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# The association between personality disorder traits and suicidality following sudden bereavement: a national cross-sectional survey

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## **Abstract**

Personality disorder is associated with increased risk of suicidal behaviour. We aimed to investigate the association between number of personality disorder traits and suicidality risk following sudden bereavement. Our secondary analysis of cross-sectional data on 3,167 young UK-based adults who had experienced sudden bereavement investigated the association between number of traits (measured using a standardised screening instrument) and post-bereavement suicide attempt and suicidal ideation. Using multivariable logistic regression we found a linear relationship between number of traits and suicide attempt (adjusted odds ratio [AOR]=1.36, 95% CI: 1.23 to 1.49) and suicidal ideation (AOR=1.31, 95% CI: 1.25 to 1.38) following bereavement. This represented an increase in odds by 36% and 31% respectively for each additional personality trait. Our study suggests that individuals with a greater number of traits suggestive of a personality disorder diagnosis are at increased risk of suicidality after a negative life event.

## **Keywords:**

suicide attempt; suicidal ideation; bereavement; personality traits; personality disorder

## **Introduction**

Suicide is a complex public health problem, with a range of risk factors, and great etiological heterogeneity (Turecki & Brent, 2016). Globally, the suicide rate is 10.5 deaths per 100,000 population, and it is estimated that a person dies by suicide every 40 seconds (WHO, 2016). Suicide is the second leading cause of death among young adults in the UK (ONS, 2016) and the third leading cause of death in 15 to 19 year-olds globally (WHO, 2019). Suicide attempts are 20 to 30 times more prevalent than completed suicides (Turecki & Brent, 2016), and also represent a major public health problem, being a risk factor for repetition (Ribeiro et al., 2016). Although it is very difficult in clinical practice to predict suicide and suicide attempt, improved recognition and understanding of clinical, psychological, sociological, and biological factors holds the potential to help detect individuals at higher risk and tailor support to their needs (Turecki & Brent, 2016).

Risk factors for suicide and suicidal behaviour include psychiatric disorders (Cavanagh, Carson, Sharpe, & Lawrie, 2003; Nock et al., 2008; Cash & Bridge, 2009), sociodemographic factors such as low socioeconomic status, white ethnicity and male gender (Beautrais, 2000; Bilsen, 2018; Goldman-Mellor et al., 2014), and negative life events, such as loss of a relationship, a job, or housing (Beck, Brown, & Steer, 1989; Turecki & Brent, 2016). These risk factors are likely to mediate their effect through personality factors, particularly in people diagnosed with a personality disorder. For example, diagnoses of borderline personality disorder and antisocial personality disorder are characterized by aggressive and impulsive traits (Turecki & Brent, 2016), and people diagnosed with borderline personality disorder have an increased risk of suicide (Black, Blum, Pfohl, & Hale, 2004) and suicide attempt (Ansell et al, 2015).

Personality disorder is described broadly as an enduring and pervasive pattern of emotional and cognitive difficulties that affect the way in which a person relates to others or

understand themselves (Winsper et al., 2020). The pooled prevalence of personality disorders in the general population has been estimated at 8%, and up to 10% in high-income countries (Winsper et al., 2020), but there are few robust estimates of the prevalence of individual traits characteristic of a diagnosis of personality disorder. A systematic review of studies conducted to date investigating the association between personality traits and suicidality identified that neuroticism and extroversion are the strongest predictors of suicidal ideation, suicide attempts, and suicide (Brezo, Paris, and Turecki (2006a). Higher levels of impulsive-aggressive traits are associated with younger age of death by suicide (McGirr et al., 2008). Other personality traits specifically associated with suicidality in young people include neuroticism (Beautrais, Joyce, & Mulder, 1999) and impulsivity (Brezo et al., 2006b). However, most of this work has tended to quantify the contribution of individual personality traits to suicidality rather than exploring the cumulative contribution of traits (Brezo, Paris, and Turecki (2006a).

