ORIGINAL RESEARCH

Screening results correlating to personality disorder traits in a new employee population of People's Republic of China

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Background: Adaptation to a new environment may have an uncertain influence on young employees, whose values are still being formed during early adulthood. To understand the current mental status and further improve the mental health level of the new employee population of People's Republic of China, we conducted a cross-sectional study to screen the prevalence and correlates of personality disorder (PD) traits in this population.

Methods: This study included all male participants who were new employees (those who had started working in approximately the last three months) from 12 machinery factories in People's Republic of China. The Personality Diagnostic Questionnaire-4+ was used to evaluate the mental status of all participants. The Connor–Davidson Resilience Scale was used to assess the resilience of the study participants.

Results: A total of 3,960 male participants were included in the analysis. The mean age of the study participants was 18.7±1.5 years. The mean values of all PD subtypes were scored from 0.74 to 2.90, with a total of 16.85. Of all 10 PD traits, obsessive–compulsive, histrionic, and narcissistic scored the highest. PD traits scored significantly higher among participants who had higher education levels, came from a single-parent (divorced or separated) family, were raised in a neglectful parental rearing pattern, were the only child of the family, were living in city areas, or had a lower family income. All subtype PD traits were significantly and negatively correlated with resilience.

Conclusion: Education level, single-parent family, parental rearing pattern, only-child status, living place, and family income may influence the development of PD traits. Additional high-quality studies are needed to learn more about the mental health status of new employees. Optimal interventions are warranted to avoid potential adverse events in this population.

Keywords: personality disorder, risk factor, Chinese employee, new workers, resilience

Introduction

Personality disorder (PD) is described as an enduring pattern of experience and behavior that significantly deviates from the normal status, according to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM).[1] PD may lead to distress or impairment and can markedly affect social and professional functioning. As stable and long-term personality characteristics, PD traits can be traced back to early adulthood or adolescence.[1] The most common etiologies for PDs are multifactorial; research has suggested that genetics, abuse, childhood trauma, and other factors contribute to the development of PDs.

In recent decades, accumulating epidemiological studies have proved that PDs are closely associated with the development of mental diseases, abnormal behaviors, and

crimes. Comorbidity is highly prevalent in PDs and various mental health problems, such as depression, panic disorders, and eating disorders.[2–4] Fridell et al reported that subjects who had been diagnosed with antisocial PD were two times more likely to be charged with various types of crimes.[5] Bukh et al reported that comorbid cluster C PDs (avoidant, dependent, and obsessive–compulsive PD) increased the rate of recurrence after remission of the first depression by 80%.[6] Given the significance of PD for mental health, it is urgent to know more about the prevalent PD traits and identify the relevant factors associated with them to prevent subsequent negative outcomes.

With the increasing pace of modern life, the labor workforce's psychological problems have become increasingly prominent. A survey conducted in 35 workplaces throughout Shanghai reported that 34.9% of the employees were suffering from poor mental health.[7] In Australia, Hilton et al reported that 9.6% of the employees suffered moderate psychological distress and that a further 4.5% of these employees were diagnosed as having high levels of psychological distress.[8] Mental health problems not only led to the reduction of productivity but may also be a cause of other negative outcomes.[9,10] A string of suicides and suicide attempts during 2010 in a large electrical manufacturing company, Foxconn, suggests the pressing need to learn more about the psychologic status of and preventive strategies for Chinese factory workers.[11] Notably, most of the "Foxconn suicides" had occurred among new employees. However, few studies have focused on the new employee population. The initial stage of a job is an important period for new employees. Adaptation to a new environment may have an uncertain influence on young employees, whose values are still being formed during early adulthood. If these new employees cannot adapt well to the new conditions, the rate of staff turnover, mental health problems, substance use, and even suicide may increase among these workers.[12–14]

In People's Republic of China, most relevant studies focused on college-aged students,[15–17] but few studies have been performed among new employees. To understand the current mental status and improve the mental health levels of the new employee population of People's Republic of China, we conducted a cross-sectional study to screen the prevalence and correlates of PD traits in this population.

