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Research paper

Personality traits and change in depression status at 18 months: Findings from a British Psychiatric Morbidity Survey

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ABSTRACT

Background: Depression is a common mental disorder, yet it shows low remission rates. The available evidence on personality traits as factors associated with the course of depression has common methodological limitations. Identifying personality traits linked with depression can improve understanding of the course of illness. Therefore, we aimed to investigate personality traits that are associated with the course of depression over 18 months.

Methods: longitudinal data of 2366 Adult Psychiatric Morbidity Survey respondents were analysed. Assessments were applied at two-time points (baseline) and follow-up (about 18 months later). We assessed the total score on the screening questionnaire from the Structured Clinical Interview (SCID-II) for the dependent, obsessive-compulsive, and borderline personalities. Depression was measured using the revised Clinical Interview Schedule (CIS-R) version.

Results: An increase of one score on the borderline personality scale at baseline increased the odds of experiencing persistent depression by 1.50 times (OR = 1.50, 95 % CI [1.22–1.86]), depression onset by 1.30 times (OR = 1.30, 95 % CI [1.14–1.50]), and recovery by 1.52 times (OR = 1.52, 95 % CI [1.35–1.70]), comparing to no depression group. Elevated scores of dependent personality traits significantly predicted depression persistence (OR = 1.95, 95 % CI [1.52–2.49]). An increase of one score on the obsessive-compulsive personality scale increases the odds of depression onset by 1.21 times (OR = 1.21, 95 % CI [1.04–1.39]).

Limitations: The APMS survey defined depression statuses in a limited sense, which may affect the generalisability of these results.

Conclusion: The present study confirms previous findings and contributes evidence suggesting that personality dysfunctions worsen depression outcomes.

1. Introduction

Depression is among the most common mental disorders, affecting around 26 million people worldwide (Liu et al., 2020). It is a global mental health challenge (Marwaha et al., 2022) and a leading cause of global disability (Smith and De Torres, 2014). While many people experience a single episode of depression, some struggle with persistent depression and fail to reach recovery. Despite effective treatments, a large proportion of patients do not achieve remission. A meta-analysis with 3202 depressed primary care patients revealed that irrespective of the type of intervention, the remission rate ranged between 50 % to

67 % (Dawson et al., 2004). Researchers attempted to explore factors that contribute to the course of depression, including clinical factors such as the severity of depression (Mulder et al., 2006), the type of intervention used (Bakish, 2001), and personality disorders (O'Leary and Costello, 2001).

Clarifying this association between personality traits and depression can influence clinical practice and policies; therefore, this area has been a concern of researchers and clinicians alike. According to The Diagnostic and Statistical Manual of Mental Disorders DSM-5, personality traits are 'enduring patterns of perception, relation and thinking of the environment and oneself that are expressed in various social and

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personal contexts' (American Psychiatric Association, 2013). Some personality traits have been reported to be highly common in depression, such as neuroticism (Buckman et al., 2018), borderline personality (Luca et al., 2012), and emotional dysregulation (Marwaha et al., 2015).

Personality traits could be a potentially important factor in understanding the course of depression. A review (Bagby et al., 2008) suggests that considering personality features can improve the diagnosis and treatment process of depression. The same review found that matching intervention type with patient personality can maximise positive treatment outcomes (Bagby et al., 2008). These findings appear to support that a treatment plan for a depressed patient with, for instance, a dependent personality style should differ from a plan for a depressed patient with different personality features. We have recently systematically reviewed the existing literature and reported that there is an association between dependent personality style and obsessive-compulsive personality disorder and depressive relapse (Altaweel et al., 2023), though the extent of the evidence is limited and of variable methodological quality.

Researchers have indicated some factors that were reported to mediate the relationship between personality and depression, such as rumination (Roelofs et al., 2008; Muris et al., 2005) and cognitive reactivity (Barnhofer and Chittka, 2010). Additionally, previous evidence indicates that personality traits such as neuroticism and conscientiousness are genetically associated with major depression (Kendler and Myers, 2010).

Although extensive research has been carried out on personality and depression, these studies varied significantly in the methods used, which might raise a generalizability issue (Mulder, 2002; Altaweel et al., 2023). One critical source of heterogeneity is the population targeted in these studies. For instance, it is challenging to generalise the findings of studies that used samples of patients with depression in specialised mental health care, where individuals are more likely to have chronic, severe symptoms (Hardeveld et al., 2013). In addition, a common limitation in the available evidence on the relationship between personality and the course of depression is relying on cross-sectional designs. The more robust approach is to analyse longitudinal data with an adequate follow-up period to allow outcomes to occur (Klein et al., 2011).

Given the increasing rates of depression worldwide, its chronicity, and the increased morbidity and mortality (Liu et al., 2020), reaching effective prevention and treatment plans is crucial. One way to achieve this goal is to identify factors associated with the course of illness. Evidence on the potential critical implications of personality on diagnosing and depression treatment needs to be supported with further validation. The low remission rates reported among depressed patients, besides the methodological limitations in the available literature in this area, accentuates the need to investigate this issue using prospective information from a representative sample.

