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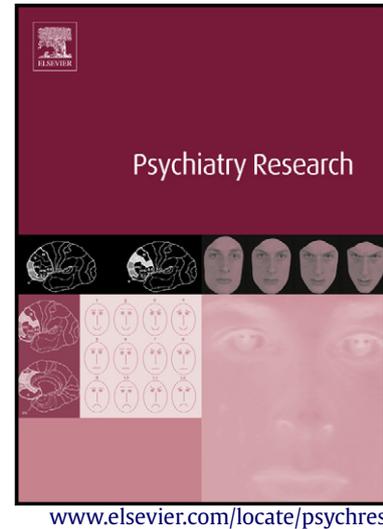
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Shame amplifies the association between stressful life events and paranoia amongst young adults using mental health services: Implications for understanding risk and psychological resilience

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Abstract

Shame is associated with a range of psychological disorders, and is a trans-diagnostic moderator of the association between stressors and symptoms of disorder. However, research has yet to investigate shame in relation to specific psychotic symptoms in clinical groups. In order to address this, the present study investigated shame in young adults with mental health problems, to test whether shame was i) directly associated with paranoia, a prevalent psychotic symptom, and ii) a moderator of the association between stress and paranoia. Sixty participants completed measures of stressful events, paranoia, shame, depression and anxiety. Results from a cross-sectional regression analysis suggested that shame was associated with paranoia after the stressful life event measure was entered into the model, and shame moderated the association between stress and paranoia. For individuals scoring high on shame, shame amplified the association between stress and paranoia, but for low-shame individuals, the association between stress and paranoia was non-significant. These findings suggest that high levels of shame could confer vulnerability for paranoia amongst clinical groups, and that resistance to experiencing shame could be a marker of resilience.

Keywords: paranoia; psychosis; early-intervention; resilience; shame; stress

1. Introduction

Shame is associated with a range of psychological disorders including depression (Kim et al., 2011), anxiety (Fergus et al., 2010), PTSD (Andrews et al., 2000), eating disorders (Troop et al., 2008) and schizophrenia (Suslow et al., 2003). Importantly, research suggests that shame is a trans-diagnostic moderator of the association between stressors and psychological difficulties (Harper and Arias, 2004; Beck et al., 2011; Shorey et al., 2011). Despite this, research has yet to investigate shame in relation to specific psychotic symptoms amongst clinical groups. The present study addressed this by investigating shame in relation to paranoia, a prevalent psychotic symptom in

young people. We conducted this investigation in a sample of adolescents and young adults with mental health difficulties, who did not meet criteria for a schizophrenia-spectrum disorder. This group is at higher risk of developing severe mental health disorders due to their elevated rates of depression and sub-threshold psychotic symptoms (Yung et al., 2003; McGorry, 2013). As research suggests that experiences of paranoia predict subsequent increases in general psychotic symptoms (Kramer et al., In press), these findings may have implications for concepts of risk and resilience.

Shame is thought to arise when one perceives oneself as defective, experiences a sense of threat to the social self and a feels a need to hide (Feiring et al., 2002; Tangney and Dearing, 2003). It has been proposed that when experienced in response to specific situations and decisions, feeling shame can promote pro-social behaviours (de Hooge et al., 2008). However, when it is experienced more generally – and not in relation to a particular decision - shame no longer promotes pro-social behavior and can become harmful (de Hooge et al., 2008). The vast majority of research has focused on this more general sense of shame, and theoretical perspectives have long supported its importance in the aetiology of psychotic symptoms, particularly paranoia. In an early model, Colby and colleagues (Colby, 1975; Faight et al., 1977) suggested that paranoia was a way of avoiding underlying general shame by attributing perceived inadequacy to external sources. A similar view has been outlined by Harper and Cromby (2013), who propose that symptoms of paranoia need to be contextualised. They suggest that paranoia tends to evolve in the presence of difficult life situations and may offer a compensatory function to the aversive emotion states this causes, particularly feelings of shame (Harper and Cromby, 2013).

In studies of non-clinical participants, shame has been found to be associated with higher levels of paranoid anxiety (Matos et al., In press) and paranoid ideation (Tangney and Dearing, 2003; Matos et al., 2012). In clinical samples, higher levels of shame have been found in individuals with anhedonic schizophrenia (Suslow et al., 2003) and first-episode psychosis, than controls (Michail and Birchwood, 2012). In family members of individuals with psychosis, shame has been associated with greater presence of expressed emotion (EE; Wasserman et al., 2012). More broadly, in populations

with mental health disorders, higher levels of shame have been associated with greater levels of hopelessness, stress, and lower self-esteem (Rusch et al., 2009, 2014). Shame has also been found to mediate the association between insight and self-stigma, which may be detrimental for levels of self-esteem, hope, and inter-personal relationships (Hasson-Ohayon et al., 2012).