Methods
Study design
A stratified clustering sampling method was performed in the present study. All the participants were new employees (who had started working in approximately the last three months)

from 12 machinery manufacturing enterprises across 8 different provinces of People's Republic of China. We included only male employees because working in these factories involves a large amount of physical labor and the proportion of female employees was very low (<5%). Between September and December 2013, a total of 3,997 of the 4,297 subjects completed the survey. After excluding 37 participants for incomplete data, 3,960 subjects were included in the present analysis. Signed informed consent was obtained from each eligible participant. This study was approved by the Independent Ethics Committee of the Chinese People's Liberation Army General Hospital.

Data collection
Each participant completed a standardized questionnaire through a group interview. Data were collected on the following socio-demographic characteristics: age, educational level, marital status of the participants' parents, parental rearing patterns (democratic, authoritative, indulgent, or neglected), single-child status, place of residence (before entering the factory), and family income.

Resilience
The Connor–Davidson Resilience Scale (CD-RISC) was used to assess the resilience of the study participants.[18] We used the Chinese version of CD-RISC, which has been described in a previous study.[18] A 25-item Likert assessment was performed (0, not true at all; 4, completely true). The total score ranges from 0 to 100, and a higher score indicates a higher level of resilience. The CD-RISC has demonstrated adequate internal reliability for three factors, and the internal consistency values were 0.88 for tenacity, 0.80 for strength, and 0.60 for optimism.[19]

PDQ-4+
The 99-item Personality Diagnostic Questionnaire-4+ (PDQ-4+) was used to evaluate the mental status of all participants. A 5-category Likert response format (ranging from 1 for "completely disagree" to 5 for "completely agree") was used in the present study. PDQ-4+ is a widely used brief screening tool and a self-reported measurement of the DSM-IV PDs.[20] Each item on the PDQ-4+ questionnaire precisely reflects a single DSM-IV diagnostic criterion. A total of 10 PDs indicated in the DSM-IV can be assessed by the PDQ-4+. The 10 PDs include paranoid, schizoid, schizotypal, histrionic, narcissistic, borderline, antisocial, avoidant, dependent, and obsessive–compulsive PD. The PDQ-4+ has been widely used in Chinese population samples with good alpha coefficients.[21]

Statistical analysis

The data were double-entered using the Epidata (3.1) software (EpiData Association, Odense Denmark). We used the SPSS software (IBM Inc, Chicago, IL, USA) for the data analysis. All two-sided P-values <0.05 were defined as statistically significant.

The baseline socio-demographic characteristics and resilience of the study participants were described using descriptive statistics, and the independent-sample t-test, analysis of variance, and chi-square test were used to assess the differences in the continuous and categorical variables. The relationship between socio-demographic characteristics and the overall PD score (continuous variable) was examined using a multivariable regression model. The relationships between resilience (total CD-RISC score and three factors of resilience) and PDs were assessed using the partial correlation coefficients after controlling for potential confounding variables.

Results

Description of the population

The baseline socio-demographic characteristics and resilience of all study participants are presented in Table 1. A total of 3,960 male participants were included in the analysis.

The mean age of the study participants was 18.7±1.5 years, with a range from 16 to 24 years. The majority proportion of the participants was adults (77.2%) and those who had a lower educational level (77.9%), were from double-parent family (not divorced or separated) (83.1%), lived in rural areas before entering the factory (80.9%), and had a higher family income (69.8%). Approximately one-half of the employees were the only child of the family (46.9%). The participants' parental rearing patterns were 63.9% for democratic style, 18.2% for authoritative style, 14.1% for indulgent style, and 3.7% for neglectful style. The average CD-RISC score of the study participants was 63.4. There were no significant differences in the socio-demographic characteristics and resilience between adolescents (<18 years old) and adults (≥18 years old) in the present study. The frequency of distribution of the scores for all types of PD is shown in Table 2.