We investigated whether there was an independent association between the number of traits suggestive of personality disorder and risk of suicidality in young adults; the age group representing the peak incidence of suicidal ideation and behaviour (Turecki & Brent, 2016). We chose to focus on young people who have experienced the loss of a close contact, because this represents a significant loss of social support during a vulnerable period, setting young people apart from their peers. We chose to analyze data on a population sample of young adults, rather than restricting our focus to those with a diagnosis of a personality disorder. We hypothesized that there would be a linear association between number of personality disorder traits and the probability of suicidal behaviour following traumatic bereavement. We also hypothesized that this association would be stronger for people who were bereaved by suicide rather than other sudden deaths, and for people who described themselves as very close to the deceased.

## Methods

### Sample

We conducted a secondary analysis of data from the UCL Bereavement Study; a cross-sectional study investigating risk of suicide following sudden bereavement (Pitman, Osborn, Rantell, & King, 2016). Sampling methods have been described previously (Pitman, Osborn, Rantell, & King, 2016). In brief, in 2010, all 164 higher education institutions (HEI) in the UK were invited to participate in an online survey to investigate the impact of sudden bereavement on mental health. This was judged to be the best means of accessing hard-to-reach groups, whilst avoiding the biases associated with recruiting a help-seeking sample (Pitman, Osborn, & King, 2015). A total of 37/164 (23%) of HEIs agreed to participate by sending all their students and staff individual emails, with an embedded survey link. Ten of the 37 chose to modify sampling, due to the sensitivities of the topic, by advertising the study on their weekly email digests, advertising the survey on both the student and staff intranet, or sending the survey solely to students. Participating HEIs represented a range of agricultural, performing arts, and academic institutions, providing broad geographic and socioeconomic representation, and accessed a sampling frame of 659,572 bereaved and non-bereaved staff and students. There was no accurate way of measuring response rate as the denominator of bereaved people in this sample was not ascertainable using routine data or survey methods.

The survey's inclusion criteria were respondents aged between 18 and 40 years who had experienced the sudden bereavement of a close friend or relative, with the loss occurring after they were aged ten years. Participants self-reported their exposure to bereavement by suicide, sudden natural causes (e.g. coronary death), or sudden un-natural causes (e.g., accidental death). The exclusion criteria were exposure to bereavement before the age of ten, in order to reduce recall bias and capture an adult level of cognitive processing of life events.

Of the total of 3,686 respondents to the UCL Bereavement Survey who consented to participate and specified mode of traumatic bereavement, we included in our secondary analysis the 3,167 (86%) individuals who had provided data on personality characteristics, suicidal ideation and suicide attempt (Figure 1).

### **Ethical approval**

All participants provided online informed consent. The study protocol was approved by the UCL Research Ethics Committee in 2010 (reference: 1975/002).

### **Measures**

The online survey questionnaire collected quantitative data on sociodemographic and clinical characteristics.

#### ***Exposure: personality disorder traits***

Personality disorder traits were assessed using the self-report Standardized Assessment of Personality - Abbreviated Scale (SAPAS); an eight-item screen for identifying a probable diagnosis of personality disorder, based on DSM-IV-TR criteria (Germans, Van Heck, Moran, & Hodiamont, 2008). These items cover: difficulty making and keeping friends; identifying as a loner; difficulty trusting other people; tendency to lose one's temper easily; tendency to impulsivity; tendency to be a worrier; tendency to depend on others; and tendency to be a perfectionist (see Box 1). The SAPAS was originally validated in a psychiatric population (Moran et al., 2003) and has also been validated for use in general population samples (Fok et al., 2015). Furthermore, other work has confirmed the clinical utility of the SAPAS, with SAPAS scores being prospectively linked with future functioning and clinical impairment, including general health status (Fok et al., 2014), response to psychological treatment (Crawford et al., 2009; Mars et al., 2020), and treatment response in depression (Gorwood et

al., 2010; Bukh et al., 2010). We used the population-derived cut point of four to indicate high probability of a diagnosis of personality disorder (Fok et al., 2015).

### ***Outcomes: Suicidal behaviour***

We measured self-reported suicide attempt and self-reported suicidal ideation since exposure to bereavement, captured using the survey questions “*Have you ever made an attempt to take your life, by taking an overdose of tablets or in some other way?*” and “*Have you ever thought of taking your life, even though you would not actually do it?*”. The wording of these questions was taken from the Adult Psychiatric Morbidity Survey (APMS), a regular national survey of the mental health of the general population in England, providing population norms (McManus, Meltzer, Brugha, Bebbington, & Jenkins, 2009). In the case of affirmative responses for either question, a qualifier determined whether the attempt/ideation had occurred before, after, or both before and after the bereavement.