However, only a limited amount of research has investigated shame in relation to psychotic symptoms, and there are four areas which need addressing. First, it is necessary to investigate whether shame is associated with specific psychotic symptoms in clinical groups. Previous research in clinical groups has focused on overall ratings of psychotic symptoms or diagnostic categories (Suslow, et al., 2003; Michail and Birchwood, 2012), which offers general indications of the relevance of shame in psychosis, but is unable to suggest whether shame may lead to specific symptoms or experiences of psychosis. In particular, there is a need to investigate whether shame is associated with paranoia. Paranoia is a common feature of psychosis (Wigman et al., 2011; Stompe et al., 2005), which predicts subsequent psychotic symptoms (Kramer et al., In press). In order to address this, the current study investigated the association between shame and paranoia in a clinical population.

Second, it is necessary to investigate whether shame moderates the association between stressful life events and paranoia. Several studies have implicated a role for stressful events in the aetiology of general psychotic symptoms (e.g., Bebbington et al., 1993; Freeman et al., 2011) but results have been inconsistent (Chung et al., 1986; Van Os et al., 1994). It is possible that these varying results have been caused by the presence of unrecognised moderating factors, which may 'amplify' or 'buffer' the association between an input and an outcome variable. Given the theoretical and empirical associations between stress, shame and paranoia in particular, it is important to investigate whether shame may act as a moderator of the stress-paranoia relationship. If shame was found to 'amplify' the association between stressful life events and paranoia, this would suggest that a greater association between stressful events and paranoia would be found amongst populations with higher levels of shame than those with low levels of shame. Alternatively, lower levels of shame would confer resilience. As 'amplifying' and 'buffering' factors can be viewed as representing two

ends of a vulnerability/resilience spectrum (Johnson et al., 2011), these terms can be considered interchangeable. In order to address this, the current research investigated whether shame acted as a moderator of the association between stressful events and paranoia.

Third, there is a need to investigate the association between shame and paranoia in a population at higher risk of experiencing severe mental health problems. Previous research has focused upon non-clinical groups and groups diagnosed with psychotic disorders. However, there is a growing emphasis upon preventative approaches in high-risk sub-groups (McGorry 2013). Research has found that sub-threshold psychotic symptoms such as paranoia and depressed mood can predict subsequent increases in psychotic symptoms (Yung et al., 2007a; Kramer et al., In press). Treating individuals reporting symptoms can prevent transition to diagnosable disorder (Preti and Cella, 2010), which may represent the most economically and clinically effective intervention approach (Yung et al., 2007b; McGorry, 2013). An understanding of psychological risk factors for psychotic symptoms could improve identification of individuals at highest risk. Participants in the present study were young adults attending a mental health care team who did not meet criteria for a schizophrenia-spectrum disorder. This study did not seek to sample using traditional ultra-high-risk for psychosis criteria proposed by Yung and colleagues (2003), but instead utilised the Clinical Staging Approach. This approach suggests that severe mental health disorders develop from undifferentiated symptoms in adolescence (McGorry et al., 2006). That is, adults who are diagnosed with severe mental health disorders are likely to have demonstrated evidence of a range of possible mental health symptoms in earlier years. According to this approach, young adults presenting to mental health services can be viewed as potentially being in the earlier stages of more severe mental health disorders. They may go on to have a range of possible symptom and functioning trajectories, and are deemed as high risk for all severe mental health disorders, including psychotic disorder. Consistent with this, the young adults attending the secondary mental health team from which participants were recruited were presenting with elevated levels of various symptoms of psychological distress. These symptoms were too severe to be suitable for treatment by primary

care services. Thus, using the Clinical Staging Approach, the current population can be considered as higher risk than the general population for a range of severe psychopathology, including psychosis.

Fourth, it is necessary to explore whether there are particular sub-types of shame which are relevant for this group. Research suggests that shame may have different aspects, which could have divergent origins and require varying forms of therapeutic management (Gilbert, 1998; Andrews, et al., 2002). However, much empirical research has been overly focused on measuring general shame (Leeming and Boyle, 2004). Andrews and colleagues (2002) have suggested that shame can be divided into three subcategories, behaviour shame, characterological shame and body shame. Behaviour shame refers to shame regarding actions and perceived failures, characterological shame refers to shame regarding habits, manners and more general sense of self, and body shame refers to shame regarding the body. Studies using this conceptualisation have found that these different shame types have varying associations with symptoms of psychopathology, for example, whilst characterological shame and body shame have been found to be significantly associated with eating disorder symptoms (Swan and Andrews, 2003; Doran and Lewis, 2012), and deliberate self-harm (Flett et al., 2012) behaviour shame has been found to prospectively predict symptoms of depression (Andrews et al., 2002). This suggests that this conceptualisation of shame may have both clinical and predictive utility. Despite this, research has yet to explore these types of shame in relation to psychotic symptoms, or in groups at higher risk of experiencing psychotic symptoms. The current study investigated total shame and these shame sub-types in relation to symptoms of paranoia in a high risk group.