Screening results of PD traits

The mean (standard deviation) scores of all PDs are shown in Table 3. The mean values of all PD subtypes scored from 0.74 to 2.90, with a total of 16.85. Of the 10 PD traits, obsessive–compulsive, histrionic, and narcissistic were the highest three traits, and the mean values (standard deviations) were 2.90 (1.67), 2.82 (1.60), and 1.93 (1.84), respectively.

Table 1 Socio-demographic characteristics and resilience of the study participants

Characteristics	Aged <18 years (n=901)	Aged ≥18 years (n=3,059)	Total (n=3,960)
Educational level, n (%)			
High school and below	691 (76.7)	2,394 (78.3)	3,085 (77.9)
College and above	210 (23.3)	665 (21.7)	875 (22.1)
Marital status of their parents, n (%)			
Married	753 (83.6)	2,538 (83.0)	3,291 (83.1)
Divorced/separated	148 (16.4)	521 (17.0)	669 (16.9)
Parental rearing pattern, n (%)			
Democratic	572 (63.5)	1,960 (64.1)	2,532 (63.9)
Authoritative	160 (17.8)	560 (18.3)	720 (18.2)
Indulgent	129 (14.3)	431 (14.1)	560 (14.1)
Neglected	40 (4.4)	108 (3.5)	148 (3.7)
Single-child status, n (%)			
Singleton	407 (45.2)	1,452 (47.5)	1,859 (46.9)
Nonsingleton	494 (54.8)	1,607 (52.5)	2,101 (53.1)
Place of residence before entering the factory, n (%)			
City	173 (19.2)	583 (19.1)	756 (19.1)
Town	728 (80.8)	2,476 (80.9)	3,204 (80.9)
Family income (Yuan/month), n (%)			
<2,000	264 (29.3)	930 (30.4)	1,194 (30.2)
≥2,000	637 (70.7)	2,129 (69.6)	2,766 (69.8)
CD-RISC, mean (standard deviation)			
Tenacity	31.0 (7.4)	31.2 (7.4)	31.2 (7.4)
Strength	23.9 (4.6)	23.8 (4.8)	23.9 (4.8)
Optimism	8.4 (2.6)	8.4 (2.7)	8.4 (2.7)
Total	63.3 (12.8)	63.5 (13.2)	63.4 (13.1)

Abbreviation: CD-RISC, Connor–Davidson Resilience Scale.

Table 2 Frequency of distribution of all types of PD scores, n (%)

PD traits	0	1	2	3	4	5	6	7	8	9
Paranoid	1,283 (31.7)	1,535 (37.9)	784 (19.4)	266 (6.6)	117 (2.9)	43 (1.1)	14 (0.3)	5 (0.1)		
Schizoid	1,440 (35.6)	1,094 (27.0)	688 (17.0)	395 (9.8)	208 (5.1)	117 (2.9)	59 (1.5)	27 (0.7)	11 (0.3)	8 (0.2)
Schizotypal	913 (22.6)	1,252 (30.9)	863 (21.3)	488 (12.1)	298 (7.4)	155 (3.8)	60 (1.5)	17 (0.4)	1 (0.1)	
Histrionic	1,434 (35.4)	936 (23.1)	689 (17.0)	479 (11.8)	271 (6.7)	141 (3.5)	72 (1.8)	24 (0.6)		1 (0.1)
Narcissistic	1,870 (46.2)	1,922 (25.3)	530 (13.1)	306 (7.6)	181 (4.5)	88 (2.2)	32 (0.8)	15 (0.4)	3 (0.1)	
Borderline	284 (7.0)	598 (14.8)	853 (21.1)	890 (22.0)	711 (17.6)	440 (10.9)	190 (4.7)	73 (1.8)	8 (0.2)	
Antisocial	236 (5.8)	620 (15.3)	984 (24.3)	918 (22.7)	684 (16.9)	360 (8.9)	174 (4.3)	63 (1.6)	8 (0.2)	
Avoidant	1,080 (26.7)	972 (24.0)	722 (17.8)	501 (12.4)	332 (8.2)	241 (6.0)	114 (2.8)	55 (1.4)	21 (0.5)	9 (0.2)
Dependent	1,150 (28.4)	1,302 (32.2)	712 (17.6)	405 (10.0)	223 (5.5)	124 (3.1)	83 (2.1)	29 (0.7)	12 (0.3)	7 (0.2)
Obsessive–compulsive	2,494 (61.6)	814 (20.1)	378 (9.3)	188 (4.6)	97 (2.4)	37 (0.9)	26 (0.6)	8 (0.2)	5 (0.1)	

Abbreviation: PD, personality disorder.