### ***Covariates***

On *a priori* grounds, we defined a set of six covariates as potential confounders: gender (Hawton, 2000; Lippa, 2010; Trull, Jahng, Tomko, Wood, & Sher, 2010), age (Moran et al., 2012; Shah, 2007), socioeconomic status (Rehkopf & Buka, 2006; Jonassaint, Siegler, Barefoot, Edwards, & Williams, 2011), pre-bereavement suicidal and non-suicidal self-harm (Ribeiro et al., 2016; Whitlock et al., 2013; Brezo et al., 2006a; Ansell et al., 2015), pre-bereavement depression (Fergusson, Beautrais, & Horwood, 2003), and perceived social support (Tuisku et al., 2014). We measured these as follows:

- gender: using a self-report binary variable
- age: continuous measure
- socio-economic status: five category variable based on assigning own occupation (for staff) or the occupation of a parent or other source of financial support (for students)



using the National Statistics Socio-economic Classification (NS-SEC) of skill level and skill content, based on the Office for National Statistics Standard Occupational Classification 2010 (ONS, 2010), collapsing social classes 1.1 and 1.2 into category 1, and social classes 5 - 9 into category 5.

- pre-bereavement suicidal and non-suicidal self-harm: based on responses to the question on suicide attempt described above, and to a question on non-suicidal self-harm (“*Have you ever deliberately harmed yourself in any way but not with the intention of killing yourself?*”) (McManus, Meltzer, Brugha, Bebbington, & Jenkins, 2009), qualified to include only episodes occurring before the bereavement
- pre-bereavement depression, using the two item Composite International Diagnostic Interview (CIDI) screen for lifetime depression (Robins et al., 1988), qualified by whether the onset of these core symptoms of low mood and anhedonia occurred before or after the sudden bereavement, to derive a binary measure
- perceived social support, using a seven item scale taken from the 1987 Health and Lifestyle survey in England (Cox et al., 1987) and also used in the APMS, in which scores are summed to create a three category variable: no lack of perceived social support, moderate lack of perceived social support, and severe lack of perceived social support

We measured three putative modifiers of the association between the exposure and outcomes: gender, mode of bereavement (suicide *versus* non-suicide loss), and closeness to the deceased. We predicted that the magnitude of the association would be greater in females, the suicide-bereaved, and those most closely attached to the deceased. The latter two variables were measured as follows:

- mode of bereavement, ascertained based on responses to the question “*Since you were aged 10 have you experienced a sudden bereavement of someone close to you due to*

any of the following: (1) sudden natural death (eg. cardiac arrest, epileptic seizure, stroke); (2) sudden unnatural death (eg. road crash, murder or manslaughter, work accident); (3) suicide?”. Those who had experienced bereavement by suicide as well as another bereavement by a different cause were classified as suicide-bereaved.

- closeness to the deceased, using an unvalidated Likert-type scale derived from previous bereavement research (Bailey, Kral, & Dunham, 1999), rated from 1 (‘Not close at all’) to 5 (‘As close as any relationship I’ve had before or since’) and dichotomized into ‘quite close’ (1-3) and ‘very close’ (4-5).

We also measured the following descriptive characteristics:

- post-bereavement suicidal thoughts: using a question from the standardized APMS survey based on the question “*Have you ever thought of taking your life, even if you would not really do it?*” (McManus, Meltzer, Brugha, Bebbington, & Jenkins, 2009), qualified by whether this was after the bereavement
- post-bereavement non-suicidal self-harm: using a question from the standardized APMS survey based on the question “*Have you ever deliberately harmed yourself in any way but not with the intention of killing yourself?*” (McManus, Meltzer, Brugha, Bebbington, & Jenkins, 2009), qualified by whether this was after the bereavement
- incident depression post-bereavement: using the two item Composite International Diagnostic Interview (CIDI) screen for lifetime depression (Robins et al., 1988) as above, qualified by whether the onset was after the sudden bereavement

Missing data for model covariates varied from <0.5% (for gender, pre-bereavement depression, pre-bereavement self-harm, pre-bereavement suicide attempt) to 3% (for socio-economic status).