In summary, the current study aimed to investigate whether total shame and three shame subscales were i) positively associated with symptoms of paranoia and ii) moderated the association between stressful events and paranoia amongst young adults attending mental health services. It was predicted that there would be a positive association between total shame and paranoia, and that total shame would amplify the association between stressful events and paranoia. As the shame subscales have not yet been investigated in relation to paranoia, these tests were exploratory. The

study also investigated whether significant findings were maintained while controlling for the variance explained by depression and anxiety, as these has been found to be associated with shame (Swan and Andrews, 2003; Rusch et al., 2006; Fergus et al., 2010).

2. Methods

2.1. Participants and Procedure

Participants were recruited as part of the Transitions study, a research programme investigating youth mental health in the West Midlands. The aim of Transitions is to investigate the development of mental health disorders in young adults in order to examine the validity of the Clinical Staging model (McGorry et al., 2006; for a description of the Transitions study in Australia upon which this study is based, see Purcell et al., In press). Participants had attended an assessment with a youth-focused secondary mental health care team and were recruited via their healthcare professional. Inclusion criteria were 1) help-seeking with the youth-focused secondary mental health care team at entry to the Transitions research programme, 2) aged 16-25, 3) English-speaking, 4) able to provide informed consent as judged by their healthcare professional. Participants reaching criteria for diagnosable psychotic disorder, or having been diagnosed with psychotic disorder in the past, were excluded. Presence or absence of a psychotic disorder was diagnosed by a psychiatrist from the youth-focused mental health care team from which participants were recruited, based on clinical interview utilising ICD-10 criteria.

2.1.1. Sample size calculation. A power calculation was conducted using G*Power 3 software (Faul et al., 2007), which estimated the necessary for a linear multiple regression with five predictors (depression, anxiety, stressful life events, shame, and the shame * stressful life event interaction) where two predictors were being tested (shame and the shame*stressful life event interaction) with a medium-to-large effect size ($f = 0.25$). As this is the first study looking at shame in relation to paranoia in a clinical sample, and the first study to investigate these subtypes of shame in relation to paranoia, the expectation of a medium-to-large effect size was based on evidence of strong and consistent associations between i) shame and paranoia in non-clinical groups (e.g., Matos

et al., 2012), and ii) shame and symptoms of other psychological disorders in clinical groups (e.g., Beck et al., 2011). This analysis suggested that a total sample of size of 54 would be sufficient to detect this effect.

2.2. Measures

In addition to the measures of life events, paranoia and shame, depression and anxiety inventories were included in order to provide an indication of the overall level of depressed mood and general anxiety in the sample, and also so these variables could be controlled for in the regression analyses.

2.2.1. Beck Depression Inventory-II (BDI-II; Beck, et al., 1996). This scale contains 21 items measuring symptoms of depressed mood, including “sadness” and “worthlessness”. Possible total scores range between 0 and 63. Scores of 20-28 indicate moderate depression, and 29-63 indicate severe depression (Beck et al., 1996). BDI-II scores have been found to have a strong association with clinician rated depression scores ($r = 0.83$; Sprinkle et al., 2002) and in the present study, the BDI had an excellent internal reliability (Cronbach’s alpha = 0.89).

2.2.2. General Anxiety Disorder questionnaire (GAD; Spitzer et al., 2006). The GAD contains 7 items which measure general anxiety symptoms experienced over the past two weeks on a 4-point scale from 0 (Not at all), to 3 (Nearly every day). Scores between 5-9 indicate mild anxiety, 10-14 indicate moderate anxiety and 14 or above indicate severe anxiety (Spitzer et al., 2006). The GAD has been found to have good test-retest reliability over a week (intraclass correlation = 0.83) and convergence with clinician anxiety ratings (intraclass correlation = 0.83; Spitzer et al., 2006). In the present study, the GAD had a good internal reliability of Cronbach’s alpha = 0.86.

2.2.3. Experience of Shame Scale (ESS; Andrews et al., 2002). This scale contains 25 items assessing shame. Items include “Have you felt ashamed of any of your personal habits?” and “Have you avoided people because of your manner?”. Possible total scores range between 25 and 100. The scale consists of three subscales measuring i) characterological shame, ii) behavioural shame and ii)

body shame. The characterological shame subscale contains 12 items measuring shame relating to personal habits, manner and ability, the behavioural shame subscale contains nine items measuring shame relating to actions and spoken words, and the body shame subscale contains four items measuring shame relating to the body. Andrews et al. (2002) report that the total scale has convergent validity with a measure of general shame, the Test of Self-Conscious Affect (TOSCA; Tangney et al., 1989). The test–retest reliability for the total scale was $r = 0.83$ over 11 weeks, and it has been used amongst individuals with eating disorders (Swan and Andrews, 2003) and psychotic disorders (Turner et al., In press). In the present study, the scale had an excellent internal reliability (Cronbach’s alpha = 0.92).

