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Prevalence and psychiatric correlates of suicidal ideation in UK university students

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Abstract

Background: Evidence highlights increased susceptibility to thoughts and behaviors related to suicide (i.e. suicidal ideation) in the student population, often in co-occurrence with mental health difficulties. Typically, studies focus on specific symptoms, with few providing comprehensive examination of risk factors. In this study we examined the prevalence of suicidal ideation among UK university students and assessed the association with multiple psychiatric risk factors. **Methods:** A total of N=1273 students completed online measures of suicidal ideation, anxiety, depression, insomnia, mania, psychosis, and perceived stress. **Results:** 37.3% students were classified as high-risk for suicidal behaviour. Moreover, 42.2% of students contemplated suicide at least once within the past twelve months, and 25.1% reported telling someone about these thoughts at least once. Logistic regression analysis showed that suicidal ideation was significantly associated with symptoms of depression, mania, psychosis, and stress. **Limitations:** The cross-sectional nature of ours study does not allow us to infer causality in the observed associations. **Conclusions:** Our results indicate the prevalence of suicidal ideation in a large sample of university students in the UK, and highlight associated mental health risk factors associated with it. Our findings have implications for mental health practitioners working with University students.

1. Introduction

For many young adults, the transition to university involves significant life changes (e.g. increased independence, social demands) and academic challenges (e.g. independent learning) alongside reduced parental support and oversight (Holdaway et al., 2018). As a result, university students are frequently left vulnerable to psychological distress and the development or exacerbation of mental health difficulties (Taylor et al., 2013). Indeed, poor wellbeing and distress among university students is continually rising, with recent data highlighting a fivefold increase in the number of students disclosing their mental health difficulties to institutional support services over the past decade (Ibrahim et al., 2013; Thorley, 2017). Despite this, student interventions for suicide prevention remain largely ineffective (Harrod et al., 2014), with student services failing to meet the increased demand for support (Mortier et al., 2017; O'Neil et al., 2018).

Suicide is the second leading cause of death among young adults (WHO, 2014), and evidence highlights increased susceptibility to thoughts and behaviors related to suicide (i.e. suicidal ideation) in the student population (O'Neil et al., 2018). Meta-analytic data reveals that 25% of American college students to experience lifetime suicidal-ideation and 3% report an attempt at taking their own life within the past year (Mortier et al., 2017). Whereas in the UK, data reported from the Office for National Statistics indicate a twofold increase in completed suicides in higher education students over the past decade, with ninety-five completed suicides in the 2016/17 academic year (Baker, 2016). Universities UK and the Office for Students have initiated campaigns and research projects to tackle mental health difficulties and suicide rates in students studying in British universities.

Suicidal ideation presents significant risk for future suicidal behaviour and completion (Ribeiro et al., 2016), cooccurring with extreme psychological distress (Garlow et al., 2008) and reduced likelihood of pursuing treatment (Hom et al., 2015). The interaction between suicidal thoughts, behaviours and attempts remains complicated. However, progression between each factor may be considered a linear process where suicidal thoughts are followed by the development of a specific plan for initiating suicide and related behaviours (e.g. giving away personal possessions) before eventually deciding to make an attempt (Bashardoost & Ashoori, 2016; Yuodelis-Flores & Ries, 2015). However, considering the higher rate of suicidal ideation relative to suicide attempts (Rogers & Joiner, 2017), estimates based solely on patient and hospital records may serve to underestimate the issue of suicidal ideation in students (Morgan et al., 2019). The first twelve months following onset of suicidal ideation appears crucial, with data from seventeen countries demonstrating 60% of attempts are made within this period (Nock et al., 2008). While many completed suicides occur at first attempt (Lee et al., 2010), approximately 80% occur within a year of an individual's first attempt (Bostwick et al., 206). Therefore, adequate identification and assessment of students *at-risk* of suicidal ideation remains key in the prevention of suicide (Cracknell, 2015; Wilcox et al., 2010).