### **Statistical Analysis**

We described the sample's demographic and clinical characteristics by exposure group, using Chi-squared tests (categorical variables) and one-way analysis of variance (continuous variables). For descriptive purposes, we classified exposure in our sample using three categories: individuals scoring 0 traits on the SAPAS, those scoring 1 to 3 traits, and those scoring 4 or more traits (denoting the threshold for a possible diagnosis of personality disorder). However, for our main regressions, we used the SAPAS as a continuous measure.

We investigated the relationship between number of personality disorder traits (continuous measure) and our two binary outcomes using multivariable logistic regression models with HEI as random effect, to take into account any clustering effect at the HEI level. We adjusted models for the six confounders described above, adding three blocks sequentially for socio-demographic variables, clinical variables, and social support.

To assess whether gender, mode of bereavement (suicide *versus* non-suicide loss), or closeness to the deceased (very close *versus* quite close) modified the association between personality disorder traits and suicidality we specified separate statistical models with interactions between number of personality disorder traits and each of the putative effect modifiers.

To check for deviations from a linear association between number of personality traits and post-bereavement suicide attempt and ideation (May & Bigelow, 2006) we further included a quadratic term for exposure in relation to both outcomes.

We tested for a threshold effect of high probability of a diagnosis of personality disorder by adding an indicator variable to statistical models for each outcome using the standard population-derived cut point of four SAPAS personality traits (Fok et al, 2015) and used likelihood ratio tests to compare these models to nested models without this indicator variable.

We also tested for a threshold effect at adjacent cut points by repeating these analyses with the cut point as three and five SAPAS personality traits respectively.

As a final exploratory analysis, we ran logistic regressions to test for an association of each of the eight individual SAPAS personality disorder traits with outcomes (see Supplementary online table).

We used complete case analysis, such that participants with missing data on any of the covariates were excluded from final models. All analyses were conducted using STATA version 15 (StataCorp, 2017).

## **Results**

### **Sample Characteristics**

The majority of the sample endorsed one or more traits on the SAPAS (3,038/3,167; 96%), and 11% (347/3,167) endorsed one trait only. A third endorsed four or more traits, reaching the threshold for possible diagnosis of personality disorder (37%), whilst 59% (1,863/3,167) endorsed 1 to 3 traits (Table 1). The majority of the sample were female (81%), white (90%), and aged 23 or more. The highest educational attainment of most participants was A Level or equivalent or degree level qualifications. The majority had been bereaved due to sudden natural death (61%) and by the death of a blood relative (71%). A total of 208 participants (7%) had attempted suicide since the bereavement and 1,512 (48%) reported post-bereavement suicidal ideation. When comparing groups defined by number of SAPAS personality traits, there were no group differences in age, self-defined ethnicity, kinship, closeness to the deceased, or mode of bereavement. Participants endorsing four or more SAPAS personality traits had a higher prevalence of depression, of pre-bereavement non-suicidal self-harm, and of post-bereavement incident depression.

In descending order, the frequency of each SAPAS personality trait endorsed in this sample was: tendency to be a worrier (72%); tendency to being a perfectionist (63%); tendency to impulsivity (43%); difficulty trusting other people (33%); tendency to lose one's temper easily (28%); tendency to depend on others (28%); difficulty making and keeping friends (22%); and identifying as a loner (22%). The total number of personality traits endorsed on the SAPAS was normally distributed (Figure 2).

### **The association between personality traits endorsed on SAPAS and probability of suicidality after traumatic bereavement**

We found evidence to support an association between number of traits endorsed on a screen for possible personality disorder and post-bereavement suicide attempt, both in unadjusted (odds ratio [OR]=1.48, 95% CI: 1.35 to 1.61;  $p<0.0001$ ) and adjusted (adjusted odds ratio [AOR]=1.36; 95% CI: 1.23 to 1.49;  $p<0.0001$ ) models (see Table 2). There was a linear relationship between number of personality disorder traits and the log odds of suicide attempt ( $p=0.8$  for non-linearity), with each additional trait increasing the odds of post-bereavement suicide attempt by 48% (unadjusted) or 36% (adjusted model). When adding a quadratic term to our model for suicide attempt there was no evidence for deviation from linearity, whether in an unadjusted ( $p=0.795$ ) or adjusted ( $p=0.971$ ) model.

