Identifying predictors of resilience in students

T. Edwards, J.C. Catling & E. Parry

Adverse life experiences have been linked with a wide range of negative outcomes. However, despite being exposed to adversity, individuals who exhibit high levels of resilience appear to be less impacted by adversity, and continue to function normally. Using self-report measures and a sample of 161 participants aged between 16 and 21, the present study aimed to identify whether exposure to adverse experiences, locus of control (LOC), academic delay of gratification and age could predict resilience in young students. Two significant individual predictors of resilience were identified: the amount of adversity within an individual's relationship with their parents/guardians; and LOC. Specifically, the lack of adversity within the relationship with parents/guardians and an internal LOC were found to predict higher levels of resilience. These results will be discussed in relation to increasing resilience in students and young people.

ADVERSE EXPERIENCES encompass both chronic and enduring events, and acute and solitary events (Bollini, Walker, Hamann & Kestler, 2004) including divorce between parents (Kessler, et al., 1997), various kinds of abuse (Dube et al., 2001), witnessing domestic violence (Davies et al., 2006) and living in poverty (Evans & English, 2002). Such adverse experiences have been associated with a range of negative outcomes such as emotional and behavioural problems (DePrince et al., 2009), low academic achievement (Lacour & Tissington, 2011), suicide attempts (Dube et al., 2001) and various mental health disorders including depression, anxiety disorders (Pirkola et al., 2005), post-traumatic stress disorder (PTSD; Scheeringa & Zeanah, 2001) and psychosis (Varese et al., 2012). However, despite exposure to adverse experiences, the majority of individuals continue to function normally and manage to avoid the negative outcomes associated with these adversities (Herbers et al., 2014; Rutter, 2013). These individuals can be considered to exhibit high levels of resilience, which has been defined as 'the process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances' (Masten et al., 1990, p. 426). An individual's level of resilience has therefore been shown to moderate the relationship between adverse experiences and negative outcomes (Campbell-Sills et al., 2006), with high levels of resilience protecting the individual from negative outcomes when exposed to adversity.

There is much previous research that has demonstrated that adverse experiences can have negative effects on the individual experiencing them (e.g. Scheeringa & Zeanah, 2001). However, resilient individuals have been shown to succeed and thrive despite adverse experiences (e.g. Zolkoski & Bullock, 2012). It appears that individuals with an elevated risk of negative outcomes in response to adversity, are those with low levels of resilience (Min et al., 2015). For instance, experiencing adversity has been associated with an increased risk of suicide attempts; however, resilience acts as a mitigating factor with high levels of resilience reducing the risk of suicidal behaviour (Roy et al., 2011).

Furthermore, the amount of adversity experienced has been found to predict the number of both emotional and behavioural problems (Herbers et al., 2014), demonstrating a dose-response relationship, in which an increased number of adverse experiences creates an increase in negative outcomes in individuals with low resilience (Shevlin et al., 2008).

Despite the well documented negative effects of adverse experiences, it has recently been suggested that adverse experiences may also have potential positive effects, in relation to increasing an individual's level of resilience (Seery, 2011; Seery et al., 2010). Evidence for this hypothesis is derived, in the main, from animal studies; for example, young monkeys exposed to intermittent adversity, in the form of stress, showed subsequent stress responses that were consistent with greater resilience during novel adverse experiences (Parker et al., 2004).

Furthermore, adolescent rats that experienced predictable chronic stress were less likely to develop depression and anxiety symptoms in adulthood, reflecting increased resilience as a result of experiencing adversity (Suo et al., 2013). This view implies that experiencing some adversity predicts better outcomes than experiencing either no or high levels of adversity (Seery, 2011; Seery et al., 2010); as a history of some adverse experiences has the potential to increase resilience, thus enabling the individual to cope with future adversity and avoid the associated negative outcomes.

Although increasing resilience throughout life is beneficial, it is particularly important in young people. Late adolescence and early adulthood has been noted as a period of particular vulnerability, especially to stress (Chambers et al., 2003; Crews et al., 2007; Romeo & McEwen, 2006). Furthermore, research shows that mental health problems occur at high rates in young people, with common co-morbidity occurring at three levels: with other mental disorders, with substance abuse, and with chronic diseases (Patel et al., 2007; Wittchen et al., 1998). Following-on from this, there have been effective results from programmes aiming to promote resilience in young adults (Smeets et al., 2014; Steinhardt & Dolbier, 2008). It has been suggested that because resilience is multi-dimensional in nature, interventions that combine behaviours and strategies, and appropriately address their target population by considering the charac-

teristics of these individuals, may be most valuable (Fergus & Zimmerman, 2005; Zolkoski & Bullock, 2012). Determining which factors can be used to predict resilience in young people will consequently help to both focus interventions and target those in need during this vulnerable period.