Our recent systematic review (Altaweel et al., 2023) revealed signs of association between depression, particularly depressive relapse and personality traits of borderline, obsessive-compulsive and dependent personality. Therefore, Using the Adult Psychiatric Morbidity Survey (2000), we aimed in the present study to further investigate the relationship between personality traits of dependent, obsessive-compulsive, and borderline personality and the change in depression status over 18 months (onset, persistence, and recovery) in a large representative cohort in England. The key research question of this study was whether personality traits of dependent, obsessive-compulsive, and borderline are associated with the change in depression status over 18 months. We hypothesised that there would be a significant relationship between personality traits of dependent, obsessive-compulsive, and borderline and the change in depression status over 18 months.

2. Methods

The Adult Psychiatric Morbidity Survey (APMS) is a series of surveys that provide data on the prevalence of psychiatric disorders in the adult

English population aged 16 and over. These surveys were conducted in 1993, 2000, 2007 and 2014. The current study will use data from the 2000 version of the survey as it provides longitudinal data, which enables us to investigate the change in depression status over 18 months. The main aspects of the survey methods will be described in the current study; further methodological details can be found elsewhere (Singleton et al., 2003).

2.1. Sample

The 2000 survey involved participants aged from (16 to 74) years who were living in private households in England, Wales, and Scotland ($N = 8580$, response rate = 70 %). Respondents were recruited from the small user Postal Address File. First, 438 sectors were selected with a probability proportional to size. Then, within each selected sector, 36 addresses were randomly selected to be included in the survey. Interviews in the first phase included screening measures to assess mental disorders alongside other topics, such as risk factors and service use. The sample at the 18-month follow-up included three groups of participants who were selected based on their mental health status at baseline. From those who were interviewed at baseline, respondents for the 18-month follow-up were those with a mental disorder ($n = 1685$) who scored 12 or higher on the Clinical Interview Schedule-Revised (CIS-R) (Lewis et al., 1992). The second group were respondents with sub-threshold symptoms of mental disorder ($n = 1032$) who scored between 6 and 11 on (CIS-R), and finally, 1 in 5 respondents with no mental disorder ($n = 819$) with (CIS-R) scores between 0 and 5 (Singleton and Lewis, 2003). Therefore, the participants eligible to be included in the follow-up survey were more likely to have a mental disorder or likely to develop a disorder. Of these respondents, 2406 completed the interviews (Singleton and Lewis, 2003). A few significant differences between responders and non-responders regarding their mental health were observed. The non-responders were more likely younger, single, with lower socioeconomic levels and roughly more likely to be smokers and have used drugs in the past years (Singleton and Lewis, 2003).

2.2. Study measures

The original fieldwork took place in 2000, and the follow-up assessments were 18 months later. Therefore, assessments were applied at two-time points, T1 (baseline) and T2 (about 18 months later), except for personality traits, which were assessed only once at baseline.

2.2.1. Depression

Common mental disorders, including depression, were assessed in the survey using the revised version of the Clinical Interview Schedule (CIS-R) (Lewis et al., 1992). Particular common mental disorders were diagnosed by examining responses to different CIS-R sections using algorithms based on the ICD-10 diagnostic criteria for research (Organization WH, 1992). A score of 12 or above on the CIS-R indicated a disorder.

2.2.2. Personality traits

The DSM-5 provides diagnostic features for several personality disorders. Borderline personality is characterised by significant instability in mood, self-image, and interpersonal relationships. The core characteristic of the dependent personality is a persistent and excessive need for care, resulting in submissive and clingy behaviour and a fear of separation. The core feature of the obsessive-compulsive personality is an excessive focus on orderliness and perfectionism, often at the cost of flexibility, openness, and efficiency (American Psychiatric Association, 2013).

The APMS assessed features of ten personality disorders, including dependent, obsessive-compulsive, and borderline personality, using the screening version of the Structured Clinical Interview (SCID-II) for DSM-IV (First and Gibbon, 2004). The present study assessed the total score

for each personality, representing the number of traits each respondent has.

SCID-II is designed based on the diagnostic criteria from the DSM; this ensures that the interview questions comprehensively cover the relevant diagnostic criteria. SCID-II has demonstrated high inter-rater reliability that varies between 0.83 and 0.93 for personality disorders, including dependent, obsessive-compulsive, and borderline personalities (Lobbestael et al., 2011). Respondents were asked to indicate whether they had a specific personality characteristic by selecting one of three answers: Yes, no, don't know/does not apply; for example, "Are you the kind of person who ...".

2.2.3. Sociodemographic data

These include variables that might work as co-factors according to the APMS report, which are age, gender, marital status, and employment status (Singleton and Lewis, 2003).