We also found evidence to support an association between number of personality disorder traits and post-bereavement suicidal ideation, both in unadjusted (OR=1.39, 95% CI: 1.32 to 1.46;  $p<0.0001$ ) and adjusted (OR= 1.31, 95% CI: 1.25 to 1.38;  $p<0.0001$ ) models (see Table 2). There was also a linear relationship between number of personality disorder traits and probability of suicidal thoughts ( $p=0.2$  for non-linearity), with each additional trait increasing the odds of post-bereavement suicide ideation by 39% (unadjusted) or 31% (adjusted model). When adding a quadratic term to the model for suicidal ideation there was no evidence for deviation from linearity, whether in an unadjusted ( $p=0.158$ ) or adjusted ( $p=0.142$ ) model.

### **Effect modification**

We did not find evidence that gender modified these adjusted associations, whether in relation to suicide attempt ( $p=0.1$ ) or suicidal ideation ( $p=0.5$ ). We also found no evidence that exposure to suicide bereavement (versus other losses) modified adjusted associations, whether in relation to suicide attempt ( $p=0.3$ ) or suicidal ideation ( $p=0.6$ ). Finally, we found no evidence that reporting emotional closeness to the deceased modified adjusted associations, either in relation to suicide attempt ( $p=0.4107$ ) or suicidal ideation ( $p=0.5221$ ).

### **Test for model fit**

There was no evidence that the addition to final models of binary indicator variables denoting high probability of having a diagnosis of personality disorder (with number of SAPAS personality disorder traits as the main exposure) improved the fit of these models. This was the case when using binary variables based on the conventional cut point of four traits or more, and when using cut points of three and as five traits. These findings provided no evidence to support the existence of threshold effects.

### **Associations of individual personality disorder traits with outcomes**

Our exploratory analysis of individual personality disorder traits with suicide attempt after sudden bereavement (see Supplementary Table) found that, when adjusted for the six covariates as above, only two of these personality traits (being a perfectionist and depending on others) were not associated with post-bereavement suicide attempt (see Supplementary Table). When this exploratory analysis was conducted with post-bereavement suicidal thoughts as the outcome, only one trait (being a perfectionist) was not associated with suicidal thoughts. The traits most strongly associated with risk of suicide attempt were: describing oneself as a loner (AOR=2.11, 95% CI: 1.54 to 2.90;  $p<0.0001$ ), and difficulty in making or keeping friends (AOR=1.88, 95% CI: 1.36 to 2.59;  $p<0.0001$ ). The traits most strongly associated with risk of

suicidal ideation were: describing oneself as a loner (AOR=1.97, 95% CI: 1.64 to 2.37,  $p<0.0001$ ), and a tendency to lose one's temper (AOR=1.74, 95% CI: 1.12 to 1.51,  $p<0.0001$ ).

## **Discussion**

### **Main Findings**

We found evidence to support a linear relationship between the number of personality disorder traits and probability of suicidal behaviour after an adverse life event. For each additional trait endorsed, odds of attempting suicide and of suicidal thoughts after sudden bereavement increased by 36% and 31% respectively. These associations held even after taking into account group differences in socio-demographic and clinical characteristics, and perceived social support after bereavement, and were not modified by gender, mode of bereavement, or closeness to the deceased. This last finding is surprising, given that sensitivities to abandonment are features of borderline personality disorder (WHO, 1993), and in view of its association with suicidality (Black, Blum, Pfohl, & Hale, 2004). Further exploratory work to describe the additive effect of specific combinations of traits suggestive of personality disorder would be clinically useful, but would require larger, longitudinal, representative samples.