In addition to understanding the factors that can place individuals at risk of negative outcomes, it is also important to develop an understanding of factors that can influence an individual's level of resilience (Alvord & Grados, 2005). Certain factors have been found to increase the likelihood of resilience in individuals at risk of negative outcomes associated with adversity; these 'protective factors' protect at-risk individuals from developing the associated negative outcomes, promoting resilient outcomes instead (Carbonell et al., 2002). As early as 1951, Freud and Dann reported that despite horrific adverse experiences in concentration camps, six children demonstrated remarkable resilience and claimed that good peer relationships acted as the main protective factor. Similarly, a good relationship with one or both parents has been found to function as a protective factor, promoting resilient outcomes in the face of adversities such as divorce (Chen & George, 2005). A variety of other protective factors have been identified, including parenting quality (Herbers et al., 2011), family cohesion (Carbonell et al., 2002) and school environment (Khamis, 2015). It is important to identify predictors of resilience in order to allow subsequent prediction of resilience itself, from which it may be possible to identify individuals at risk of low resilience. Interventions can then be aimed at increasing resilience in these individuals, in order to help avoid the negative outcomes associated with future adverse experiences, and to encourage normal functioning despite adversity.

Locus of control (LOC) is an aspect of personality that has been shown to affect the way individuals perceive adversity (Bollini et al., 2004; Rotter, 1966). Individuals with an internal LOC are likely to perceive events as

being contingent on one's own behaviour and/or characteristics, implying that they perceive themselves to be in control of the events that happen to them (Rotter, 1966). However, those with an external LOC perceive events that befall them to be the result of environmental factors such as luck, fate or chance (Rotter, 1966). Previous research suggests that individuals perceive situations which they have no control over as more aversive than those where they perceive some degree of control (Houston, 1972). As previously highlighted, individuals with an internal LOC perceive themselves to have increased control over adverse experiences in comparison to those with an external LOC, and consequently perceive these experiences as less adverse (Abouserie, 1994; Anderson, 1977), as revealed by a reduced stress response (Bollini et al., 2004). Therefore, perceived adversity determined by an individual's LOC, may account for findings showing an increased risk of negative outcomes associated with adversity in individuals with an external LOC (Johnson & Sarason, 1978; Sandler & Lakey, 1982), whilst individuals with an internal LOC are increasingly likely to avoid these negative outcomes (Kobasa, 1979). Alternatively, it could be that an individual's LOC influences resilience level (Cappella & Weinstein, 2001; Johnson & Sarason, 1978), with the different outcomes experienced by those with internal and external LOC orientations being determined somewhat by their level of resilience. This view could be explored by identifying whether LOC is able to significantly predict resilience.

In addition to LOC, other aspects of personality have been shown to affect an individual's outcome in the presence of adversity. Throughout their education students endure numerous exams and a large workload, causing the majority of students to experience high levels of stress (Abouserie, 1994), which is known to be aversive. Despite these high levels of stress, many students perform well academically, particularly those who are able to exhibit

high levels of academic delay of gratification (ADOG), (Bembenutty & Karabenick, 1998; Mischel et al., 1988; Shoda et al., 1990). ADOG refers to the ability of postponing immediate gratification (such as attending a party) in order to receive a larger reward in the future, (such as achieving superior grades; Bembenutty & Karabenick, 1998). Since students who exhibit higher levels of ADOG are increasingly likely to achieve better grades than those who exhibit low levels (Mischel et al., 1988), it is possible that levels of ADOG could influence resilience levels.

The negative outcomes associated with adverse experiences in low resilience individuals (DePrince et al., 2009; Scheeringa & Zeanah, 2001) demonstrate the importance of identifying individuals with low levels of resilience in order to conduct interventions aimed at enhancing resilience, and thus the likelihood of normal functioning despite adversity. Since adverse experiences have been linked with significant negative outcomes in young people, and because of their heightened vulnerability to mental illness (Patel et al., 2007; Paus et al., 2008), it is particularly important to identify predictors of resilience within the student population (Duke et al., 2010). Although many predictors of resilience have already been identified (e.g. sex, education level, and income level; Campbell-Sills et al., 2009; Tiet, et al., 2010), it is likely that there are other predictors which are yet to be discovered. Since different LOC orientations and levels of ADOG have been shown to affect an individual's outcome in the face of adversity, it is likely that both LOC and ADOG influence resilience levels. Consequently, it is possible that LOC and ADOG could predict resilience. To address this possibility, the present study utilised a self-report questionnaire to conduct exploratory research aiming to identify whether exposure to adverse experiences, LOC, ADOG and age can predict resilience in young people.