2.3. Study outcome

The primary outcome was depression status at the follow-up point of 18 months. The APMS 2000 survey assigned four statuses of common mental disorders, including depression, at 18 months. These were: no disorder at baseline, new onset of a depressive episode, persistence of a depressive episode, and recovery from the depressive episode. The survey used the following definitions for the status of common mental disorders at 18 months. Therefore, respondents with *no depression* were not diagnosed with depression at baseline and follow-up. Respondents will be in the *Onset* group if they only have a depression diagnosis at the follow-up point. *Persistent* respondents are individuals with a depression diagnosis at baseline and follow-up. Finally, *Recovery* was defined as respondents who had a depression diagnosis at baseline but did not have one at the follow-up. See Fig. 1.

2.4. Statistical analysis

The Statistical Package for the Social Sciences (SPSS) version (29.0.0.0) was used to conduct the statistical analysis for this study. Data were weighted to ensure results were representative of the English household population. The APMS 2000 applied data weighting to

consider the different probability of selection of participants in different sample groups, in addition to weighting for non-response, and finally, weighting applied in the baseline survey. In the present study, a multi-stage analysis plan was followed. First, descriptive statistics were used to understand participants' sociodemographic and personality characteristics. Next, the Kruskal-Wallis test was performed to assess the association between the continuous variables (i.e., personality traits and age) and the change in depression status at 18 months. Categorical variables (i.e., gender, marital status, and employment status) were tested using the chi-square test. The next step was performing a multinomial logistic regression to assess the association between all study variables and depression status. Multinomial logistic regression, an extension of binary logistic regression, enables testing associations with an outcome with more than two categories (Kwak and Clayton-Matthews, 2002). This test requires at least ten cases for each independent variable, with one or more independent variables (Schwab, 2002). We were also interested in understanding whether personality traits are associated with the change in depression status at 18 months; therefore, personality traits were entered simultaneously as independent variables. Finally, personality traits were entered in the last model with the control of sociodemographic factors that were significant in the first analysis. Results were considered significant when *P* values were < 0.05.

3. Results

Of the 3536 respondents at baseline, 1130 were not traced due to several reasons (i.e., moved no trace *n* = 470, died *n* = 21, proxy interview *n* = 7, refusals/ incapable *n* = 503, non-contacts *n* = 129). Overall, 2406 respondents from the original study were followed up 18 months later and completed the CIS-R at both baseline (T1) and follow-up (T2). Of the 2406 people, 40 respondents were excluded from the current analysis due to missing data on all personality measures, leaving 2366 respondents representing the present study sample. Of the 2366 respondents, 2170 had no depression diagnosis at T1 and T2, 70 were in the onset group, 26 were in the persistence group, and 100 were in the recovery group according to the APMS definitions of depression statuses at the follow-up point of 18 months. Details on sociodemographic characteristics and personality for all groups are shown in Table 1.

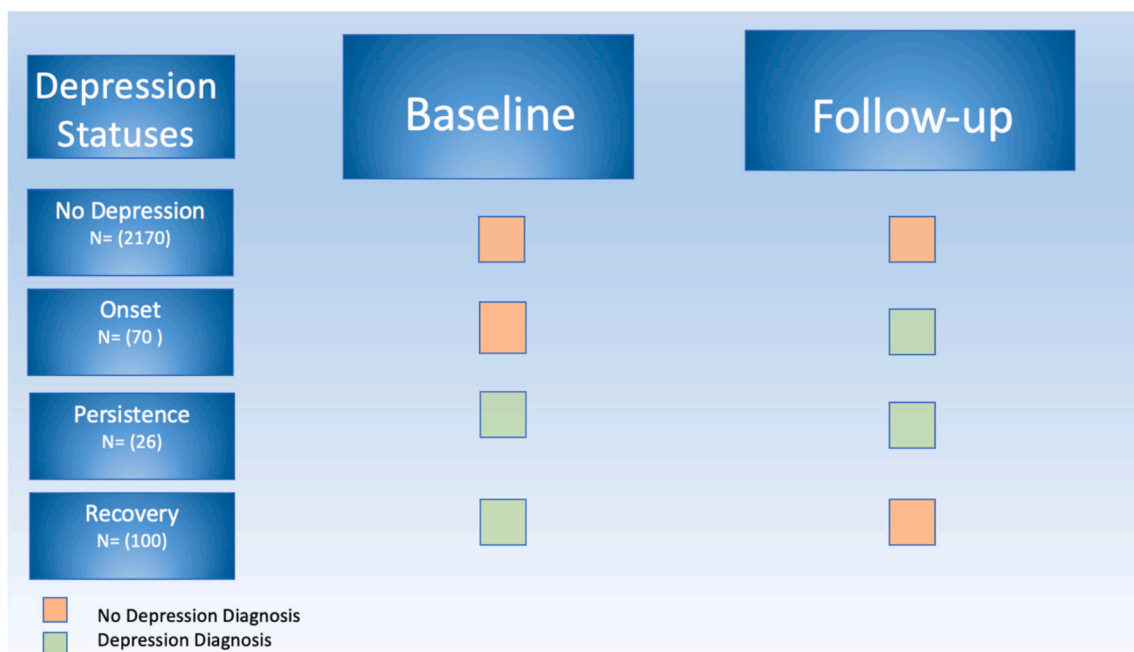


Fig. 1. Depression statuses over 18 months.