### **Results in the context of other studies**

To our knowledge only one previous study has investigated the association of severity of personality disorder traits with suicidality. This too was cross-sectional, and relied on a clinical sample of emergency department attenders, using a categorical exposure (no personality disorder, 'simple' personality disorder, 'diffuse' personality disorder), and found an association of severity of personality disorder with number of past suicide attempts but not severity or lethality of attempts (Blasco-Fontecill et al., 2009). However, we believe the current study to be the first to investigate the association between the number of traits suggestive of a diagnosis of personality disorder and suicidal behaviour, as well as to explore the modifying

effect of gender, closeness, and mode of bereavement. Other studies have tended to capture personality using a range of dimensions or sub-types in assessing associations with suicidality (Brezo, Paris, and Turecki, 2006a).

In relation to the differential associations of each personality disorder trait with suicidality, our exploratory findings were in keeping with work showing that the traits consistently associated with suicidal behaviours are neuroticism (Ortigo et al., 2009; Yen et al., 2009; Beautrais, Joyce, & Mulder, 1999) and impulsivity (Brezo et al., 2006b). Our finding that impulsivity was less strongly associated with suicidality than factors such as being a worrier is in keeping with longitudinal research finding that neuroticism is a stronger predictor of suicide attempt than disinhibition and impulsivity (Yen et al., 2009). Our finding of no association of perfectionism with suicidality conflicts with other work (Hewitt, Flett, & Turnball-Donovan, 1992; Smith et al., 2017) but as an exploratory analysis this may be a chance finding.

### **Strengths and limitations**

We analyzed data from a large, UK-wide sample of 3,167 bereaved adults using a brief, validated personality measure, which reduced question burden on respondents compared to lengthy diagnostic assessments. We tested specific hypotheses reflecting gaps in the personality disorder literature and a focus on young adults, and our statistical models were adjusted for pre-selected potential confounders. In view of the survey's sampling methods, we acknowledge the potential for male non-response bias, and selection bias of white, highly educated adults from higher socio-economic groups. Our use of a validated brief screen for personality disorder traits allowed us to gather data on a large population-based sample. However, by virtue of its brevity, use of a personality disorder screen may have introduced some measurement error. We also acknowledge that perfectionism is a common trait among students (Halgin & Leahy, 1989), and the prevalence of perfectionism is likely to be higher



than in non-HEI samples. Our inclusion of survey participants who had complete data on bereavement type, personality traits, suicidality, and all covariates meant that our sample may not be representative of all those exposed to sudden bereavement. These factors, and the survey's age restrictions, suggest that the study's findings may be generalizable only to highly educated young white women in the UK. This is underlined by the rate of suicide in the UK student population, 4.7 deaths per 100,000 HEI students, (ONS, 2018) being significantly lower than that for non-student peers of the same age (Gunnell, Caul, Appleby, John, & Hawton, 2020). Our focus on exposure to sudden bereavement is also not representative of all adverse life events in this age group.

Our measures of suicidality and depression were potentially subject to recall bias, and that used to measure pre-bereavement depression was a brief screening tool, which may have resulted in over- or under-adjustment for past depression in multivariable models. We used a standardised measure of suicidal ideation, with population norms, but this did not specify the degree of planning or intent inherent to the suicidal thoughts. As this was a cross-sectional study, it was not possible to definitively ascertain the temporal sequence of outcomes, including whether suicidal behaviour following bereavement had preceded the emergence of personality disorder traits. The dataset also lacked measures of the number of attempts or episodes of suicidal intent, or the intentions associated with them. Finally, as this was a secondary analysis of existing data, we were unable to control for a number of important unmeasured potential confounders. These include coping styles and problem-solving skills (Connor-Smith & Flachsbart, 2007), which may be associated with negative outcomes after bereavement (Stroebe et al, 2007), and resilience (Nruham, Holen, & Sund, 2010).

### **Clinical and research implications**

Our findings from a sample of young adults suggest that young bereaved adults with personality difficulties are a vulnerable population. We know that young people have a

