6) Overly Accommodating; (7) Self-Sacrificing; (8) Intrusive/Needy. All of the peer-rated IIP-64 items were measured using a 5-point scale, ranging from 0 ("not at all") to 4 ("extremely").

2.3. Statistical analyses

Those students providing informed consent were classified as those who chose to participate ('0' on the dichotomous variable "no show") and those who chose not to participate ('1' on the dichotomous variable "no show"). Dimensional peer nomination scores for the 10 *DSM-IV* PDs were submitted into a multivariate logistic regression to predict nonparticipation (i.e., no show = 1). Results for univariate analyses were not reported here because we were interested in the specific influences of each PD variable after the variance shared by all PDs was removed. The logistic regression procedure (PROC LOGISTIC; SAS, 2002–2003) excludes all data for participants where some data are missing. Thus, data for a further 316 participants were excluded from these analyses because of partially missing data, leaving data for 1442 participants and 283 no shows. Next, the eight IIP-64 scales were submitted into a multivariate logistic regression to also predict nonparticipation. Complete IIP-64 data was available for logistic regression for 940 participants and 246 no shows recruited in the third and fourth year of this study. The MAPP peer nomination scores and IIP-64 peer scores were highly skewed, so they were first log transformed to improve normality.

3. Results

3.1. Descriptive statistics

Transformed MAPP and IIP-64 peer scores split for those who did and did not participate are presented in Table 1. Those who participated had significantly higher scores on all 10 peer-reported PD scales and on four of the eight IIP-64 scales: non-assertive, overly accommodating, self-sacrificing, and intrusive/needy. In addition to the unique influence of each of these MAPP PD and IIP scores on participation, these personality variables also included common variance attributable to general personality pathology and/or other factors such as nominator-nominee familiarity. In this study, we were primarily interested in the impact of those characteristics unique to each PD or trait not those factors common across personality styles. Table 2 provides the correlations between peer-reported MAPP PD scales and IIP-64 scales. The domineering/controlling, vindictive/self-centered, cold/distant, socially inhibited, and the intrusive/needy scales from the IIP-64 correlated highly ($r = .60$ or above) with at least one of the PD scales from the MAPP. The non-assertive, overly accommodating, and self-sacrificing IIP-64 subscales correlated moderately with avoidant and dependent PDs.

Table 1
Mean (SD) MAPP and IIP-64 peer scores for those who did and did not participate

	Mean	SD	Mean	SD
	Participants ($n = 1442$)		No shows ($n = 283$)	
<i>MAPP peer scores</i>				
Paranoid**	6.22	10.53	3.32	6.90
Schizoid**	10.29	18.04	6.51	13.59
Schizotypal**	11.02	19.88	6.18	14.44
Antisocial**	7.06	14.25	4.54	11.59
Borderline**	9.41	16.74	5.46	13.04
Histrionic**	10.51	18.12	5.45	13.49
Narcissistic**	13.85	25.91	8.07	21.52
Avoidant**	8.38	14.16	4.42	10.25
Dependent**	8.20	13.80	3.95	9.11
Obsessive Compulsive**	9.53	13.87	4.71	8.44
	Participants ($n = 940$)		No shows ($n = 246$)	
<i>IIP-64 peer scores^a</i>				
Domineering/controlling	0.23	0.23	0.25	0.26
Vindictive/self-centered	0.27	0.23	0.30	0.26
Cold/distant	0.29	0.22	0.32	0.27
Socially inhibited	0.35	0.31	0.36	0.35
Non-assertive*	0.44	0.30	0.38	0.32
Overly accommodating**	0.38	0.25	0.29	0.21
Self-sacrificing**	0.28	0.19	0.20	0.16
Intrusive/needy**	0.28	0.26	0.22	0.23

Note: SD = standard deviation.

Asterisks denote significant mean differences across groups at * $p < 0.01$; ** $p < 0.001$.

^a The IIP-64 was added to the assessment protocol in the third and fourth years of data collection.