2.2.4. The State Social Paranoia Scale (SSPS; Freeman et al., 2007). This scale consists of 10 items measuring paranoid thoughts. Items include “Someone had bad intentions towards me” and “Someone wanted me to feel threatened”. Participants were instructed to think of a recent social situation and to consider the extent to which they agreed with the items. Total possible scores range from 10 to 50, with Freeman et al. (2007) reporting mean scores of 12.7 ($SD = 5.0$) in the general population, and 16.6 ($SD = 9$) in the general population. The scale has convergent validity with interviewer ratings of persecutory thinking ($r = 0.85$) amongst individuals at risk of developing psychosis (Freeman et al., 2007). In the present study, the scale also had excellent internal reliability (Cronbach’s alpha = 0.94), and scores ranged from 10 to 46.

2.2.5. The List of Threatening Experiences (LTE; Brugha et al., 1985). This scale contains 12 life-event items, including “Death of a first degree relative” and “Unemployed/seeking work for more than one month”. Items are based on self report, and are each measured as a dichotomous variable (i.e., present/absent) over the past 12 months. The total score is the sum of the number of life events experienced. In this study, two events (“Broke off a steady relationship” and “Separation due to marital difficulties”) were collapsed into one item for conciseness, as due to age, a low rate of these were expected. Consistent with this, in the current sample, only one participant was married, one separated and one divorced. The LTE has good test-retest reliability over six months (kappa =

0.78-1.0 on each of the 12 life-event categories apart from ' 'something you valued was lost or stolen,' kappa = 0.24; Brugha and Cragg, 1990). It has been found to be a useful measure amongst individuals with affective disorders (Brugha et al., 1985) and PTSD (Reynolds and Brewin, 1999).

2.2.6. Measures of participant characteristics. The study was conducted from a clinical staging perspective. Because of this, only diagnoses indicating the presence of a schizophrenia-spectrum disorder were recorded, and used as an exclusion criterion. Furthermore, once schizophrenia-spectrum disorders have been ruled by the mental health team from which participants were recruited (using case history notes and clinical interview utilising ICD-10 criteria), the team does not assign other diagnoses as part of their standard procedure, and so these were not consistently available. Instead, participants completed clinical measures assessing for specific depression and anxiety symptoms. In particular, scores from the Beck Depression Inventory (BDI-II; Beck et al., 1996) and the Generalized Anxiety Disorder scale (GAD; Spitzer et al., 2006) were used.

2.3. Analysis Strategy

Initially, correlational analyses were conducted in order to i) establish a rationale for including depression and anxiety as control variables, and ii) to provide a general overview of the associations between the variables included. A hierarchical regression analysis was then conducted in SPSS. This aimed to examine whether shame i) was directly associated with paranoia, above the variance explained by stressful life events, and ii) moderated the association between stressful life events and paranoia. In the first step, stressful life events scores were entered. In the second step, total shame scores were entered. In the third step, the interaction term between life events and shame was entered. At each step, centred variables were used. If the addition of the interaction term added significant variance to the regression model, it indicated a moderating effect of shame on stressful life events on the association between shame and paranoia (Cohen and Cohen, 1983). This analysis was then repeated for each of the three subscales of the shame scale.

Any significant regression models were then repeated including depression and anxiety as control variables, to investigate whether significant results were explained by a mood effect.

Significant interactions were investigated using the Johnson-Neyman technique (Johnson and Neyman, 1936), with the aid of 'MODPROBE', a computational tool, which can be used in conjunction with SPSS (Hayes and Matthes, 2009; <http://www.afhayes.com/spss-sas-and-mplus-macros-and-code.html>). This tool uses the syntax function of SPSS. Once the tool has been temporarily installed on SPSS, the regression analysis can be re-run and investigated using syntax commands. The Johnson-Neyman technique (1936) calculated the points along the continuum of shame where the effect of life events transitioned between being statistically significant and non-significant (Hayes and Matthes, 2009). The Johnson-Neyman technique is thought to be a more useful approach to probing interactions than the widely used 'pick a point' investigation of simple-slopes, as it mathematically derives the values of the moderator for which the predictor variable has an effect, and where it has none (Hayes and Matthes, 2009).