Table 1
General characteristics of study (n = 2366).

Characteristics	No depression n = 2170 (91.71 %)	Onset n = 70 (2.96 %)	Persistence n = 26 (1.1 %)	Recovery n = 100 (4.23 %)	P-value
Sex, n (%)					
• Male	930 (42.85 %)	25 (35.71 %)	13 (50 %)	43 (43 %)	0.429
• Female	1240 (57.14 %)	45 (64.28 %)	13 (50 %)	57 (57 %)	
Age, mean (SD)	44.57 (15.11)	41.48 (13)	44.92 (11.80)	47.23 (13.14)	0.003**
Marital status, n (%)					
• Married	1139 (52.49 %)	18 (25.71 %)	8 (30.77 %)	35 (35 %)	<0.001***
• Unmarried	1031 (47.51 %)	52 (74.28 %)	18 (69.23 %)	65 (65 %)	
Employment, n (%)					
• Employed	1380 (63.59 %)	32 (45.71 %)	6 (23.07 %)	42 (42 %)	<0.001***
• Unemployed	790 (36.40 %)	38 (54.28 %)	20 (76.92 %)	58 (58 %)	
Dependent personality scores, mean (SD)	1.41 (1.33)	2.21 (1.64)	3.27 (2.14)	2.37 (1.87)	<0.001***
Obsessive-compulsive personality scores, mean (SD)	3.42 (1.77)	4.14 (1.57)	4.11 (1.77)	3.98 (1.67)	<0.001***
Borderline personality scores, mean (SD)	1.65 (1.67)	2.98 (2.17)	4.65 (2.36)	3.37 (2.19)	<0.001***

Note. SD, standard deviation. *p < 0.05, **p < 0.01, ***p < 0.001.

3.1. General characteristics

The Kruskal-Wallis H test showed that there was a statistically significant difference in the scores of dependent, obsessive-compulsive, and borderline personalities between the different depression groups, $H(3) = 62.84, P \leq 0.001$; $H(3) = 23.43, P \leq 0.001$; $H(3) = 117.65, P \leq 0.001$, respectively. This test also revealed significant differences in the age of respondents between the four depression groups, $H(3) = 13.79, P = 0.003$. In addition, a chi-square test of independence showed that the

Table 2
Multinomial logistic regression analysis of association of personality traits and sociodemographic factors and depression status at 18 months (n = 2366) (univariate analysis).

Personality traits	Persistence n = 26		Onset n = 70		Recovery n = 100	
	OR (95%CI)	P-value	OR (95%CI)	P-value	OR (95%CI)	P-value
Dependent personality scores	2.38 (1.95–2.91)	<0.001***	1.37 (1.18–1.58)	<0.001***	1.45 (1.28–1.63)	<0.001***
Obsessive-compulsive personality scores	1.40 (1.13–1.73)	0.002**	1.32 (1.15–1.51)	<0.001***	1.16 (1.03–1.30)	0.012*
Borderline personality scores	1.97 (1.67–2.33)	<0.001***	1.42 (1.27–1.58)	<0.001***	1.53 (1.39–1.67)	<0.001***
Age	0.98 (0.95–1)	0.132	0.97 (0.96–0.99)	0.004**	1.01 (0.99–1.03)	0.103
Marital status						
• Married	Ref	0.003**	Ref	<0.001***	Ref	<0.001***
• Unmarried	3.64 (1.53–8.66)		3.72 (2.12–6.53)		2.05 (1.35–3.12)	
Employment						
• Employed	Ref	<0.001***	Ref	0.059	Ref	0.016*
• Unemployed	6.55 (2.64–16.25)		1.59 (0.98–2.59)		1.68 (1.10–2.56)	

Note. The reference group is no depression. *p < 0.05, **p < 0.01, ***p < 0.001.

relationship between gender and depression status was not significant; $X^2([3], N = [2366]) = [2.83], P = [0.429]$ (Table 1). On the other hand, the test showed a significant relationship between marital status; $X^2([3], N = [2366]) = [38.99], P = [<0.001]$, employment status; $X^2([3], N = [2366]) = [42.62], P = [<0.001]$ and the four statuses of depression; see Table 1.

3.2. Univariate analysis of the association between the study variables and depression status

Table 2 shows all personality traits, in addition to marital status and employment status, to be significantly associated with depression status (onset, persistence, and recovery) at a univariate level. According to this model, age showed a significant association only with the onset group.