Suicidal ideation may occur in the absence of any other psychiatric disorder (Chiles & Strosahi, 2008). More typically, studies have shown that suicidal ideation co-occurs alongside underlying, yet treatable, mental health difficulties (Cracknell, 2015). In particular, evidence from both student and general population samples note elevated symptoms of anxiety, depression, insomnia, psychosis and stress to be associated with reports of suicidal ideation (Becker et al., 2018; Bashardoost & Ashoori, 2016; Eskin et al., 2016; Gliatto & Rai, 1999; Gould et al., 2003; Ibrahim et al., 2014; Izadinia et al., 2010; Mohan et al., 2019; Nepon et al., 2010; Russell et al., 2018; Strandheim et al., 2014; O'Neil et al., 2014). However, previous studies largely examined the role of specific psychiatric symptoms influencing suicidal ideation among students, with few studies providing a broad examination of potential risk factors (Mohan et al., 2019). Research sampling UK institutions remains sparse.

Those conducted to date remain limited to particular institutions or course topic (Cardwell et al., 2013). As such, this study aimed to determine the prevalence of suicidal ideation in a large sample of students in British universities and to explore the association between high-risk for suicide with a range of mental health difficulties influence of.

2. Method

2.1 Sample and procedure

In accordance with the British Psychological Society's Code of Human Research Ethics and the host institution's Research Ethics Policy, the study was approved by the University's Research Ethics Committee, and all participants provided online informed consent prior to data collection. A cross-sectional online questionnaire-based study was implemented comprising of questions designed to assess the prevalence of suicidal ideation and dimensional experiences of psychiatric symptoms which included: anxiety, depression, insomnia, mania, psychosis, and perceived stress. Demographic information regarding age, sex, ethnicity, student status (i.e. undergraduate or postgraduate) and part time work was also collected. Students from six UK universities were recruited through institutional course participation schemes (e.g., SONA Research Participation), student social media pages, and faculty emails. Only complete cases were used in the analysis due to the ethical right to withdraw from the survey at any time. The data was also examined for duplicate responses based on matching IP addresses, where none were found. This resulted in a sample of N=1650 individuals who began or clicked on a hyperlink to the survey which was delivered using the Qualtrics platform (Qualtrics, Provo, UT), and 1273 respondents (mean age=20.88±4.53, range 18-56, 84% female; see Table 1 for sample characteristics) providing complete data (final response rate = 77.2%) who were entered into the analysis. Students who requested course credit were remunerated on completion.

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2.2 Measures

Suicide risk was examined using the four-item self-report Suicidal Behaviours Questionnaire-Revised (SBQ-R; Osman et al., 2001). Specifically, four items examine lifetime ideation/attempt, frequency of ideation over the past 12 months, telling someone else about ideation, and likelihood of attempting suicide in the future. Items can be analysed individually and summated to create a total score ranging between 3-18. Higher total scores indicate greater risk of suicidal ideation. A score of ≥7 indicates significant risk for suicidal behaviour (Sensitivity, 93% and Specificity 91% in the adult general population; Osman et al., 2001). The internal consistency (Cronbach's alpha) of the scale in the present study was 0·84. The Generalized Anxiety Disorder-7: (GAD-7; Spitzer et al., 2006) examined symptoms of anxiety. Seven items capture core anxious symptoms as outlined in the DSM-IV/DSM-5. Items are scored on a 4-point Likert type scale (0 = not at all, 1 = several days; 2 = more than half of the days; 3 = nearly all days). The summation of items providing a total score ranging from 0-28. Higher scores indicate higher levels of anxiety, with scores ≥11 indicating possible cases of generalised anxiety disorder. The internal consistency of the scale in the present study was 0·92. The Patient Health Questionnaire: (PHQ-9; Lowe et al., 2004) examined symptoms of depression. Nine items capture core depressive symptoms as outlined in the DSM-IV/DSM-5. Items are scored on a 4-point Likert type scale (0 = not at all, 1 = several days; 2 = more than half of the days; 3 = nearly all days). The summation of items provides a total score between 0-27, where higher scores indicate greater depression, with scores ≥10 indicating possible cases of depression. The internal consistency of the scale in the present study was 0·90. The Sleep Condition Indicator: (SCI; Espie et al., 2014) assessed insomnia symptoms based on the DSM-5 criteria for Insomnia Disorder). Eight items are scored on a 5-point Likert scale, with total scores ranging between 0-32,