3. Results

3.1. Participant Characteristics

Sixty participants were recruited. The sample (42 female, $M_{age} = 21$ years, $SD = 2.63$) was predominantly white ($n = 49$, 83.4%), followed by mixed white and African Caribbean ($n = 5$, 8.3%) African Caribbean ($n = 3$, 5%), and Asian ($n = 2$, 3.3%), with ethnicity data missing for one participant. There was an elevated level of depression in the sample, with the majority of participants scoring in the mildly ($n = 6$, 10%), moderately ($n = 14$, 23.4%), or severely ($n = 31$, 51.8%) depressed range of the BDI-II. There were also elevated levels of general anxiety, with the majority of the population rated as mildly ($n = 18$, 30%) moderately ($n = 11$, 18.3%) or severely ($n = 27$, 45%) anxious on the GAD.

3.2. Descriptive statistics and correlations

Zero-order correlations, means and standard deviations for the variables are presented in Table 1. Results suggested that total shame was significantly correlated with paranoia. Of the shame subscales, characterological and behavioural shame were also correlated with paranoia, but body

shame was not. Depression was correlated with anxiety, paranoia, total shame and behavioural shame, but not with characterological shame or body shame. Anxiety was correlated with paranoia, total shame and characterological shame, but not body shame or behavioural shame, and life events were correlated with paranoia.

Table 1 here

3.3. Shame as a moderator of stressful life events upon paranoia

A regression analysis was conducted to see i) whether shame was associated with paranoia above the variance explained by stressful events, and ii) whether shame moderated the impact of stressful events upon paranoia. Total shame was found to moderate the association between life events and paranoia (Table 2). Once stressful event scores had been entered, total shame was associated with paranoia above the variance explained by stressful events $\beta = 0.005$, and when interacting with stressful events, $\beta = 0.002$, supporting a moderating impact of shame on life events. This analysis was then repeated to investigate each of the shame subscales in isolation. Characterological shame and behavioural shame were significantly associated with paranoia when the variance explained by life events was accounted for ($\beta = 0.009$ and $\beta = 0.009$, respectively), but did not moderate the association between stressful events and paranoia. Body shame was not significantly associated with paranoia when stressful events was accounted for, but did moderate the association between stressful events and paranoia ($\beta = 0.009$).

Table 2 here

3.4. Shame as a moderator of stressful life events upon paranoia, controlling for mood

Significant regression models were repeated whilst controlling for the variance explained by depression and anxiety (Table 3). Significant results were maintained for all models apart from the Behaviour shame subscale. This suggests that these results were not an artifact of mood, although mood may have contributed to the association between behavior shame and paranoia.

Table 3 here

3.5. Probing the Shame-Stressful Life Events Interactions

The interactions between total shame and paranoia and body shame and paranoia were plotted with the aid of a computational tool (Jose, 2008). This showed that the association between stressful life events and paranoia was strongest for individuals reporting high levels of total shame and body shame (Figure 1). These interactions were then investigated using the Johnson-Neyman technique (Johnson and Neyman, 1936). This suggested that the association between stressful events and paranoia was only significant when people scored at or above 68 on the total shame scale, or 11 or higher on the body shame scale (all p s < 0.05). When considered together, this suggests that total shame and body shame amplify the association between stressful events and paranoia for individuals reporting high levels of these types of shame. For individuals at low and moderate levels of shame, the association between stressful events and paranoia was non-significant.

Figure 1 here

4. Discussion

Results suggested that total shame was positively associated with paranoia above the variation explained by stressful events, and it was a moderator of the association between stressful events and paranoia. The pattern of this interaction was such that for individuals reporting high levels of shame (scores > 68), shame amplified the association between stressful events and paranoia. Of the shame subscales, both behavioural shame and characterological shame were found to be direct associates of paranoia above the variation explained by stressful events, but they did not moderate the impact of stressors. Body shame was not associated with paranoia once stressful events had been accounted for, but it did moderate the association between stressful events and paranoia. This suggests that subtypes of shame may have varying relationships with stress and paranoia, but total shame is the best overall indicator for risk and vulnerability to paranoia. Potentially, this may be due to the detrimental impact that feeling shame across all areas of oneself has upon coping strategies. Significant results for the total score, characterological subscale and

body subscale held whilst controlling for depression and anxiety scores, suggesting that these could not be explained by a general mood effect.