3.3. Personality traits and the change in depression status

Third, a multiple multinomial logistic regression involving only personality traits was utilised to evaluate their association with the change in depression status. Results are displayed in Table 3. Borderline personality is a strongly significant predictor of the change in depression status at 18 months. An increase of one score in the borderline personality scale increases the odds of being in the persistence group by 1.61 times (OR = 1.61, 95 % CI [1.33, 1.95]), in the onset group by 1.41 times (OR = 1.41, 95 % CI [1.24–1.60]), and in the recovery group by 1.47 times (OR = 1.47, 95 % CI [1.32–1.64]), comparing to being in the no depression group. Dependent personality was also significantly associated with depression status of persistence and recovery. Obsessive-compulsive personality was found in this model to be associated with the onset of depression only (see Table 3).

We were also interested in investigating whether personality traits can predict the course of depression; therefore, we performed a multiple binary logistic regression to examine the association between personality traits and depression status at 18 months (Persistence Versus Recovery groups). Borderline personality was the only trait in this model that showed a significant association with the outcome. An increase of one score on the borderline personality scale increases the odds of being in the persistence group by 1.25 times (OR = 1.25, 95 % CI [1.01–1.55]). Details can be found in Table 5 in a supplementary document.

In the last model, we performed a multiple multinomial logistic regression to investigate whether personality traits can predict the change in depression status with the control for co-variables (i.e., age, marital status, and employment status), see Table 4. Again, borderline personality was the strongest predictor of the change in depression status at 18 months. According to this model, an increase of one score in the borderline personality scale increases the odds of being in the persistence group by 1.50 times (OR = 1.50, 95 % CI [1.22–1.86]), in the onset group by 1.30 times (OR = 1.30, 95 % CI [1.14–1.50]), and in the recovery group by 1.52 times (OR = 1.52, 95 % CI [1.35–1.70]),

Table 3

Multiple multinomial logistic regression analysis of association of personality traits and depression status at 18 months (n = 2366).

Personality traits	Persistence n = 26		Onset n = 70		Recovery n = 100	
	OR (95%CI)	P-value	OR (95%CI)	P-value	OR (95%CI)	P-value
Dependent personality scores	1.92 (1.53–2.41)	<0.001***	1.09 (0.92–1.29)	0.335	1.17 (1.02–1.35)	0.027*
Obsessive- compulsive personality scores	1 (0.81–1.23)	0.977	1.17 (1.01–1.35)	0.031*	1.00 (0.89–1.13)	0.970
Borderline personality scores	1.61 (1.33–1.95)	<0.001***	1.41 (1.24–1.60)	<0.001***	1.47 (1.32–1.64)	<0.001***

Note. The reference group is no depression. *p < 0.05, **p < 0.01, ***p < 0.001.

Table 4

Multiple Multinomial Logistic Regression Analysis of Association of Personality traits and Sociodemographic Factors and Depression Status at 18 months (n = 2366).

Factors	Persistence n = 26		Onset n = 70		Recovery n = 100	
	OR (95%CI)	P-value	OR (95%CI)	P-value	OR (95%CI)	P-value
Dependent personality scores	1.95 (1.52–2.49)	<0.001***	1.09 (0.91–1.30)	0.335	1.18 (1.03–1.35)	0.072
Obsessive- compulsive personality scores	0.98 (0.97–1.21)	0.835	1.21 (1.04–1.39)	0.011*	1 (0.88–1.14)	0.976
Borderline personality scores	1.50 (1.22–1.86)	<0.001***	1.30 (1.14–1.50)	<0.001***	1.52 (1.35–1.70)	<0.001***
Age	1 (0.97–1.03)	0.925	1 (0.97–1)	0.329	1.02 (1–1.04)	0.005**
Marital status						
• Married	Ref	0.034*	Ref	<0.001***	Ref	0.176
• Unmarried	2.84 (1.08–7.43)		2.73 (1.50–4.95)		1.37 (0.87–2.15)	
Employment						
• Employed	Ref	0.012*	Ref		Ref	
• Unemployed	3.61 (1.33–9.82)		1.43 (0.84–2.43)	0.190	1.60 (1–2.60)	0.055

Note. The reference group is no depression. *p < 0.05, **p < 0.01, ***p < 0.001.

comparing to being in the no depression group. In addition, an elevated score of dependent personality was found to be significantly associated with depression persistence (OR = 1.95, 95 % CI [1.52–2.49]). An increase of one score in the obsessive-compulsive personality scale increased the odds of depression onset by 1.21 times (OR = 1.21, 95 % CI [1.04–1.39]) compared to being in the no depression group.

4. Discussion

This study aimed to investigate the association between personality traits of dependent, obsessive-compulsive, and borderline personality and depression status at 18 months in a representative epidemiological cohort. The main findings are that a higher number of borderline personality traits was the strongest factor that was significantly associated with depression status at follow-up, as it showed a significant association at both univariate and multivariate levels. In addition, persistent depression was associated significantly with a higher number of borderline and dependent personality traits. Furthermore, the onset of depression was associated with experiencing a higher number of borderline and obsessive-compulsive personality traits. Finally, an increased number of borderline personality traits was found in our results to be associated with recovery from depression.