Method

Participants

Data were collected from an opportunity sample of 161 participants studying psychology. They were recruited from a large Russell Group University via the Research Participation Scheme and a local school on a voluntary basis. Participants included 127 women and 34 men, ranging between 16 and 21 years old (M_{age}=17.97, SD=1.31). Of the participants, 74 per cent confirmed their ethnicity as 'White', 4 per cent as 'Black', 6 per cent as 'Mixed', 13 per cent as 'Asian', 2 per cent as 'Chinese' and 1 per cent described themselves as 'other'. The study was sanctioned by the School of Psychology's ethics committee, and informed written consent was received from all participants. Participants under 18 years also required parental consent.

Measures

Six self-report measures were utilised within the study. A demographic questionnaire was used to collect data including the age, gender and ethnicity of the participants, in addition to their first language, number of siblings, and their parent's education level and profession.

The Connor-Davidson Resilience Scale 25 (CD-RISC-25; Connor & Davidson, 2003) was administered to assess each participant's level of resilience. The CD-RISC-25 is a self-report questionnaire where items consist of statements centred around coping and dealing with both stress and challenges. Participants use a five-point Likert scale ranging from 'not true at all' to 'true nearly all the time' to indicate the extent to which the statements apply to them. Scores can range from 0–100, with higher scores reflecting a greater level of resilience.

The Adverse Childhood Experiences International Questionnaire (ACE-IQ; World Health Organisation, 2012) measured the degree to which participants have been exposed to adverse events during the first 18 years of their life. The ACE-IQ consists of eight sections; however, section five was removed due to its sensitive nature and the young age of some of the participants used in the study. The items are rated using a combination of statements which vary between items. For example, section two is answered by selecting either 'always', 'most of the time', 'sometimes', 'rarely' or 'never', whilst section three is answered by selecting either 'many times', 'a few times', 'once' or 'never'. Both an overall total and subtotals for each section of the questionnaire were calculated, with higher totals indicating higher levels of adversity.

The Locus of Control Scale (Rotter, 1966) is a self-report measure containing twenty-nine items. It is used to determine whether an individual has an internal or external LOC. Each item consists of a pair of statements ('A' or 'B'); participants indicate which statement they agree with most. A high score is indicative of an external LOC whilst a low score is indicative of an internal LOC.

The College Student's Stressful Event Checklist (Holmes & Rahe, 1967) was used to determine whether there is undue stress in the participant's life. It is a thirty-two item self-report scale in which each item states a different adverse life event, such as 'death of a close family member' and 'divorce between parents'. Participants indicate whether any of the adverse events have occurred recently or are expected to occur soon. Each life event has a different event value, for example 'death of a close family member' has a value of 100, whilst 'divorce between parents' has a value of 65; summing the values of the events which have occurred provides the total score. Higher scores are indicative of more stress, and thus of a greater number of adverse life experiences.

Finally, the Academic Delay of Gratification Scale (ADOGS; Bembenutty & Karabenick, 1998) was utilised to determine whether participants exhibit high or low levels of ADOG. ADOGS is a self-report scale made up of ten items. Each item provides two statements differentiating between alternative courses of action regarding imme-

diate or delayed gratification. Participants indicate which course of action they are more likely to take ('A' or 'B'), in addition to the strength of their choice ('definitely' or 'probably'). Higher total scores reflect higher levels of ADOG.

Procedure

Participants were recruited on a voluntary basis and asked to complete the questionnaire as either a hard copy or an electronic copy.

Results

Scores for individual measures were calculated according to the relevant scoring guidelines. Total scores for the CD-RISC-25, ACE-IQ, Locus of Control Scale, College Student's Stressful Events Checklist and ADOGS were included in the analysis. Five ACE-IQ subtotals were also included in the analysis; relationship with parent/guardian, parent/guardian responsibility, family environment, peer violence and community violence. The ACE-IQ subtotal of exposure to war/collective violence was excluded due to uniformity of data. Age was the only demographic item to be included in the analysis.