First, these results support previous research which suggests a role for shame in the experience of psychosis (Suslow et al., 2003; Michail and Birchwood, 2012) and paranoia (Matos et al., 2012; Pinto-Gouveia et al., In press). Studies in this area have found that self-reported shame can distinguish individuals who have a psychotic disorder from controls (Suslow et al., 2003), and that higher levels of shame are associated with increasing paranoia scores in non-clinical groups (Matos et al., In press). However, this was the first study to investigate whether shame could predict higher levels of one prevalent psychotic symptom, paranoia, in a clinical group. These findings implicate shame as a psychological risk factor for experiencing paranoia, which is a common symptom and feature of psychosis (Stompe et al., 2005; Wigman et al., 2011), and is associated with higher levels of distress, maladaptive coping strategies and lower perceived social rank (Freeman et al., 2005). Furthermore, as paranoia has been found to predict subsequent psychotic symptoms (Kramer et al., In press), these findings suggest that this may be one pathway by which shame is associated with psychosis more generally (cf. Suslow et al., 2003), although further research would be necessary to investigate this. More broadly, these results support previous research which suggests that higher levels of shame have a detrimental impact upon populations with mental health difficulties, potentially leading to greater levels of stress and hopelessness and lower self-esteem (Rusch et al., 2009, 2014; Hasson-Ohayon et al., 2012).

Second, the present study also extends this research by showing that shame was not only associated with paranoia, it also moderated the association between life events and paranoia. For high-shame individuals, increasing levels of stressful events were associated with higher paranoia scores. As paranoia is a common psychotic symptoms and feature of psychosis (Stompe et al., 2005; Wigman et al., 2011), which can predict subsequent psychotic symptoms (Kramer et al., In press) this finding may offer one tentative explanation for the variable results that have been reported by previous studies investigating the association between life events and psychotic symptoms more

generally (Bebbington et al., 1993; Mason et al., 2004). It is possible that the strength of this association could depend on the presence of a third variable, specifically shame, in the population. For higher-shame populations, this association could be expected to be stronger than it would be in lower-shame populations.

These results can also be interpreted against the criteria of a recent framework for the investigation of resilience (Johnson et al., 2011). This framework suggests resilience factors are psychological variables that moderate, or buffer, the association between risk factors and negative outcome variables. For individuals with high levels of a resilience or buffering factor, it is less likely that the presence of risk will lead to the occurrence of the negative outcome. Furthermore, this framework suggests that all buffering factors exist on a continuum with amplifying factors, such that low levels of a buffer can be understood as amplifying the likelihood of a negative outcome (Johnson et al., 2011). According to this framework, by demonstrating that higher levels of shame amplify the association between stressful events and paranoia, the current findings also show that moderate and low levels of shame act to buffer individuals from stressful life events. This suggests that lower levels of shame confer resilience, and that a resistance to experiencing shame could be protective.

Third, these results demonstrate a role for shame in the experience of paranoia in a population which is at higher risk of experiencing severe mental health problems. Previous research in this area has been conducted amongst non-clinical groups and clinical groups diagnosed with a psychotic disorder. However, preventative approaches with high-risk subgroups may present the most clinically and economically effective approach to treating mental health problems (Yung et al., 2007b; McGorry, 2013). The present study shows that shame can be regarded as a psychological risk factor for the experience of paranoia in a high-risk group.

Fourth, the present results suggested that in addition to general shame, behaviour shame and characterological shame were directly associated with paranoia, and body shame also moderated the association between life events and paranoia. However, the behavior shame subscale ceased to be significantly associated with paranoia once depression was controlled for.

These findings are consistent with previous research which has found the characterological and body shame subscales to be the most closely associated with mental health disorders, and the behavior shame subscale to be the least associated (Swan and Andrews, 2003; Doran and Lewis, 2012) .

4.1. Clinical implications

The present findings have two main clinical implications. First, when assessing individuals for risk of experiencing paranoia, it may be important to measure the presence of shame in addition to measures of depression and stressful events. Shame not only adds explanatory variance in addition to these measures, it may also confer vulnerability to the impact of stress. High-shame individuals may be considered to be at particularly elevated risk, as they are likely to have a generally higher rate of paranoia which may further increase linearly in the face of stressful life events. Second, as shame appears to moderate the impact of stress, this may be an important target for psychological interventions (cf. Gilbert, 2010). A resistance to experiencing shame could confer resilience to stress, suggesting that it may be useful to develop strategies to maintain a generally low-moderate level of experienced shame.

4.2. Limitations

The main limitation of the study was its cross-sectional design, which limits the extent to which causal interpretations can be made regarding the findings. However, the current study can be regarded as preliminary evidence for a role of shame in predicting and amplifying paranoia, that can be investigated further in future longitudinal research. A second limitation was that the study relied upon participants' self-report, which may have led to some bias in response. However, each of the scales used was carefully selected, and has previously been found to be valid and reliable for use as a self-report tool. A third limitation of the study was that general psychotic symptoms were not measured, and thus it is not clear whether shame would also moderate the association between stressful life events and overall psychotic symptoms. However, as paranoia has been found to predict subsequent increases in overall psychotic symptoms (Kramer et al., in press), this might be

expected, and may represent a topic for future investigation. Future research could also focus upon the role of particular types of life events in relation to shame and paranoia. Given the social focus of both shame and paranoia, it might be expected that life events with social implications could be particularly important, but this was beyond the scope of the current study to investigate.