tendency not to seek help when in distress (Biddle, Donovan, Sharp, & Gunnell, 2007) and that those who attempt suicide are more likely to have persistent mental and physical health and social problems (Goldman-Mellor et al., 2014). Young adults are a priority group within suicide prevention strategies due to concerns about their risk of suicide (Department of Health, 2012). Our findings suggest that, following bereavement, young people endorsing a greater number of personality disorder traits fare worse in terms of their future mental health, with higher rates of incident depression and incident suicidality. This finding is in keeping with other longitudinal studies (Moran et al., 2016), and highlights a need for practitioners to tailor bereavement or crisis support packages to those with a greater degree of underlying personality difficulties, as they are a high-risk population. It may be important to profile the personality characteristics of people who experience sudden bereavement, to identify those with personality difficulties and the associated risk of suicidality. Improving our clinical response to such markers of risk in the bereaved population is important because of the established association of sudden bereavement with risk of suicidality and psychiatric morbidity (Ajdacic-Gross et al., 2008; Daniel, Goldston, Erkanli, Heilbron, & Franklin, 2017; Guldin et al., 2017; Qin & Mortensen, 2003), particularly in young people, and after suicide loss (Erlangsen et al., 2017; Guldin et al., 2017; Hawton & Rodham, 2006; Pitman, Osborn, King, & Erlangsen, 2014).

Very little research has explored how personality factors influence adaptation to a life event such as bereavement, despite this being likely to influence coping style, depending on the nature of attachment to the deceased (Stroebe, Schut, & Stroebe, 2007). It is possible that a greater range of personality difficulties hampers ability to cope with grief, and that this discourages others from offering support. It is also possible that loss of a friend or relative (regardless of how close they were) induces emotional dysregulation through abandonment. All of these factors might increase the risk of suicidality, particularly in the context of feeling

lonely or set apart from one's peers. However, to develop these hypotheses there is a need for qualitative work to enrich our understanding of how people with traits suggestive of personality disorder experience sudden loss. Furthermore, there is a need for longitudinal studies to investigate the course of suicidality following bereavement and how this may vary in relation to interpersonal difficulties.

## **Conclusion**

This analysis of British survey data on people who have experienced sudden bereavement found a linear association between number of personality disorder traits and probability of suicidal ideation and suicide attempt after a negative life event. This association was not modified by gender, cause of death, nor degree of closeness to the deceased. Our findings suggest that personality assessment may be clinically useful for bereavement counsellors, crisis teams, and general practitioners after a traumatic life event to gain a sense of a bereaved person's risk of suicidality and the way they respond to others, in order to help tailor appropriate support.

**Table 1: Sample characteristics in relation to number of personality traits measured on SAPAS**

<b>Characteristics</b>	<b>0 personality traits on SAPAS (n= 129, 4%)</b>	<b>1-3 personality traits on SAPAS (n= 1863, 59%)</b>	<b>4 or more personality traits on SAPAS (n= 1175, 37%)</b>	<b>Total participants (n=3167)</b>	<b>P-value</b>
<b>Demographic and social variables</b>					
Gender					
Female	91 (71)	1511 (81)	977 (83)	2579 (81)	0.01
Male	38 (29)	351 (19)	198 (17)	587 (18)	
Missing	0	1 (<1)	0	1 (<1)	
Age (years); mean (SD)	26.50 (7)	25.14 (6)	24.81 (6)	25.07 (6)	0.3
Ethnicity					
White	118 (91)	1671 (90)	1064 (91)	2853 (90)	0.65
Non-White	11 (9)	189 (10)	111 (9)	311 (10)	
Missing	0	3 (<1)	0	3 (<1)	
Highest educational attainment					
No academic qualification	0	1 (<1)	2 (<1)	3 (<1)	<0.0001
Maximum GCSE level	4 (3)	31 (2)	15 (1)	50 (2)	
Maximum A level	43 (33)	728 (39)	549 (47)	1320 (42)	
Maximum university degree	50 (38)	695 (37)	409 (35)	1153 (36)	
Maximum post-graduate	32 (25)	402 (22)	200 (17)	634 (20)	
<b>Socioeconomic status</b>					
Social class 1 (least deprived)	43 (33)	578 (31)	303 (26)	924 (29)	0.004
Social class 2	41 (32)	607 (33)	385 (33)	1033 (33)	
Social class 3	14 (11)	222 (12)	139 (12)	375 (12)	
Social class 4	9 (7)	93 (5)	47 (4)	149 (5)	
Social class 5 (most deprived)	18 (14)	311 (17)	265 (23)	594 (19)	
Missing	4 (3)	52 (3)	36 (3)	92 (3)	