Table 2
Correlations among peer-reported MAPP PD scales and IIP-64 scales

Variable	Domine	Vindic	Cold	SocInh	Non-Ass	Accomo	Sacrif	Intrus
Paranoid	0.58	0.65	0.48	0.20	0.00	−0.01	0.00	0.41
Schizoid	0.29	0.38	0.60	0.60	0.20	0.05	−0.07	−0.12
Schizotypal	0.44	0.55	0.62	0.52	0.20	0.12	0.04	0.22
Antisocial	0.64	0.60	0.36	−0.11	−0.29	−0.21	−0.13	0.56
Borderline	0.56	0.62	0.45	0.12	−0.02	0.03	0.07	0.55
Histrionic	0.53	0.50	0.27	−0.09	−0.09	0.07	0.17	0.71
Narcissistic	0.68	0.66	0.38	−0.09	−0.28	−0.20	−0.10	0.57
Avoidant	0.12	0.27	0.39	0.54	0.48	0.46	0.33	0.13
Dependent	0.26	0.31	0.20	0.11	0.21	0.33	0.34	0.51
Obs Comp	0.41	0.33	0.30	0.21	0.13	0.18	0.22	0.20

Note: $n = 1186$; IIP-64 abbreviations: Domine = Domineering; Vindic = Vindictive; SocInh = Socially inhibited; Non-Ass = Non-assertive; Accomo = Overly accommodating; Sacrif = Self-sacrificing; Intrus = Intrusive/needy; MAPP abbreviation: Obs Comp = Obsessive compulsive PD; Correlations of 0.06 or larger are significant at the $p < 0.05$ level; Correlations above 0.11 are significant at the $p < 0.0001$ level.

3.2. Multivariate Logistic Regressions

Multivariate logistic regression model fitting results predicting nonparticipation from peer-rated MAPP PD scores are presented in Table 3. The overall model was significant ($\chi^2 = 83.61$, $df = 10$, pseudo $R^2 = 0.08$, $p < 0.0001$), predicting 66.7% of the responses correctly. Modeling results indicated that the probability of nonparticipation significantly decreased (or probability of participation increased) as peer-rated histrionic and obsessive-compulsive PD scores increased.

Table 3
Logistic regression results predicting nonparticipation from peer-rated MAPP PD scales

Variable	Coefficient	Wald χ^2
Paranoid	−0.12	1.19
Schizoid	0.20*	2.70
Schizotypal	0.13	0.85
Antisocial	0.09	0.72
Borderline	0.00	0.00
Histrionic	−0.29**	5.33
Narcissistic	0.28**	7.46
Avoidant	−0.12	1.14
Dependent	−0.09	0.80
Obs Comp	−0.43**	20.01
Model χ^2 (df)	83.61 [10]	
% Concordance	66.7%	
Pseudo R^2	0.08	

Note: Complete data was available for 1442 participants and 283 no shows; The Wald statistics are distributed chi-square with one degree of freedom.

* Indicates marginal significance at $p = 0.10$ level.

** Indicates significance at the $p < 0.05$ level.

The probability of nonparticipation significantly increased (or probability of participation decreased) as the peer nominated narcissism scores increased and marginally increased as peer-rated schizoid scores increased. The coefficients for the narcissism and schizoid variables were in the opposite direction from what we would expect from analyzing the means in Table 1. This reversal of direction was due to a suppression effect. The common variance in personality pathology was statistically removed in the logistic regression modeling procedure leaving only the unique variance of each PD variable predicting model deviations in the probability of nonparticipation. The unique variance that can be attributed to these two PDs suggested that the probability of nonparticipation increased when these peer-reported traits were present.

Table 4 reports the results for the multiple logistic model predicting nonparticipation from the IIP-64 scales. The overall model was significant ($\chi^2 = 53.25$, $df = 8$, pseudo $R^2 = 0.07$, $p < 0.0001$), predicting 64.6% of the responses correctly. The modeling results indicated that the probability of nonparticipation significantly decreased (or probability of participation increased) as the peer-reported socially inhibited, self-sacrificing, and intrusive/needy scores increased and marginally decreased as the overly accommodating scores increased. The probability of nonparticipation significantly increased (or probability of participation decreased) as the peer-reported non-assertive scores increased.