4.1. Personality traits and the onset of depression

In the current study, the onset of a depressive episode was associated significantly with personality traits of obsessive-compulsive and borderline in the adjusted analysis. The comorbidity between depression onset and personality disorders has been widely recognised in the literature, with a rate between 30 % to 70 % indicated in a review by (Farmer and Nelson-Gray, 1990). The same review revealed that the onset of a new depressive episode was significantly associated with comorbid personality disorders, particularly dramatic personality cluster, which includes borderline personality. There is an early agreement among cross-sectional research on the association between personality disorders and the early onset of a depressive episode. The most frequent personalities in these studies are borderline and dependent personalities (Abrams et al., 1994; Fava et al., 1996), though the latest did not remain a significant predictor of MDD onset in the current adjusted analysis. On the other hand, prospective research has addressed this relationship

from various perspectives. Some studies investigate personality disorders as predictors of depression onset (Alnaes and Torgersen, 1997; Pedersen et al., 2006), while others considered the early onset of depression as a significant predictor of personality disorders (Ramklint and Ekselius, 2003), which raises an issue of causality and mechanisms in this area.

4.2. Personality traits and persistent depression

The present findings showed that respondents with elevated scores of dependent and borderline personality traits were at high risk of experiencing persistent depression; the latter was the most robust predictor in the current study. These findings are consistent with the results of a review involving data from 1996 depressed patients by Skodol et al. (2011), where they reported borderline personality as the most significant predictor of persistent depression. Similarly, Yoshimatsu and Palmer (2014) revealed in their review that major depression with borderline personality is more persistent than major depression with no borderline personality. Collectively, these studies outline the critical role of personality disorders, particularly borderline personality, in worsening the long-term outcome of depression.

4.3. Personality traits and recovery from depression

It is somewhat surprising that a higher number of borderline personality traits was noted in the present study to increase the odds of recovery. A potential explanation of this finding is that the recovery group was compared to a healthy group which had no depression to recover from. Another possible interpretation might be the notion that depressive symptoms of borderline personality are different from those of depression and that clinician interviewers do not recognise the distinction easily (Silk, 2010). Depressed individuals with borderline personality differ in how they describe and rate depressive symptoms to those with major depression only. Depressive symptoms of borderline personality disorder are typically expressed as feelings of emptiness, loneliness, or depression close to anger, while depressive symptoms of major depression are more about sadness and guilt (Silk, 2010). Additionally, the improvement in depression among respondents with high borderline traits in the present findings seems to be supported by early observations that suggested an improvement in major depression

symptoms, which was found in depressed patients with DSM cluster B personality disorders (including borderline personality) but not clusters A or C (Roepke et al., 2008; Fava et al., 1994).

4.4. Sociodemographic factors and depression

We found that unmarried individuals were more likely to be in the onset or persistence group. Unemployed individuals were more likely to be in the persistence group. The APMS report revealed that unmarried and unemployed respondents were more likely to experience a mental disorder, which matches the findings of the current study (Singleton et al., 2002). A study with longitudinal data from 7368 participants found that depression increased by (OR 1.78, 95 % CI 1.30 to 2.43) in individuals who moved from permanently employed to unemployed, compared to those who were permanently employed (Yoo et al., 2016). The literature has also supported that depression rates are lower in married people (Yan et al., 2011; LaPierre, 2009). However, others suggested that this relationship could be modified by other factors, such as age, (Bulloch et al., 2017) and social factors (Kessler and Essex, 1982), which suggest further investigation.

5. Limitations

The generalisability of these results is subject to certain limitations. First, the APMS survey defined depression statuses in a very limited sense. In addition, we do not have sufficient information about the period between the first time point (baseline) and the second time point (follow-up); for example, a respondent who had a depression diagnosis at baseline may have recovered and then became depressed again at the time of follow-up assessment. Second, regarding the comparison between persistence and recovery groups, the inadequate number of participants in the persistence group ($n = 26$) compared to those in recovery ($n = 100$) could limit the conclusion of the finding. Even though it could be taken as a potential sign of association between borderline personality and persistent depression that worth further investigation. These limitations mean that results, therefore, need to be interpreted with caution. Third, we did not address the interaction between the personality traits and the study outcome or explore how personality traits relate to the study outcome (e.g., mediation analysis).

On the other hand, several strengths can be noted, such as using data from a notable database that used a robust methodology. Second, an analysis of a large sample size with over 2000 respondents. Finally, using a statistical analysis test (multinomial logistic regression) allowed us to examine multiple factors with multiple categories of an outcome in a single model, which was an informative approach.

6. Conclusion

This paper aimed to investigate the role of personality traits in the change in depression status over 18 months using a large representative cohort. Borderline personality was the most robust predictor of the change in depression status over 18 months. It was also shown that elevated scores of dependent personality traits were significantly associated with persistent depression. High traits of obsessive-compulsive personality were found to be associated with the onset of depression. The present study confirms previous findings and contributes additional evidence that suggests personality dysfunctions worsen depression outcomes.