Association between personality traits and suicidality

Work status	Working	37 (29)	410 (22)	197 (17)	644 (20)	0.001
	Studying	51 (40)	931 (50)	604 (51)	1586 (50)	
	Both working & studying	40 (31)	515 (28)	365 (31)	920 (29)	
	Neither	1 (1)	7 (<1)	9 (1)	17 (1)	
Social support	No lack of perceived support	98 (76)	1197 (64)	542 (46)	1837 (58)	<0.0001
	Moderate lack of perceived support	25 (19)	452 (24)	369 (31)	846 (27)	
	Severe lack of perceived support	6 (5)	214 (11)	264 (22)	484 (15)	
<b>Clinical variables</b>						
Depression prior to loss	Yes	6 (5)	294 (16)	323 (28)	626 (20)	<0.0001
	Missing	0	2 (<1)	2 (<1)	4 (<1)	
Non-suicidal self-harm prior to loss	Yes	16 (12)	338 (18)	358 (30)	712 (22)	<0.0001
	Missing	0	6 (<1)	1 (<1)	7 (<1)	
Suicide attempts after bereavement	Yes	0	80 (4)	128 (11)	208 (7)	<0.0001
	Missing	0	0	0	0	
Suicidal thoughts after bereavement	Yes	39 (23)	748 (40)	725 (62)	1512 (48)	<0.0001
	Missing	0	0	0	0	
Non-suicidal self-harm after bereavement	Yes	17 (13)	344 (18)	368 (31)	729 (23)	<0.0001
	Missing	0	6 (<1)	2 (<1)	8 (<1)	
Incident depression after bereavement	Yes	30 (23)	545 (29)	460 (39)	1035 (33)	<0.001
	Missing	0	2 (<1)	2 (<1)	4 (<1)	
<b>Bereavement variables</b>						
Closeness to the deceased	Very close	98 (76)	1379 (74)	865 (74)	2342 (74)	0.07
	Quite close	28 (22)	476 (25)	303 (26)	807 (25)	
	Missing	3 (2)	8 (0.5)	7 (0.5)	18 (0.5)	

Kinship to the deceased					
Blood relative	91 (71)	1308 (70)	854 (73)	2253 (71)	0.54
Non-blood relative	38 (29)	547 (29)	318 (28)	903 (28)	
Missing	0	8 (0.5)	3 (0.2)	11 (0.5)	
Type of bereavement					
Natural sudden death	76 (59)	1129 (61)	733 (62)	1938 (61)	0.28
Unnatural sudden death	30 (23)	411 (22)	222 (19)	663 (21)	
Suicide	23 (18)	323 (17)	220 (19)	566 (18)	

**Key:**

All statistics are presented as n (%) unless otherwise stated. P values are for group comparisons excluding missing values, using a two-sided significance threshold of  $p=0.05$ .

SAPAS = Standardised Assessment of Personality – Abbreviated Scale

**Table 2. Estimates of the association between number of traits measured using SAPAS and post-bereavement suicidality**

<b>Outcome</b>	<b>Odds ratio (95% CI)</b>	<b>P-value</b>
<b>Post-bereavement suicide attempt</b>		
Unadjusted model	1.48 (1.35 - 1.60)	<0.0001
Adjusted for age, gender, socio-economic status	1.47 (1.34 - 1.60)	<0.0001
Adjusted for age, gender, socio-economic status; pre-bereavement depression, pre-bereavement (suicidal and non-suicidal) self-harm	1.42 (1.29 - 1.55)	<0.0001
Final model: Adjusted for above variables and perceived social support	1.36 (1.23 - 1.49)	<0.0001
<b>Post-bereavement suicidal ideation</b>		
Unadjusted model	1.39 (1.32 - 1.46)	<0.0001
Adjusted for age, gender, socio-economic status	1.38 (1.32 - 1.45)	<0.0001
Adjusted for age, gender, socio-economic status; pre-bereavement depression, pre-bereavement (suicidal and non-suicidal) self-harm	1.36 (1.30 - 1.43)	<0.0001
Final model: Adjusted for above variables and perceived social support	1.31 (1.25 - 1.38)	<0.0001

**Key:**

All models used complete case analysis of n=3,065 individuals

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### **Ethical standards**

The author asserts that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

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