higher scores indicate better sleep. The internal consistency of the scale in the present study was 0·87. The Mood Disorder Questionnaire: (MDQ; Hirschfeld et al., 2000) dimensional symptom count was used to examine symptoms of mania (range 0–13). Here, participants provide yes/no responses to a prompting question "*Has there ever been a time when you were not your usual self and…*" followed by 13 responses such as "*…you had much more energy than usual*". Higher scores indicate higher levels of manic symptoms. The internal consistency of the scale in the present study was 0·83. The Prodromal Questionnaire 16 (Ising et al., 2012) was administered to assess psychotic experiences. Sixteen yes/no items evaluate the occurrence of positive/negative symptoms and avolition. Yielding a score between 0-16, higher scores indicate an increased presence of psychotic symptoms, with ≥6 suggesting an at-risk mental state. The internal consistency of the scale in the current study was 0·85. The Perceived Stress Scale: (PSS; Cohen et al., 1994) examined appraisal of stress levels over the past month. Fourteen items, scored on a 5-point Likert type scale (0-4), are summed to provide total scores ranging between 0-56. Higher scores indicate higher levels of perceived stress. The internal consistency of the scale in the present study was 0·88.

2.3 Statistical Analyses
All analyses were carried out using IBM SPSS v.24.0 (IBM Corp., Armonk, NT, USA). Descriptive statistics (mean scores, standard deviations and prevalence percentages) were calculated and individuals were classified into those with or without significant risk for suicidal behaviour based on the ≥7 cut-off point on the SBQR. Moreover, independent samples t-tests examined differences in sex, student (under vs. postgraduate) and work status (part-time vs no work) for each variable. Correlational analysis examined the inter-relationships between all variables. Finally, a stepwise binary logistic regression analyses, with bootstrapping (1000 resamples) and 95% bias corrected and accelerated confidence intervals, was used to determine which specific psychiatric symptoms differentiated risk status of suicidal behaviour (at risk vs. no risk). Significance was considered at the $P<0.05$ level.

3. Results
3.1 Prevalence of suicidal ideation
Mean scores and prevalence of suicidal ideation, for the total sample, are presented in Table 2. Overall, 37.3% of students (n=475) scored above the cut-off point of ≥7 on the SBQR, indicating significant risk for suicidal behaviour. Examination of individual items for the whole sample revealed that 20.1% of students had planned their suicide whereas 10.8% reported making an attempt. Moreover, 42.2% of students contemplated suicide at least once within the past twelve months, and 25.1% reported telling someone about these thoughts at least once. Finally, 6% of students stated the possibility of a future attempt. No sex differences (females: 6.26±3.74; males: 6.01±3.42) were observed in total SBQR scores (F(2,1270)=1.22,p=.30) or each of the individual items (all p's >.05). Likewise, no differences were observed between those conducting part-time work alongside their study (6.23±3.68; N=505) when compared to those who do not (6.22±3.70; N=768: F(1,1271)=.001,p=.98). Finally, no differences were observed between undergraduate (6.20±3.68; N=1117) and postgraduate students (6.42±3.66; N=156: F(1,1271)=.51,p=.48).