This information can help drive more focused and targeted research aiming to identify specific traits that contribute to favourable or unfavourable depression outcomes. It can also lead to further research to understand how personality traits influence different depression outcomes. Additionally, clinicians may consider developing targeted interventions that take into account patients' personality traits as a way to improve the long-term outcomes of depression. Tailored therapeutic plans based on the unique characteristics of each patient can lead to

more effective depression management. Furthermore, understanding the role of personality in depression can lead to more comprehensive and inclusive mental health policies that address a broader range of factors affecting mental health outcomes. Future research might explore mechanisms by which personality traits can relate to depression and additional factors that could mediate this relationship, such as social factors.

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Authorship statement

All authors certify that they have participated sufficiently in the work to take public responsibility for the content, including participation in the concept, design, analysis, writing, or revision of the manuscript. Furthermore, each author certifies that this manuscript has not been and will not be submitted to or published in any other publication before its appearance in the Journal of Affective Disorders.

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CRediT authorship contribution statement

Nada Altaweel: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Rachel Uptegrove:** Writing – review & editing, Validation, Supervision, Conceptualization. **Steven Marwaha:** Writing – review & editing, Validation, Supervision, Resources, Conceptualization.

Declaration of competing interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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References

- Abrams, R.C., Rosendahl, E., Card, C., et al., 1994. Personality disorder correlates of late and early onset depression. *J. Am. Geriatr. Soc.* 42 (7), 727–731.
- Alnaes, R., Torgersen, S., 1997. Personality and personality disorders predict development and relapses of major depression. *Acta Psychiatr. Scand.* 95 (4), 336–342.
- Altaweel, N., Uptegrove, R., Surtees, A., et al., 2023. Personality traits as risk factors for relapse or recurrence in major depression: a systematic review. *Front. Psych.* 14, 709.
- American Psychiatric Association, 2013. *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. <https://doi.org/10.1176/appi.books.9780890425596>.
- Bagby, R.M., Quilty, L.C., Ryder, A.C., et al., 2008. Personality and depression. *Can. J. Psychiatry* 53 (1), 14–25.
- Bakish, D., 2001. New standard of depression treatment: remission and full recovery. *J. Clin. Psychiatry* 62, 5–9.
- Barnhofer, T., Chittka, T., 2010. Cognitive reactivity mediates the relationship between neuroticism and depression. *Behav. Res. Ther.* 48 (4), 275–281.
- Buckman, J.E., Underwood, A., Clarke, K., et al., 2018. Risk factors for relapse and recurrence of depression in adults and how they operate: a four-phase systematic review and meta-synthesis. *Clin. Psychol. Rev.* 64, 13–38.
- Bulloch, A.G., Williams, J.V., Lavorato, D.H., et al., 2017. The depression and marital status relationship is modified by both age and gender. *J. Affect. Disord.* 223, 65–68.
- Dawson, M.Y., Michalak, E.E., Waraich, P., et al., 2004. Is remission of depressive symptoms in primary care a realistic goal? A meta-analysis. *BMC Fam. Pract.* 5 (1), 19.
- Farmer, R., Nelson-Gray, R.O., 1990. Personality disorders and depression: hypothetical relations, empirical findings, and methodological considerations. *Clin. Psychol. Rev.* 10 (4), 453–476.

