

Running Head: RESILIENCE, OUTDOOR EDUCATION AND MENTAL HEALTH

Resilience, Coping with an Extended Stay Outdoor Education Program, and

Adolescent Mental Health

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Abstract

Due to the alarming increase in adolescent depression and suicide, identification of protective personality characteristics is essential in order to determine those adolescents at risk, and to develop and evaluate intervention programs. This longitudinal survey was conducted to ascertain the relationships between adolescent resilience, coping styles and their perceived effectiveness, stress appraisals, and measures of psychological well-being and distress in response to a potentially stressful experience - an Extended Stay Outdoor Education Program (ESOEP). Participants were 99 Year 9 Australian adolescents (71 male, 28 female) attending a potentially stressful ESOEP, which aims to bolster adolescents' levels of resilience, resourcefulness and mental health outcomes.

For the present study it was hypothesised that: attending the ESOEP would enhance resilience; that adolescents with high levels of pre-existing resilience would use more productive, and less non-productive, coping strategies during the ESOEP; that adolescents with high resilience, low perceptions of stress, and increased use of productive coping strategies would have greater mental health following the ESOEP; and that coping styles and their perceived effectiveness would mediate the relationship between resilience and mental health measures.

This study found that attending the ESOEP neither increased resilience and well-being, nor decreased distress. As anticipated, high levels of resilience were associated with using productive coping strategies, perceiving these strategies as effective, lower appraisal of stress, and increased mental health measures five weeks into the ESOEP. Gender differences were explored in relation to resilience, mental health and coping styles, with the only significant difference being greater utilisation of "solving the problem" coping strategies by males. This study also determined that

the perceived effectiveness of coping styles, rather than the actual coping styles adopted, mediates the relationship between resilience and psychological distress five weeks into the ESOEP. Applications of these findings, theoretical implications, methodological concerns, and directions for future research are discussed.

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There has been growing concern in recent years about adolescent mental health. The rate of suicide amongst adolescents has increased over the past decades, and it is apparent that depression is often comorbid with substance abuse and anxiety disorders amongst suicidal adolescents (Hoberman & Bergmann, 1992; cited in Merikangas & Angst, 1995). Moreover, personality disorders, when coupled with major depression, are particularly associated with repeated suicide attempts (Hoberman & Bergmann). These findings highlight the importance of research into adolescent mental health, and the need to determine effective interventions for those at risk of mental health problems.

While the experiences to which individuals are exposed could have a considerable impact on their subsequent mental health, awareness is also increasing about the importance of stable, internal personality characteristics. These characteristics influence an individual's responses to stress and subsequent mental health outcomes (i.e. Rosenthal & Simeonsson, 1989). The present study aims to investigate the relationships between one such personality characteristic – resilience, the coping strategies adopted during stressful circumstances, and mental health outcomes.

How we cope with the stressful situations we encounter has implications for subsequent mental health outcomes. Those who are able to cope effectively may see themselves as more capable of successfully managing future stressors, leading to an increased sense of well-being and belief in their abilities (Jew, Green, & Kroger, 1999). Conversely, those who are unable to cope effectively may see themselves as less able to successfully manage future stressors, and experience a sense of helplessness (Lazarus & Folkman, 1984).

There is evidence that stable temperamental or personality characteristics may predispose an individual's ability to cope (e.g., Werner, 1982, cited in Prior, 1999; Rutter, 1993), in seeming to protect an individual from being overwhelmed when faced with a stressful event, or in providing some intrinsic strengths of character which generate adaptive responses. One such personality characteristic is resilience, an aspect of an individual's personality that enables him or her to cope effectively with a stressful situation and emerge with improved mental health outcomes compared to those who score low on this stable personality characteristic (Rutter, 1996). The present study aims to determine the relationships between resilience and mental health outcomes, and investigate whether this relationship is mediated by the effectiveness of the coping strategies adopted during a stressful event.

Resilience

Although researchers may disagree on a single definition and the network of constructs surrounding resilience, most researchers agree that resilient individuals share similar mental health and social outcomes (eg Aroian, Schappler-Morris, Neary, Spitzzer, & Tran, 1997; Gore & Eckenrode, 1996). These outcomes include higher intelligence, lower novelty seeking, lower affiliation with delinquent peers and an absence of externalising behaviours, substance abuse, and juvenile delinquency (Fergusson & Lynskey, 1996; cited in Jew, Green, & Kroger, 1999). Resilient individuals have also been described as possessing an internal locus of control (Block & Block, 1980), meaningfulness (Caplan, 1990; cited in Aroian et al., 1997), ego strength (Cassella & Motta, 1990), self-efficacy (Cederblad, Dahlin, Hagness, & Hansson, 1994; cited in Aroian et al., 1997), confidence (Higgins, 1994), perseverance (Mrazek & Mrazek, 1987), problem-solving skills (Samuelsson, Ahlmen, & Sullivan, 1993; cited in Aroian et al., 1997) and flexibility (Werner,

1993). Such outcomes can be interpreted as being indicative of greater levels of mental health and highlight the importance of this personality characteristic.