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3.3 Predictors of Suicidal Ideation
Binary logistic regression analysis was used to assess the relationship between mental health difficulties, namely symptoms of depression, anxiety, psychological stress, mania, psychosis and insomnia, after controlling for the effects of age and gender. The results showed that the model had a good fit to the data

(Omnibus χ^2=442.13,df=8,p<.001) and that students classified as high risk for suicide were more likely to report: higher symptoms of depression (OR=1.15,p<.001, 95% CI=1.10 - 1.19), psychosis (OR=1.10, p<.001, 95% CI = 1.04 - 1.15), and psychological stress (OR=1.04,p=.012, 95% CI =1.01 - 1.07); and lower symptoms of mania (OR=0.92,p=.002, 95% CI=0.83 - 0.97). Correlations between all variables are provided in Table 3, and the results from the logistic regression analysis are summarised in Table 4.

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4. Discussion

The present study adds to the limited number of extant research on correlates of suicidal thoughts and behaviours in the understudied population of university students in the UK. More crucially, after accounting for shared variance amongst psychiatric symptoms, we provide additional evidence that depressive symptoms, psychotic experiences and perceived stress are associated with greater risk of suicidal ideation.

More specifically, we found that over a third of students (37.3%) self-reported significant risk for suicidal behaviour. Approximately one tenth of students reported previously attempting to take their own life, whereas a substantial proportion (42.2%) considered such action within the past year, with many individuals (25.1%) having a firm plan of how they would proceed with this action. However, reports of possible future attempt(s) remained lower (6%). These findings add to the limited body of evidence examining the prevalence of suicidal thoughts and behaviours amongst UK university students. Previously, using an in-house assessment of suicidal ideation among UK students, Eskin and colleagues (2016) found that 7.3% reported previously attempting suicide and 15.3% considering suicide in the past year. In a more specific sample of veterinarian students in the UK, 2.7% reported engaging in suicidal behaviour, with lifetime prevalence of suicidal ideation at 25% (Cardwell et al., 2013). Additional research notes higher estimates of lifetime suicidal ideation among students in the UK at 72.4%, with at least one prior attempt reported by 24% (Dhingra et al., 2018). More recently, 31% of college students in Northern Ireland indicated significant risk for suicidal ideation with 20% of students having made a plan and 7.7% an attempt within the past year (O'Neill et al, 2018). Among US college students, recent meta-analytic data revealed pooled estimates of lifetime suicidal ideation, plans and attempts to be 22.3%, 6.1% and 3.2% respectively. Whilst previous estimates from student populations in the UK (Cardwell et al., 2013; Eskin et al., 2016) and US appear somewhat lower than those yielded in the present sample, the varying use of measures limits any direct comparison. That said, reports of lifetime ideation and attempted suicide in students remain higher than those found in the UK general population. Indeed, data from the British Psychiatric Morbidity Survey (Bebbington et al., 2010) found death wishes and suicidal thinking to be experienced by 15% of individuals at some point in their life, whereas actual attempts at suicide were rarer at 4.4%.

Depressive symptoms, psychotic experiences and perceived stress in the present study were related to increased levels of suicidal ideation. Evidence to date consistently describes the predictive role of these symptoms in relation to suicidal ideation (Becker et al., 2018; Bashardoost & Ashoori, 2016; DeVylder, et al., 2015; Eskin et al., 2016; Gliatto & Rai, 1999; Gould et al., 2003; Ibrahim et al., 2014; Izadinia et al., 2010; Kelleher et al., 2012; Mohan et al., 2019; Nepon et al., 2010; Russell et al., 2018; Strandheim et al., 2014; O'Neil et al., 2014; Wang, Shi, & Luo, 2016; Wu & Zhao, 2009). The experience of depression is reliably considered one of the key predictors of suicidal ideation in students and young adults (Farabaugh et al., 2012; Garlow et al., 2008; Ibrahim et al., 2014; Mohan et al., 2019; Rotenstein et al., 2016). Indeed, amongst college students, depressive symptoms can accurately predict suicidal ideation in up to 94% of cases (Wu & Zhao,

2009). The experience of depression is characterised by a decrease in positive affect and social, occupational and inter-personal impairments that often manifesting in a number of symptoms which include reduced concentration, fatigue, hopelessness, and disturbed sleep (American Psychiatric Association, 2013). Undoubtably, these symptoms interfere with university lifestyle, impairing the ability to adequately manage academic, social and interpersonal stressors. This overwhelming lack of control and feelings of deflation and worthlessness potentially contributes to the onset of suicidal thoughts and behaviours (Ibrahim et al., 2014).