Influence of age and education level on PD traits

The mean (standard deviation) scores of all PD traits among adolescents (<18 years old) and adults (≥18 years old) were not significantly different (Table 3). Participants with higher educational levels scored higher than participants with lower educational levels on borderline, antisocial, and dependent PD.

Influence of family structure on PD traits

Table 4 shows that the participants from single-parent (divorced or separated) families had significantly higher scores than those from double-parent families on all PD subtypes, with the exception of obsessive–compulsive PD. Single-child employees scored significantly higher than employees with siblings on measures of schizotypal, borderline, avoidant, antisocial, dependent, and total PD. The parental rearing patterns significantly influenced all subtypes of PDs and total PD. In general, participants from a democratic parental rearing pattern scored the lowest, whereas those of the neglectful pattern scored the highest among all parental rearing patterns.

Influence of living place and family income on PD traits

As shown in Table 5, participants living in urban areas scored significantly higher than those living in rural areas on schizotypal, histrionic, and avoidant PD. Participants with a family income of <2,000 Yuan per month scored higher than those with a higher family income on schizoid, schizotypal, dependent, obsessive–compulsive, and total PD.

Multivariable analysis

We examined the relationship between socio-demographic characteristics and the overall PD score (continuous variable) in a multivariable regression model. After adjustment of all potential confounders, we found that living in a family with a neglectful parental rearing pattern and being an only child were significantly associated with a higher overall PD score.

Correlation of resilience and PD traits

Table 6 presents the partial correlation coefficients of resilience and PD traits with all socio-demographic characteristics

Table 3 Comparison of the scores of PD traits on age and educational level, mean (standard deviation)

PD traits	Age			Educational level			Total
	<18 years	≥18 years	*P*-value	High school and below	College and above	*P*-value	
Paranoid	1.73 (1.54)	1.71 (1.49)	0.762	1.69 (1.47)	1.72 (1.51)	0.602	1.72 (1.50)
Schizoid	1.16 (1.17)	1.16 (1.14)	0.888	1.13 (1.12)	1.17 (1.15)	0.315	1.16 (1.15)
Schizotypal	1.40 (1.57)	1.45 (1.61)	0.437	1.45 (1.60)	1.44 (1.60)	0.855	1.44 (1.60)
Histrionic	2.82 (1.61)	2.82 (1.60)	0.968	2.88 (1.57)	2.80 (1.61)	0.191	2.82 (1.60)
Narcissistic	1.86 (1.84)	1.95 (1.85)	0.192	1.89 (1.86)	1.95 (1.84)	0.382	1.93 (1.84)
Borderline	1.58 (1.59)	1.57 (1.61)	0.880	1.36 (1.45)	1.63 (1.64)	<0.001	1.57 (1.61)
Antisocial	0.72 (1.23)	0.75 (1.22)	0.491	0.55 (1.04)	0.80 (1.27)	<0.001	0.74 (1.22)
Avoidant	1.52 (1.59)	1.53 (1.61)	0.789	1.55 (1.60)	1.52 (1.61)	0.677	1.53 (1.60)
Dependent	1.13 (1.52)	1.11 (1.39)	0.755	0.99 (1.38)	1.15 (1.43)	0.003	1.11 (1.42)
Obsessive–compulsive	2.85 (1.69)	2.91 (1.67)	0.312	2.97 (1.56)	2.88 (1.71)	0.139	2.90 (1.67)
Total	16.68 (10.92)	16.90 (10.84)	0.595	16.39 (10.34)	16.98 (11.00)	0.154	16.85 (10.86)

Abbreviation: PD, personality disorder.