Preliminary Analysis

In a preliminary analysis (using SPSS 22), Pearson's correlations were conducted between all 11 variables. An appropriate Bonferroni correction was utilised, resulting in six significant correlations. Resilience was negatively correlated with the amount of adversity within the parent/guardian relationship (r=-.344, N=161, $p<.001$). Age was positively correlated with ADOG (r=.295, N= 161, $p<.001$) and stressful events (r= .349, N= 161, $p<.001$). Stressful events were positively correlated with adverse experiences (r= .452, N= 161, $p<.001$), family environment (r= .401, N= 161, $p<.001$) and relationship with parents/guardians (r=.295, N= 161, $p<.001$).

Multiple Regression

A multiple regression was conducted (using SPSS 22), with resilience as the dependent variable and the other 10 variables entered as potential predictor variables. The 'Forward' method was used, which selected relationship with parents/guardians and LOC as predictor variables. The multiple regression analysis produced a model that significantly predicts resilience (F(2, 158)=14.172, $p<.001$). The model contained two individual significant predictors; relationship with parents/guardians (B=-2.58, $p<.001$) and LOC (B=0.71 p=.013). Less adversity within the relationship with parents/ guardians and a greater internal LOC predicted higher levels of resilience. The individual predictors showed no multicollinearity, confirming that the two predictors independently predicted resilience levels.

Discussion

The current study identified a number of significant relationships. First, higher levels of adversity within an individual's relationship with their parents/guardians were found to be related to lower levels of resilience. An older age was found to be associated with increased ADOG and a higher number of stressful events. An increased number of stressful events were related to a greater number of adverse experiences, a more adverse relationship with parents/guardians and a more adverse family environment. In addition to identifying these relationships, the present study identified an individual's relationship with parents/guardians and LOC as significant predictors of resilience. Specifically, the lack of adversity within the relationship with parents/guardians and an internal LOC predicted higher levels of resilience in young people.

The finding that an individual's relationship with their parents/guardians predicts resilience is perhaps expected. Good relationships with parents/guardians have been found to promote resilient outcomes in young people who have experienced adversities such as parental divorce (Chen & George, 2005; Peterson & Zill, 1986) and being witness to domestic violence (Gewirtz & Edleson, 2007). These good relationships are not limited to promoting resilient outcomes in specific adverse situations; rather good and supportive relationships with par-

ents/guardians have been consistently linked with increased resilience levels (Afifi & MacMillan, 2011). It therefore appears that the lack of adversity within an individual's relationship with their parents/guardians acts as a protective factor, helping to promote resilient outcomes in the face of adversity. The finding that an individual's LOC predicts resilience is supported by a variety of research linking LOC to resilience in specific conditions (e.g. Cappella & Weinstein, 2001; Johnson & Sarason, 1978). Research has not only found LOC to affect the way individuals perceive adversity (Bollini et al., 2004; Rotter, 1966), but has also shown that an internal LOC can act as a protective factor promoting resilient outcomes in the presence of adversity (Juby & Rycraft, 2004). Specifically, an internal LOC has been found to increase an individual's chance of avoiding negative outcomes such as PTSD (Agaibi & Wilson, 2005) and other mental health diagnoses (Stewart & Yuen, 2011) as a result of experiencing adversity. Since an internal LOC acts as a protective factor predicting increased resilience, individuals with an external LOC who are exposed to adversity are evidently at increased risk of the negative outcomes associated with adverse experiences.

The present study provides useful and practical implications for promoting resilience in both HE and FE students. Since it is not possible to control the extent to which an individual is exposed to adversity, it is essential to focus on improving resilience levels in those at risk of the negative out-

comes associated with adverse experiences. Results of the present study suggests that the amount of adversity within an individual's relationship with their parents/guardians and LOC orientation are more important in predicting resilience than an individual's exposure to adversity.

Our findings imply that interventions should focus on establishing and/or improving protective factors, including the two identified in the present study and those that have been previously identified, such as relationships with peers (Kendrick et al., 2012) and parenting quality (Herbers et al., 2011). School/University interventions should therefore employ techniques aimed at improving relationships with parents and peers, and the level of perceived control over adverse experiences. Such interventions could be given in the form of individual or family therapy, focusing specifically on establishing and improving the protective factors that are lacking. Establishing and improving these protective factors should increase the likelihood of the individual successfully avoiding negative outcomes and increase their ability to function normally, thus promoting resilient outcomes. Alternatively, identified students could simply have extra pastoral support put in place.

T. Edwards, J.C. Catling & E. Parry
School of Psychology,
University of Birmingham,
Edgbaston, Birmingham. B15 2TT

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