- Fava, M., Bouffides, E., Pava, J.A., et al., 1994. Personality disorder comorbidity with major depression and response to fluoxetine treatment. *Psychother. Psychosom.* 62 (3–4), 160–167.
- Fava, M., Alpert, J.E., Borus, J.S., Nierenberg, A.A., Pava, J.A., Rosenbaum, J.F., 1996. Patterns of personality disorder comorbidity in early-onset versus late-onset major depression. *Am. J. Psychiatry* 153 (10), 1308–1312.
- First, M.B., Gibbon, M., 2004. The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) and the Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II).
- Hardeveld, F., Spijker, J., De Graaf, R., et al., 2013. Recurrence of major depressive disorder across different treatment settings: results from the NESDA study. *J. Affect. Disord.* 147 (1–3), 225–231.
- Kendler, K.S., Myers, J., 2010. The genetic and environmental relationship between major depression and the five-factor model of personality. *Psychol. Med.* 40 (5), 801–806.
- Kessler, R.C., Essex, M., 1982. Marital status and depression: the importance of coping resources. *Soc. Forces* 61 (2), 484–507.
- Klein, D.N., Kotov, R., Bufferd, S.J., 2011. Personality and depression: explanatory models and review of the evidence. *Annu. Rev. Clin. Psychol.* 7, 269–295.
- Kwak, C., Clayton-Matthews, A., 2002. Multinomial logistic regression. *Nurs. Res.* 51 (6), 404–410.
- LaPierre, T.A., 2009. Marital status and depressive symptoms over time: age and gender variations. *Fam. Relat.* 58 (4), 404–416.
- Lewis, G., Pelosi, A.J., Araya, R., et al., 1992. Measuring psychiatric disorder in the community: a standardized assessment for use by lay interviewers. *Psychol. Med.* 22 (2), 465–486.
- Liu, Q., He, H., Yang, J., et al., 2020. Changes in the global burden of depression from 1990 to 2017: findings from the global burden of disease study. *J. Psychiatr. Res.* 126, 134–140.
- Lobbetael, J., Leurgans, M., Arntz, A., 2011. Inter-rater reliability of the structured clinical interview for DSM-IV Axis I disorders (SCID I) and Axis II disorders (SCID II). *Clin. Psychol. Psychother.* 18 (1), 75–79.
- Luca, M., Luca, A., Calandra, C., 2012. Borderline personality disorder and depression: an update. *Psychiatry Q.* 83, 281–292.
- Marwaha, S., Balbuena, L., Winsper, C., et al., 2015. Mood instability as a precursor to depressive illness: a prospective and mediational analysis. *Aust. N. Z. J. Psychiatry* 49 (6), 557–565.
- Marwaha, S., Palmer, E., Suppes, T., Cons, E., Young, A.H., Upthegrove, R., 2023. Novel and emerging treatments for major depression. *Lancet* 401 (10371), 141–153.
- Mulder, R.T., 2002. Personality pathology and treatment outcome in major depression: a review. *Am. J. Psychiatry* 159 (3), 359–371.
- Mulder, R.T., Joyce, P.R., Frampton, C.M.A., et al., 2006. Six months of treatment for depression: outcome and predictors of the course of illness. *Am. J. Psychiatry* 163 (1), 95–100.
- Muris, P., Roelofs, J., Rassin, E., et al., 2005. Mediating effects of rumination and worry on the links between neuroticism, anxiety and depression. *Personal. Individ. Differ.* 39 (6), 1105–1111.
- O’Leary, D., Costello, F., 2001. Personality and outcome in depression: an 18-month prospective follow-up study. *J. Affect. Disord.* 63 (1–3), 67–78.
- Organization WH, 1992. The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines. World Health Organization.
- Pedersen, S.S., Ong, A.T., Sonnenschein, K., et al., 2006. Type D personality and diabetes predict the onset of depressive symptoms in patients after percutaneous coronary intervention. *Am. Heart J.* 151 (2) (367), e361–367. e366.
- Ramklint, M., Ekselius, L., 2003. Personality traits and personality disorders in early onset versus late onset major depression. *J. Affect. Disord.* 75 (1), 35–42.
- Roelofs, J., Huibers, M., Peeters, F., et al., 2008. Effects of neuroticism on depression and anxiety: rumination as a possible mediator. *Personal. Individ. Differ.* 44 (3), 576–586.
- Roepke, S., Merkl, A., Dams, A., et al., 2008. Preliminary evidence of improvement of depressive symptoms but not impulsivity in cluster B personality disorder patients treated with quetiapine: an open label trial. *Pharmacopsychiatry* 41 (05), 176–181.
- Schwab, J.A., 2002. Multinomial Logistic Regression: Basic Relationships and Complete Problems.
- Silk, K.R., 2010. The quality of depression in borderline personality disorder and the diagnostic process. *J. Pers. Disord.* 24 (1), 25–37.
- Singleton, N., Lewis, G., 2003. Better or worse: a longitudinal study of the mental health of adults living in private households in Great Britain. In: Report Based on Surveys Carried out by the Office for National Statistics in 2000 and 2001 for the Department of Health and the Scottish Executive Health Department. Stationery Office.
- Singleton, N., Lee, A., Meltzer, H., 2002. Psychiatric Morbidity Among Adults Living in private Households, 2000: Technical Report.
- Singleton, N., Bumpstead, R., O’Brien, M., et al., 2003. Psychiatric morbidity among adults living in private households, 2000. *Int. Rev. Psychiatry* 15 (1–2), 65–73.
- Skodol, A.E., Grilo, C.M., Keyes, K.M., et al., 2011. Relationship of personality disorders to the course of major depressive disorder in a nationally representative sample. *Am. J. Psychiatry* 168 (3), 257–264.
- Smith, K., De Torres, I., 2014. A world of depression. *Nature* 515 (181), 10–1038.
- Yan, X.Y., Huang, S., Huang, C.-Q., et al., 2011. Marital status and risk for late life depression: a meta-analysis of the published literature. *J. Int. Med. Res.* 39 (4), 1142–1154.
- Yoo, K.-B., Park, E.-C., Jang, S.-Y., et al., 2016. Association between employment status change and depression in Korean adults. *BMJ Open* 6 (3), e008570.
- Yoshimatsu, K., Palmer, B., 2014. Depression in patients with borderline personality disorder. *Harv. Rev. Psychiatry* 22 (5), 266–273.