Table 4 Comparison of the scores of PD traits between family structure, mean (standard deviation)

PD traits	Marital status of parents			Parental rearing pattern					Single-child status		
	Married	Divorced/separated	P-value	Democratic	Authoritative	Indulgent	Neglected	P-value	Non-singletons	Singletons	P-value
Paranoid	1.68 (1.48)	1.91 (1.58)	<0.001	1.62 (1.43)	1.79 (1.43)	1.92 (1.65)	2.20 (1.62)	<0.001	1.70 (1.46)	1.74 (1.55)	0.360
Schizoid	1.14 (1.12)	1.28 (1.26)	0.004	1.11 (1.09)	1.17 (1.21)	1.20 (1.16)	1.80 (1.50)	<0.001	1.16 (1.13)	1.16 (1.7)	0.920
Schizotypal	1.38 (1.54)	1.72 (1.82)	<0.001	1.29 (1.50)	1.56 (1.64)	1.73 (1.74)	2.31 (2.01)	<0.001	1.38 (1.54)	1.50 (1.66)	0.025
Histrionic	2.79 (1.60)	2.98 (1.62)	0.004	2.72 (1.56)	2.92 (1.61)	3.14 (1.74)	2.91 (1.60)	<0.001	2.78 (1.56)	2.87 (1.64)	0.100
Narcissistic	1.90 (1.82)	2.09 (1.94)	0.016	1.78 (1.78)	2.00 (1.78)	2.39 (2.00)	2.61 (2.08)	<0.001	1.89 (1.79)	1.98 (1.91)	0.128
Borderline	1.52 (1.56)	1.84 (1.82)	<0.001	1.39 (1.47)	1.66 (1.61)	2.08 (1.88)	2.41 (1.97)	<0.001	1.49 (1.54)	1.66 (1.68)	0.001
Antisocial	0.71 (1.20)	0.87 (1.35)	0.002	0.61 (1.10)	0.78 (1.25)	1.10 (1.41)	1.50 (1.69)	<0.001	0.67 (1.15)	0.82 (1.30)	<0.001
Avoidant	1.49 (1.58)	1.73 (1.69)	<0.001	1.35 (1.50)	1.65 (1.66)	1.98 (1.75)	2.22 (1.87)	<0.001	1.45 (1.56)	1.63 (1.64)	<0.001
Dependent	1.08 (1.39)	1.27 (1.55)	0.002	0.96 (1.30)	1.21 (1.46)	1.58 (1.68)	1.57 (1.64)	<0.001	1.05 (1.36)	1.18 (1.48)	0.005
Obsessive–compulsive	2.88 (1.68)	2.99 (1.67)	0.142	2.79 (1.65)	3.04 (1.68)	3.10 (1.73)	3.29 (1.73)	<0.001	2.90 (1.67)	2.90 (1.68)	0.859
Total	16.50 (10.59)	18.60 (11.96)	<0.001	15.55 (10.08)	17.70 (11.09)	20.11 (12.09)	22.69 (12.60)	<0.001	16.40 (10.47)	17.36 (11.26)	0.006

Abbreviation: PD, personality disorder.

(age, educational level, marital status of parents, parental rearing patterns, single-child status, place of residence, and family income) as covariates. All subtype PD traits were significantly and negatively correlated with tenacity, strength, optimism, and the total CD-RISC score.

Discussion

The present study is a cross-sectional study among newly enrolled male employees in Chinese factories. Obsessive–compulsive, histrionic, and narcissistic PD were the three most prevalent traits. We found that PD traits scored significantly higher among participants who had higher educational levels, lived in single-parent (divorced or separated) families, were raised in negative parental rearing patterns, were an only child, lived in urban areas, and had a lower family income. All subtype PD traits were significantly and negatively correlated with resilience.