Positive mental health outcomes may be due to a resilient individual's broad repertoire of coping skills from which they choose according to the situation at hand (Patterson, 1991, cited in Aroian et al., 1997; Rutter, 1987). This flexibility in the adoption of effective coping strategies is the focus of the present research study. Resilient individuals are those who learn to cope with stress effectively by utilising particular skills and abilities in stressful situations (Jew & Green, 1998), and draw conclusions about the effectiveness of different coping strategies based on outcomes from previous stressors. This demonstrates the importance of prior stressful events in the perception of the effectiveness, and subsequent utilisation, of coping strategies and enhancement of resilience.

The importance of previous stressful experiences is reflected in the notion that resilience does not usually result from positive health characteristics, generally good experiences, or the avoidance of risk experiences. Consequently, resilience can be seen as resulting from exposure to stress and not through its avoidance. Resilience results from encountering stress at a time and in a way with which the individual can cope, leading to the fostering of appropriate coping mechanisms that are effective in future situations (Rutter, 1996). Jew, Green and Kroger (1999) have suggested that perhaps it is the successful coping with stressful situations that fosters a sense of mastery and appropriate responsibility, leading to increased mental health and the belief in the individual's ability to cope with future stressors. This stress inoculation model provides the basis for the present study. Exposure to, and successfully coping with, a challenging and potentially stressful experience is hypothesised to increase the

individual's level of resilience and subsequent mental health due to the mobilisation of productive coping styles.

While resilience is largely regarded as a stable personality characteristic, it may also be amenable to change (Jew, Green, & Kroger, 1999; Nettles & Pleck, 1996; Rutter, 1996). This is an exciting prospect, as inherent in this statement is the notion that we may be able to increase an individual's level of resilience through appropriate interventions. One such intervention is the Extended Stay Outdoor Education Program (ESOEP) which aims to bolster resilience and increase subsequent mental health through exposing adolescents to a challenging and potentially stressful experience. The present study aims to examine the effectiveness of the ESOEP in increasing an adolescent's levels of resilience and subsequent mental health, which may lead to the utilisation of future interventions, particularly for adolescents who are at risk of negative mental health outcomes, such as suicide and depressive disorders.

The Extended Stay Outdoor Education Intervention Program

During their ninth grade the participating adolescents spend a period of time at an ESOEP, which requires them to adapt to changes in their physical and social environments, as well as to changes in others' expectations of them. These students are removed from their families and are encouraged to be independent, self-motivated and self-reliant in order to deal with these changing expectations and requirements. This experience is challenging, and may also be regarded as stressful for, and by, some adolescents.

Rhoades (1972; cited in Hattie, Marsh, Neill, & Richards, 1997) argued that the most compelling reason for using the natural environment in an educational setting is that it requires certain beneficial responses: "cooperation, clear thinking and planning, careful observation, resourcefulness, persistence and adaptability... These

responses are not demanded by the environment, per se, but rather the manner in which the program forces students to interact with the environment” (p. 26).

Previous research has also demonstrated the benefits of outdoor education programs, by revealing enhanced mental health measures, such as internal locus of control, upon the completion of such programs (Hans, 2000). The present researcher contends that these increases in psychological well-being and decreases in psychological distress may be due to the enhancement of resilience and the increased use of productive coping strategies, the latter mediating the relationship between resilience and mental health.

Many of the experiences that students undergo whilst attending an ESOEP are aimed at increasing their levels of productive coping styles, by encouraging independence and problem-solving skills. Examples of such experiences include camping expeditions, teamwork exercises and increased responsibility for their own studies (see Appendix A for more information on the ESOEP). The researcher proposes that this exposure to a challenging and potentially stressful situation has the potential to increase the students’ use of productive coping styles and their level of resilience. These increases in effective coping styles and resilience are hypothesised to have benefits for the students’ mental health, resulting in greater psychological well-being and lessened psychological distress five weeks into the ESOEP experience, compared to baseline measures at the onset of the program.

The coping measure used in this study asked participating adolescents about the specific coping strategies they had used in order to deal with the ESOEP, as the researcher was interested in the actual coping strategies adopted, as opposed to the coping styles which they used more generally and prior to the ESOEP. Furthermore, a measure was included asking the adolescents how well they perceived that they had

coped with the ESOEP, in essence asking them about the perceived effectiveness of the coping styles they had adopted. Another measure was included regarding how stressful, severe, and difficult the adolescents had perceived the ESOEP. These measures were included to determine the relative importance of these perceptions in regard to the relationship between resilience, coping styles and mental health, and also to determine which are better predictors of mental health: the coping styles adopted or how effective they are determined to be.