Table 5 presents the odds ratios (OR) and 95% confidence intervals (CI) derived from the separate logistic models predicting the probability of nonparticipation from the MAPP PD scores and the eight IIP-64 scales. CIs indicated that three of the ORs for the PD scales deviated significantly from one (an odds ratio of one is indicative of a chance probability of 0.50). The OR for the histrionic coefficient was 0.75 (0.58–0.96), signifying that for every one unit increase in peer nominated histrionic traits, the odds of not participating should be multiplied by 0.75, which reflects a greater likelihood of participation. For every one unit increase in peer-reported narcissism, the odds of not participating should be multiplied by 1.33 (1.08–1.63). The OR for the obsessive-compulsive coefficient suggested that for every one unit increase in this trait, the odds of nonparticipation should be

Table 4
Logistic regression results predicting nonparticipation from peer-rated IIP-64 scales

Variable	Coefficient	Wald χ^2
Domineering	0.08	0.28
Vindictive	0.32	2.54
Cold	−0.02	0.01
Socially inhibited	−0.31**	3.72
Non-assertive	0.46**	5.82
Overly accommodating	−0.38*	3.15
Self-sacrificing	−0.40**	5.98
Intrusive/needy	−0.29**	6.05
Model χ^2 (df)	53.25 [8]	
% Concordance	64.6%	
Pseudo R^2	0.07	

Note: Complete data was available for 940 participants and 246 no shows.

* Indicates marginal significance at the $p < 0.10$ level.

** Indicates significance at the $p < 0.05$ level.

Table 5
Odds ratios (and 95% Confidence Intervals)^a

Variable	Odds ratio (95% CI)
<i>MAPP PD Scales</i>	
Paranoid	0.88 (0.71–1.11)
Schizoid	1.22 (0.96–1.55)
Schizotypal	1.14 (0.87–1.49)
Antisocial	1.09 (0.89–1.33)
Borderline	1.01 (0.76–1.33)
Histrionic	0.75 (0.58–0.96)**
Narcissistic	1.33 (1.08–1.63)**
Avoidant	0.89 (0.72–1.10)
Dependent	0.91 (0.74–1.12)
Obs Comp	0.65 (0.54–0.79)**
<i>IIP-64 Scales</i>	
Domineering	1.08 (0.81–1.43)
Vindictive	1.38 (0.93–2.05)
Cold	0.98 (0.68–1.42)
Socially inhibited	0.73 (0.54–1.01)
Non-assertive	1.58 (1.09–2.29)**
Overly accommodating	0.69 (0.45–1.04)
Self-sacrificing	0.67 (0.49–0.92)**
Intrusive/needy	0.75 (0.60–0.94)**

^a The ten MAPP PD scales were entered into a separate logistic regression model than the eight IIP-64 scales.

** Indicates significance at the $p < 0.05$ level.

multiplied by 0.65 (0.54–0.79). The CIs from the model predicting participation from the eight IIP-64 scales suggested that three of the ORs were significant. The OR for the non-assertive coefficient was 1.58 (1.09–2.29), suggesting that those who are nominated by their peers as less assertive are over 1 1/2 times more likely to *not* show up. For every one point increase in the self-sacrificing variable, the OR should be multiplied by 0.67 (0.49–0.92). The odds of nonparticipation should be multiplied by 0.75 (0.60–0.94) each time the intrusive/needy coefficient increased by one unit.

4. Discussion

The goal of this study was to determine whether significant differences exist between individuals who participate in studies of personality and those who do not. While previous research has demonstrated that certain nonpathological personality traits are related to participation (Aviv, Zelenski, Rallo, & Larsen, 2002; Macdonald, 1972; Waite et al., 1998), it has been unclear if maladaptive personality traits have a similar relationship to experimental participation. The median prevalence rate of PDs in the population was estimated at nearly 13% when averaged across six major epidemiological studies (Mattia & Zimmerman, 2001). If an association between volunteering and PDs also exists in the general population, then such a relationship could have important implications for PD prevalence rates and may suggest the presence of bias in all but the most carefully recruited samples.

People who participated in our personality assessment study were higher on all ten peer-reported PDs when compared to those who did not participate. This is most likely due to how well the participants were known by their peers. Recent studies utilizing the same peer nomination design have found that individuals who were better known were more likely to be nominated by their peers for any trait (Gleason, Oltmanns, & Turkheimer, 2005; Pagan, Oltmanns, & Turkheimer, 2004). Familiarity (how readily a peer's name comes to mind after seeing a PD item) would logically influence the amount of nominations someone received in this assessment procedure. By simultaneously submitting all ten PD scales into the multivariate logistic regression model (and, in a separate model, all eight IIP scales), the shared variance attributed to familiarity and other systematic variables influencing the likelihood of being nominated for any PD was removed. What remained were the unique influences of each PD on the probability of participation.