The study populations of college students and adolescents (high school students) have previously been substantially reported.[15–17,22] Unlike those studies, our sample was a junior employee population of Chinese factories, a population that has rarely been the subject of study. We reported the mean score rather than the prevalence of PD traits because a different cutoff score was used and a diverse prevalence has been reported in People's Republic of China.[15–17] Similar to the study by Huang et al, the three PD traits with the highest scores were obsessive–compulsive, histrionic, and narcissistic.[17] However, the PD traits in our sample scored lower than the scores of university students of a similar age.[15–17] This difference may partially explain the effect of education level on our finding (ie, some subtypes of PD traits scored significantly higher among participants who had a higher educational level). We speculate that a person may bear more academic stress if he/she wants to receive higher education. Those people may suffer from more mental health problems due to the pressure of learning. Compared with studies performed in developed Western countries, the mean score of certain types of PD was similar to or lower than that of participants of the same age.[22–24] We cannot directly compare our results to those reports because we only did a general screening of PD traits rather than a clinical diagnosis of PD with diagnostic tools. Further studies are also needed to explore clinically diagnosed PD among the new employee population.

The age group of our study participants was young adulthood, which ranges from 16 to 24 years. The mean scores of each measured PD trait among adolescents (<18 years old) and early adults (≥18 years old) were not significantly

Table 5 Comparison of the scores of PD traits between place of residence and family income, mean (standard deviation)

PD traits	Place of residence before entering the factory			Family income (Yuan/month)		
	Rural	City	*P*-value	≥2,000	<2,000	*P*-value
Paranoid	1.71 (1.50)	1.74 (1.51)	0.691	1.70 (1.48)	1.75 (1.54)	0.354
Schizoid	1.17 (1.15)	1.12 (1.14)	0.290	1.09 (1.10)	1.33 (1.23)	<0.001
Schizotypal	1.41 (1.58)	1.56 (1.68)	0.023	1.40 (1.55)	1.53 (1.70)	0.024
Histrionic	2.77 (1.60)	3.04 (1.60)	<0.001	2.82 (1.59)	2.82 (1.63)	0.987
Narcissistic	1.92 (1.84)	1.99 (1.87)	0.368	1.90 (1.83)	2.01 (1.87)	0.077
Borderline	1.55 (1.58)	1.65 (1.71)	0.164	1.56 (1.59)	1.60 (1.65)	0.494
Antisocial	0.72 (1.21)	0.81 (1.30)	0.068	0.73 (1.19)	0.78 (1.30)	0.230
Avoidant	1.50 (1.60)	1.65 (1.63)	0.020	1.50 (1.57)	1.60 (1.67)	0.082
Dependent	1.10 (1.40)	1.16 (1.50)	0.287	1.09 (1.38)	1.18 (1.50)	0.048
Obsessive–compulsive	2.91 (1.69)	2.86 (1.62)	0.451	2.83 (1.64)	3.07 (1.74)	<0.001
Total	16.70 (10.80)	17.51 (11.10)	0.064	16.54 (10.51)	17.56 (11.60)	0.007

Abbreviation: PD, personality disorder.

different in the present study. In accordance with the findings of Johnson et al, we demonstrated that the stability of PD traits was similar during adolescence and early adulthood.[25] In agreement with previous studies, we observed an influence of family structure on PD traits.[26–28] Our findings indicated that employees from single-parent families scored significantly higher than those from double-parent families. Similar to the effect of marital status, the effects of parental rearing patterns on the PD traits were notable. Family atmosphere has a direct impact on the psychology of each family member, especially for the formation of personality in teenagers. Lee et al reported that an adverse family environment during adolescence predicted antisocial PD in adulthood.[26] Parental rearing patterns reported by the borderline PD group were characterized by less emotional warmth, greater punishment, and greater dominance behaviors compared with normal groups.[27] Our results suggest that children who were living in negative parental rearing patterns and fostered in

single-parent households may be more likely to develop abnormal PD traits.