Epidemiological data indicates subthreshold psychotic experiences to be reliable in predicting suicidal ideation (DeVylder, et al., 2015; Kelleher et al., 2012) and cross-sectional data demonstrates the presence of suicidal ideation in 34% of adolescents presenting psychotic experiences (Nishida et al., 2010). Moreover, in a community-based study of adolescents, depression was found to mediate the relationship between psychotic experiences and suicidal ideation (Jang et al., 2014). The co-occurrence of depressive symptoms and psychotic experiences are theorised to accentuate distortions of reality in social situations which in turn precipitate suicidal thoughts and behaviours (Lin et al., 2011). Interestingly, examination of associated distress more accurately determines levels of suicidal ideation above psychotic symptoms alone (DeVylder, et al., 2015). Therefore, understanding potential influences of psychotic distress would provide a better understanding of mechanisms underlying the relationship between depressive and psychotic symptoms and suicidal ideation (DeVylder et al., 2015).

Interestingly, manic symptoms were significantly related to reduced levels of suicidal ideation in the current study. A number of factors may explain this relationship. Individuals experiencing dysphoric mania and mixed depression consistently present an increased risk for suicidal behaviour relative to non-mixed forms (i.e. pure mania, unipolar depression: Akiskal & Benazzi, 2006; Balazs et al., 2006; Bottlender et al., 2004; Goldberg et al., 1999; Pacchiarotti et al., 2011; Perugi et al., 2013, 2014, Valtonen et al., 2007). As the present study examined lifetime prevalence of manic symptoms, we were unable to tease apart participants who may have experienced mixed and non-mixed forms. Moreover, examination of lifetime manic-hypomanic symptoms eave failed to predict suicidal ideation in mood-disorder patients (Balestrieri et al., 2006). Here, manic-hypomanic symptoms played a protective role against suicidal ideation amongst individuals with panic disorder. Whereas, manic-hypomanic symptoms failed to predict suicidal ideation in patients with schizophrenia, bipolar disorder, unipolar depression, and borderline personality disorder. Therefore, further research is certainly required to clarify the predictive role of mania in relation to suicidal ideation in students. More specifically, the nature of symptom presentation (mixed v.s non-mixed mania and depression) and co-occurring psychiatric symptoms may differentially influence the predictive orientation of suicidal ideation.

University students face many stressors that may contribute to the experience of distress and psychiatric difficulties. Financial strain and debt paired with the challenge of living on a self-managed and reduced budget for the first time may prove especially difficult for UK students who may struggle with the increasingly higher costs of living and increased tuition fees (O'Neil et al., 2018). Moreover, the transition to university involves increased academic standards accompanied by a shift towards more independent and less structured methods of learning which for some may prove particularly stressful (Cleary et al., 2011). Finally, more frequent social activities associated with the university lifestyle, occurring in the absence of parental oversight, may present opportunities for increased alcohol intake, potential substance use and formation of sexual relationships (Cleary et al., 2011). Taken together, these factors likely contribute to an environment that precipitates psychiatric difficulty amongst young adults who are vulnerable. In contrast, older adults likely face different problems which may to relate to their age and specific life-span tasks. In particular, some older adults may

struggle to balance academic tasks with part-time work and childcare. It is also possible that some older adults may feel isolated in the context of university culture and collegial activities due to a generational disconnect. That said, further research is required to explore the underlying mechanisms that serve to influence suicidal ideation amongst older adults.