4.3. Summary

In summary, the present study found that shame was associated with paranoia when the variance explained by stressful events was accounted for, and amplified the association between stressful events and paranoia amongst young adults experiencing mental health difficulties. These results suggest that low-moderate levels of shame could confer resilience in this group.

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Accepted manuscript

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Figure Captions

Figure 1. Total shame (a) and body shame (b) as amplifiers of the stress-paranoia relationship.

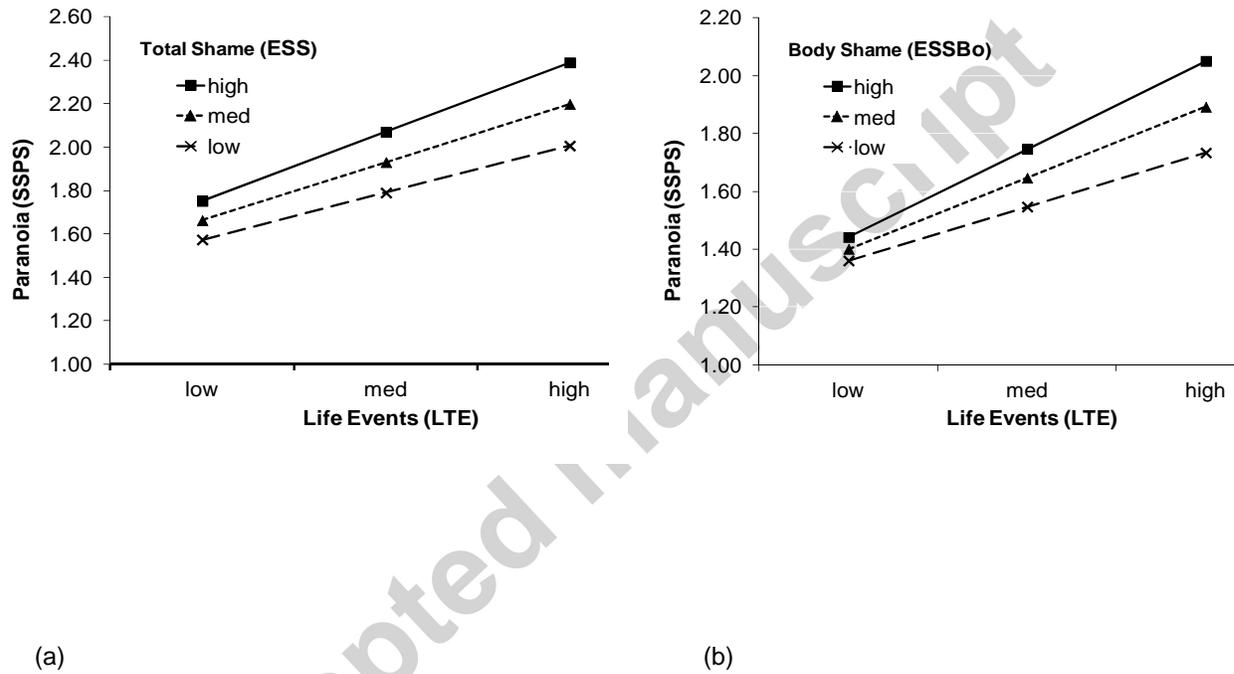


Figure 1.

Table 1: Means, Standard deviations^a and correlations for variables

	Mean	Transformed							
		Mean ^b	2	3	4	5	6	7	8
1. Stressful Events (LTE)	2.05 <i>1.74</i>		0.053	0.210	0.409**	0.245	0.219	0.206	0.131
2. Depression (BDI-II)	27.92 <i>12.26</i>			0.467**	0.362**	0.295*	0.236	0.264*	0.198
3. Anxiety (GAD)	12.70 <i>5.50</i>				0.345**	0.345**	0.378**	0.243	0.110
4. Paranoia (SSPS)	20.72 <i>10.14</i>	1.27 <i>0.20</i>				0.461**	0.450**	0.366**	0.200
5. Total Shame (ESS)	65.88 <i>14.76</i>						0.913**	0.842**	0.497**
6. Characterological Shame (ESS subscale)	28.87 <i>8.40</i>							0.652**	0.276*
7. Behavioural Shame (ESS subscale)	25.23 <i>6.20</i>								0.203
8. Body Shame (ESS subscale)	11.78 <i>3.76</i>								

Note. * $p < 0.05$, ** $p < 0.01$. LTE = List of Threatening Experiences, BDI-II = Beck Depression Inventory II, GAD = General Anxiety Disorder questionnaire, SSPS = State Social Paranoia Subscale, ESS = Experience of Shame Scale. ^aStandard deviations appear in italics below the means. ^bThe SSPS variable was transformed to bring skew into acceptable levels. Where transformations have been conducted, correlations have been reported for transformed variables only.