To ease the dramatically increasing growth population, the Chinese government implemented the single-child policy in 1979.[29] It is generally believed that single children are different from children with siblings in terms of cognition, personality, and characteristics.[30–34] We observed that single-child employees scored significantly higher than employees with siblings on some subtypes of PD. Our finding is inconsistent with the studies conducted among Chinese college and high school students.[15,17] However, the cultivation of personality is a complex process and is influenced by many factors. Some studies also reported the positive developmental outcomes of being an only child on intelligence, character strengths, and creativity.[33,34] Further studies are also needed to illustrate the effect of the only-child policy on mental health status with a thorough consideration.

The prevalent PD traits have been proved to be inversely associated with family socioeconomic status.[15] The present results support the conception that lower family income may increase the risk of some subtypes of PD. Meanwhile, a substantial difference between rural and urban environments was shown. We found that participants living in cities scored significantly higher than those living in rural areas, which might be attributed to the fierce competition and relatively larger survival pressures inherent to cities.

Recently, researchers have recognized a possible relationship between resilience and mental health. Askeland et al found that adolescents with higher resilience scores reported fewer symptoms of mental health problems.[35] Haracz and Roberts reported that workplace resilience interventions showed positive effects on mental health and well-being.[36] In the present study, we observed that

Table 6 Correlation of resilience and PD traits

PD traits	Tenacity	Strength	Optimism	CD-RISC total score
Paranoid	−0.178*	−0.163*	−0.087*	−0.178*
Schizoid	−0.190*	−0.223*	−0.123*	−0.214*
Schizotypal	−0.186*	−0.222*	−0.015	−0.189*
Histrionic	−0.032*	−0.045*	−0.067*	−0.021*
Narcissistic	−0.134*	−0.157*	−0.014	−0.136*
Borderline	−0.303*	−0.320*	−0.111*	−0.311*
Antisocial	−0.253*	−0.300*	−0.088*	−0.271*
Avoidant	−0.297*	−0.271*	−0.107*	−0.288*
Dependent	−0.288*	−0.312*	−0.108*	−0.299*
Obsessive–compulsive	−0.043*	−0.033*	−0.006	−0.038*
Total	−0.260*	−0.277*	−0.075*	−0.263*

Notes: Adjusted for socio-demographic characteristics in Table 1. *P<0.05.
Abbreviations: CD-RISC, Connor–Davidson Resilience Scale; PD, personality disorder.

the scores of subtype PD traits were negatively correlated with the CD-RISC score. Our finding suggests that further interventions could be conducted to enhance employee resilience to improve the psychological outcomes among the enterprise staff.

The present study emphasizes the need to assess and understand PD traits in a Chinese new employee population. Admittedly, the limitations of the present study should be recognized. First, because we measured the correlates and PD traits at the same time, a cross-sectional design is limited in determining the direction of an association. Second, we used the self-report questionnaire to assess the mental health of the employees. PD measured on the basis of face-to-face interviews with diagnostic tools should be applied for the adult participants in the future. However, considering the good alpha coefficients and retest reliability among the Chinese samples, we thought that the PDQ-4+ questionnaire could closely reflect the prevalent PDs among the Chinese employee population. Third, the association of resilience with PD traits is multifactorial. Although we adjusted the potential covariates in the present analysis, other undetected confounding variables may have affected the results of our study. Finally, we only included male participants in the present study. As has been reported in previous studies,[15] gender may affect the development of PDs among the employee population. Further studies with larger sample sizes are still required to examine the association between PDs and demographic factors in this population.

Conclusion

In summary, the present study illustrated the prevalent PD traits among a new employee population of People's Republic of China. The mean score of the PDQ-4+ questionnaire was 16.85. Educational level, parental marital status, parental rearing patterns, single-child status, place of residence, family income, and resilience may affect the development of PD traits. Additional high-quality studies are needed to learn more about the mental health status of Chinese employees. The development of optimal interventions is warranted to avoid potential adverse events in this population.

Acknowledgments

Author contributions

WL and TY designed the study and analyzed the data. TY and LY did the data collection and field operations. WL wrote the manuscript and all the authors prepared the manuscript. All authors contributed toward data analysis, drafting and revising the paper and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

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