Many institutions, including those where data for this study was gathered, provide student support and wellbeing services offering access to various talking therapies. Despite this, the prevalence of suicidal thoughts and behaviours appears to be increasing. It is vital for student wellbeing services to expand the respective programmes offered and the scope of symptoms covered to cater for those experiencing suicidal thoughts and behaviours. As suggested by Beiter and colleagues (2015), systematic evaluation of student mental health should be a priority for universities. Monitoring of this nature would approximate the specific needs of students, required availability of programmes and appropriate staffing and with the benefit of improving the efficacy of in-house treatment and assessment (Beiter et al., 2015). Moreover, it is recommended that new students could be provided with information concerning the signs and symptoms of mental health difficulties in the format of a start of term lecture or as part of welcome week. Similarly, universities may collaborate with existing mental health organizations with the goal of increasing awareness of support available (e.g. The Samaritans, University Nightline, Mind) through invited talks and/or workshops.

Several limitations should be noted. First, the cross-sectional nature used in the present study leaves the current outcomes vulnerable to inflation bias between variables, and also limits our ability to draw conclusions about causal relationships. Furthermore, the sample used did not comprise a homogeneous population (e.g., white female young adults were overrepresented), and self-reported measures were used for the identification of clinical symptoms, instead of clinical assessments. Furthermore, it is possible that students already motivated to take part in a study about suicidality completed the surevy, thereby, indicating self-selection bias. These limitations may partly explain the relatively high suicidality risk observed. We propose that our future work should focus on collecting longitudinal data, and consider the use of clinical assessment of psychiatri disorders in a more homogeneous sample of University students in order to overcome these limitations. Next, psychological distress and suicidal ideation may be influenced by course topic (Twenge et al., 2019). However, this information was not collected in the present study. Notwithstanding these limitations, a number of strengths should also be taken into consideration when interpreting the current data. Whilst self-report measures may prone to mono-informant biases, biological markers of suicidal ideation remain elusive (Melham et al., 2017; Shakeri et al., 2015), and non-invasive self-report techniques of student screening are likely to remain favourable due to cost and efficiency (Becker et al., 2018). Moreover, rather than relying on single-item scales, or in-house, bespoke measures often used with large scale data collection, well validated scales with robust psychometric properties were presently employed.

To summarize, our results showed that university students at significant risk for suicide reported elevated depressive symptoms, psychotic experiences, perceived stress, and reduced symptoms of mania. Increased understanding of psychiatric difficulty and risk factors for suicidal ideation remains fundamental in the development of suicide prevention interventions, which in line with the National Institute for Health and Care Excellence (NICE, 2011), should be offered to all students reporting suicidal thoughts. This is an important implication for informing and, where relevant, improve the current practices of counselling and student support services in higher education institutions.

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Tables

Table 1

Sample characteristics

	Whole Sample	No Risk	At Risk
	N/ Mean ± SD	N/ Mean ± SD	N/ Mean ± SD
Age (Mean ± SD)	20.88±4.53	20.66±4.23	21.25±4.98
Sex			
Male	202	132	72
Female	1057	662	395
Non-binary	3	1	2
Gender-nonconforming	3	1	2
Unsure	5	2	3
Prefer not to report	3	2	1
Ethnic origin			
White - United Kingdom	1024	644	380
White - Irish	15	6	9
White – Other	72	47	25
White and Black Caribbean	10	7	3
White and Black African	3	1	2
White and Black Asian	14	8	6
Mixed/Multiple Ethnic Other	14	4	10
Indian	28	17	11
Pakistani	17	14	3
Bangladeshi	6	4	2
Chinese	33	22	11
Asian Other	11	6	5
African	9	7	2
Caribbean	2	2	0
Black African/ Caribbean Other	1	0	1
Arab	5	3	2
Other	9	6	3
Course level			
Undergraduate	1117	702	415
Postgraduate taught	79	43	36
Postgraduate research	17	11	6
Doctoral student	38	29	9
Postgraduate Other	22	13	9

Note: ±, Standard Deviation.