Using this approach, we supported the hypothesis that individuals with certain peer-reported forms of personality pathology show different probabilities of participation than those without peer-reported pathology. Individuals who received higher peer nominations of narcissistic PD traits were less likely to participate. These individuals may think they are too important to commit their time to research, or perhaps they intended to participate but another opportunity presented itself that was likely to provide more attention from others. The presence of two other types of PD traits predicted participation in the opposite direction. Higher peer-reports of obsessive-compulsive and histrionic PD criteria indicated that individuals were more likely to participate. The relationship between obsessive-compulsive traits and participation was expected because people with these traits are likely to be more organized, conscientious, perfectionistic, and more likely to feel guilty when they fail to fulfill an obligation. People with histrionic traits may be more likely to participate because they saw it as an opportunity to garner more attention or perhaps because people with histrionic PD tend to be easily suggestible and influenced by others (American Psychiatric Association, 2000).

Several IIP personality traits were also predictive of participation. This was not surprising given that these IIP scales closely relate to the *DSM-IV* PD traits (Alden & Capreol, 1993; Horowitz et al., 2000; Pincus & Wiggins, 1990). Individuals who did not participate showed lower levels of peer-reported self-sacrificing and intrusiveness-neediness traits as well as higher levels of non-assertiveness traits. The finding that individuals who make fewer personal sacrifices also participated less makes logical sense. The relationships between participation and intrusiveness-neediness and non-assertiveness are less clear, however. It is possible that individuals are rated by their peers as less intrusive-needy and more non-assertive because they rarely interact with their dorm-mates. If so, their peers may be interpreting social withdrawal as self-reliance and passivity, respectively.

4.1. Limitations

The results of this study should be considered in light of several limitations. The first is that the data utilized here were peer-reports. While this experimental design overcame both ethical and methodological issues present in previous research, we have found that the peer-report data used here correlates modestly with self-reports of the same traits (Oltmanns & Turkheimer, 2006). Thus, it is likely that the individuals who did not participate would describe themselves somewhat differently, but not necessarily more accurately, than their peers described them (Clifton et al.,

2004). For example, those who were rated high on paranoid PD traits described themselves as hostile and angry (but not suspicious or hyper-vigilant). Previous research supports the notion that individuals with certain PD features often have poor insight into their own personality traits, which may result in biased self-reports (Widiger & Frances, 1987).

The present study did not replicate Turkat and Banks' (1987) finding that students who self-reported paranoid personality traits were less likely to participate in a psychological study. Most likely, students high on paranoid features who were asked to participate refused to provide consent in the initial phase of this study. If so, these individuals would not have been included in the assessment procedure and, therefore, not reported on by their peers. This study was unable to assess whether those who refused to initially consent to be in the study did in fact have paranoid PD traits or were otherwise different than those who gave consent. This same limitation may have influenced whether or not those with high levels of schizoid, antisocial, or avoidant traits initially provided consent to be in the study. We are unsure how researchers might best address this potential limitation with nonclinical groups.

4.2. *Implications and Directions*

Results presented here have important implications for the assessment of personality pathology. There was a significantly higher probability that students would participate if their peers reported them as having more histrionic, obsessive-compulsive, self-sacrificing, and intrusive/needy characteristics. Students were less likely to participate if their peers nominated them as being higher on narcissistic, schizoid (marginally significant), or non-assertive characteristics. These results further support the contention that both normal and pathological personality traits are important predictors of participation. Our findings suggest that it may be somewhat difficult to recruit people who have narcissistic, schizoid, and non-assertive characteristics for research, and, thus, they may be underrepresented in existing personality pathology research. Careful and more extensive sampling procedures with particular focus on these traits may be necessary in studies of personality pathology to obtain a representative sample with sufficient power for analyses of these traits. Further research using the methodology employed here as well as other methods is necessary to examine the replicability of these results. Such informant methods would be particularly informative if applied to non-student samples to examine the potential existence of biases in our current estimates of PDs in the general population. Additional research is also needed to assess the generalizability of our findings to undergraduates participating in a mandatory subject pool.

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