Table 2: Hierarchical regression analyses predicting paranoia as measured by the SSPS

Moderator Variable	Step	Variable Entered	β	SE β	Total R^2	ΔR^2
Total Shame (ESS)	1	LTE	0.046***	0.013	0.168	
	2	LTE ESS	0.035** 0.005***	0.013 0.002	0.306	0.138***
	3	LTE ESS LTExESS	0.022 0.005*** 0.002*	0.014 0.001 0.001	0.358	0.052*
Characterological Shame subscale (ESS C)	1	LTE	0.046***	0.013	0.168	
	2	LTE ESS C	0.037** 0.009***	0.013 0.003	0.304	0.137***
	3	LTE ESS C LTExESS C	0.028* 0.009*** 0.002	0.014 0.003 0.002	0.334	0.030
Behavioural Shame subscale (ESS Be)	1	LTE	0.046***	0.013	0.168	
	2	LTE ESS Be	0.039** 0.009*	0.013 0.004	0.251	0.083*
	3	LTE ESS Be LTExESS Be	0.030* 0.010** 0.003	0.015 0.004 0.002	0.276	0.025
Body Shame subscale (ESS Bo)	1	LTE	0.050***	0.013	0.168	
	2	LTE ESS Bo	0.042*** 0.008	0.013 0.006	0.189	0.022
	3	LTE ESS Bo LTExESS Bo	0.035** 0.008 0.009*	0.014 0.006 0.004	0.262	0.072*

Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. ESS = Experience of Shame Scale, ESS C = Experience of Shame Scale Characterological Shame subscale, ESS Be = Experience of Shame Scale Behavioural Shame subscale, ESS Bo = Experience of Shame Scale Body Shame subscale, LTE = List of Threatening Experiences, SSPS = State Social Paranoia Subscale.

Table 3: Hierarchical regression analyses predicting paranoia as measured by the SSPS, whilst controlling for depression and anxiety scores

Moderator Variable	Step	Variable Entered	β	SE β	Total R^2	ΔR^2
Total Shame (ESS)	1	BDI-II GAD	0.004 0.008	0.002 0.005	0.171	
	2	BDI-II GAD LTE	0.004* 0.005 0.041**	0.002 0.005 0.013	0.298	0.127**
	3	BDI-II GAD LTE ESS	0.004 0.003 0.035** 0.004*	0.002 0.004 0.013 0.002	0.369	0.071*
	4	BDI-II GAD LTE ESS LTExESS	0.004* 0.001 0.022 0.004** 0.002*	0.002 0.004 0.013 0.002 0.001	0.423*	0.055*
Characterological Shame subscale (ESS C)	1	BDI-II GAD	0.004 0.008	0.002 0.005	0.171**	
	2	BDI-II GAD LTE	0.004* 0.005 0.041**	0.002 0.005 0.013	0.298	0.127**
	3	BDI-II GAD LTE ESS C	0.004* 0.002 0.036** 0.007*	0.002 0.005 0.012 0.003	0.375	0.077*
Behavioural Shame subscale (ESS Be)	1	BDI-II GAD	0.004 0.008	0.002 0.005	0.171**	
	2	BDI-II GAD LTE	0.004* 0.005 0.041**	0.002 0.005 0.013	0.298	0.127**
	3	BDI-II GAD LTE ESS Be	0.004 0.004 0.037** 0.007	0.002 0.005 0.013 0.004	0.336	0.038
Body Shame subscale (ESS Bo)	1	BDI-II GAD	0.004 0.008	0.002 0.005	0.171*	
	2	BDI-II GAD LTE	0.004* 0.005 0.041**	0.002 0.005 0.013	0.298	0.127**
	3	BDI-II GAD LTE ESSBo	0.004* 0.005 0.040** 0.004	0.002 0.005 0.013 0.006	0.305	0.007
	4	BDI-II GAD LTE ESSBo LTExESSBo	0.004 0.005 0.032* 0.005 0.008*	0.002 0.004 0.013 0.006 0.004	0.363	0.058**

Note. * $p < 0.05$, ** $p < 0.01$. ESS = Experience of Shame Scale, ESS C = Experience of Shame Scale Characterological Shame subscale, ESS Be = Experience of Shame Scale Behavioural Shame subscale, ESS Bo = Experience of Shame Scale Body Shame subscale, GAD = General Anxiety Disorder questionnaire, LTE = List of Threatening Experiences, BDI-II = Beck Depression Inventory, SSPS = State Social Paranoia Subscale.

Highlights

- Shame is associated with increased risk of paranoia
- Shame amplifies the likelihood that life stressors will lead to paranoia
- Shame may be an important factor amongst young adults using mental health services
- Low levels of shame may confer resilience against risk of paranoia