Table 2:

Mean scores for each measure for the whole sample and separated by suicidal ideation risk.

	Whole sample	No risk	At risk			
	M ± SD	M ± SD	M ± SD	*t*	*p*	Cohens' D
Suicidal Ideation (SBQ-R)	6.22±3.69	3.80±1.08	10.31±2.81	-58.71	.001	-3.06
Anxiety (GAD-7)	9.27±6.09	7.25±5.29	12.67±5.83	-17.01	.001	-0.98
Depression (PHQ-9)	10.14±6.72	7.38±5.15	14.79±6.49	-22.49	.001	-1.26
Insomnia (SCI)	17.71±7.39	19.80±6.66	14.19±7.22	14.06	.001	0.81
Manic symptoms (MDQ)	7.09±3.30	7.86±3.06	5.80±3.28	11.31	.001	0.65
Psychotic experiences (PDQ-16)	4.13±3.38	3.04±2.70	5.95±3.61	-16.24	.001	-0.91
Stress (PSS)	20.84±7.32	18.34±6.56	25.05±6.58	-17.65	.001	-1.02

Note: ±, Standard Deviation; SBQ-R, Suicide Behaviours Questionnaire Revised; GAD-7, Generalized Anxiety Disorder 7 Questionnaire; PHQ-8, The Patient Health Questionnaire 9; SCI, Sleep Condition Indicator; MDQ, The Mood Disorder Questionnaire; PDQ-16, The Prodromal Questionnaire 16; PSS, Perceived Stress Scale.

*Sig at <.01, **<.001

Table 3

Correlations between psychiatric symptoms for all participants

	1.	2.	3.	4.	5.	6.
1. Suicidal Ideation (SBQ-R)						
2. Anxiety (GAD-7)	.50**					
3. Depression (PHQ-9)	.63**	.79**				
4. Insomnia (SCI)	-.42**	-.54**	-.64**			
5. Manic symptoms (MDQ)	-.34**	-.31**	-.36**	.27**		
6. Psychotic experiences (PDQ-16)	.49**	.49**	.58**	-.34**	-.48**	
7. Stress (PSS)	.51**	.75**	.75**	-.51**	-.28**	.47**

Note: SBQ-R, Suicide Behaviours Questionnaire Revised; GAD-7, Generalized Anxiety Disorder 7 Questionnaire; PHQ-8, The Patient Health Questionnaire 9; SCI, Sleep Condition Indicator; MDQ, The Mood Disorder Questionnaire; PDQ-16, The Prodromal Questionnaire 16; PSS, Perceived Stress Scale.

* Sig at < .05, ** < .01

Table 4.

Binary logistic regression analyses with suicidal ideation risk status as the dependant variable; xxx as predictors

	Goodness of fit (Omnibus χ^2)	Nagelkerke R²	Wald	Sig.	Odds Ratio (95% CI)
	442.13**	.41			
Anxiety (GAD-7)			0.19	.670	.99 (.98 – 1.05)
Depression (PHQ-9)			45.51	.001**	1.15 (.1.10 - 1.19)
Insomnia (SCI)			0.81	.399	.99 (.97 – 1.01)
Manic symptoms (MDQ)			10.03	.002*	.93 (0.83 - 0.97)
Psychotic experiences (PDQ-16)			13.07	.001**	1.10 (1.04 - 1.15)
Stress (PSS)			5.96	.017*	1.04 (1.01 - 1.07)

Bootstrapped at 1000 resamples.

Note: SBQ-R, Suicide Behaviours Questionnaire Revised; GAD-7, Generalized Anxiety Disorder 7 Questionnaire; PHQ-8, The Patient Health Questionnaire 9; SCI, Sleep Condition Indicator; MDQ, The Mood Disorder Questionnaire; PDQ-16, The Prodromal Questionnaire 16; PSS, Perceived Stress Scale.

*Sig at <.01, **<.001