Resilience and Adolescent Mental Health

There is great diversity within mental health measures, and significant gender differences have been found previously (eg Diekstra, 1995; Rachman, 1990). While depressive disorders, suicide ideation, and parasuicide are more prevalent in girls than in boys, it seems that the recent rise in depressive disorders and suicides is greater in boys than in girls (Diekstra, 1995). Whereas males report greater levels of depression prior to 12 years of age, there is a dramatic reversal of the sex ratio thereafter (Merikangas & Angst, 1995). McGee and colleagues (1992; cited in Merikangas & Angst, 1995) reported a male to female sex ratio of 4.3:1 at 11 years, and 0.4:1 at 15 years, and determined that poor self-esteem and negative body image were more common among female than male adolescents. Moreover, these characteristics constituted the major antecedents of depressive episodes in young females (Allgood-Meron, Lewinsohn, & Hops, 1990; cited in Merikangas & Angst, 1995; Compas, Hinden, & Gerhardt, 1995).

There has been a significant lack of empirical research conducted on Australian adolescents in relation to mental health. However, one study that was performed on 878 Australian adolescents (Heubeck & Neill, 2000) determined that males reported slightly better mental health than girls, which is consistent with

American data (eg Ostroff, Woolverton, Berry, Lesko, 1996). Due to these findings, it is hypothesised that the present study will demonstrate a gender difference in mental health with males reporting higher levels of mental health than females.

Depressive disorders are not the only outcomes which may result from stressful experiences, however this diversity within mental health outcomes has been problematic for studies of resilience enhancement training (Bebbington, Sturt, Tennant, & Hurry, 1990; Casella & Motta, 1990; Rutter, 1993; Schissel, 1993; cited in Aroian et al., 1997). There are many studies of resilience which take just one type of psychopathology as a criterion and then draw conclusions on resilience on the basis of individuals who do not have that outcome. Rather, we need to appreciate that people may experience a range of different mental health outcomes. The present researcher contends that resilient individuals may not only experience decreases in psychological distress, but also increases in psychological well-being during a challenging ESOEP.

Adolescent Coping Styles and Mental Health

The starting point for research into coping styles was the conceptual analysis of stress and coping offered by Lazarus in 1966 (cited in Carver, Scheier, & Weintraub, 1989). Lazarus argued that stress consisted of three processes: primary appraisal; secondary appraisal; and coping. “Primary appraisal” is the process of perceiving a threat to oneself. “Secondary appraisal” is the process of bringing to mind a potential response to a threat. “Coping” is the process of executing that response (Carver, Scheier, & Weintraub, 1989).

Lazarus and Folkman (1984) define coping as “constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). This is a

process-oriented rather than trait-oriented model of stress that implies a distinction between coping and automatized adaptive behaviour, by limiting coping to demands that are appraised as taxing or exceeding a person's resources (Folkman & Lazarus, 1985; Lazarus & Folkman, 1984). Coping has also since been conceptualised as consisting of both "strategies" and "styles".

Coping strategies are the actual behaviours adopted to deal with stressful situations, whereas coping styles have come to represent those strategies that are used more consistently, rather than inconsistently. As a result, coping styles are often associated with the trait conceptualisation of coping (Compas et al., 1988; cited in Frydenberg, 1997). The present research study chooses to conceptualise coping as styles that are exhibited through the coping strategies adopted. This allows for a broader examination of coping styles, while still recognising the importance of specific strategies. The participants in this study are asked about specific coping strategies that they may have adopted during the ESOEP. However, these responses are then further categorised into coping styles - the characteristic ways of coping utilised by the individual.

Coping can also be broadly differentiated into efforts to change the environment, or efforts directed inwards to change the meaning attached to an event and increase understanding. Thus a distinction has been made between "problem-focused" and "emotion-focused" coping strategies and styles (Cantanzaro, Wasch, Kirsch, & Mearns, 2000; Lazarus & Folkman, 1984). Problem-focused coping is aimed at problem-solving or performing a behaviour to alter the source of the stress. Emotion-focused coping is aimed at reducing or managing the emotional distress that is associated with, or cued by, the situation. Problem-focused coping tends to predominate when people feel that something constructive can be done, whereas

emotion-focused coping tends to predominate when the individual feels that the stressor is something that must be endured (Carver, Scheier, & Weintraub, 1989). While this distinction between problem-focused coping and emotion-focused coping is conceptually important, most research has discovered several factors when analysing coping styles, rather than the two proposed above. In general, researchers view factors other than problem-focused coping as variations of emotion-focused coping (Carver, Scheier & Weintraub, 1989).

The limitations of these problem-focused and emotion-focused categories have been questioned by other researchers who have drawn upon Lazarus and Folkman's theory, have developed questionnaires to assess coping responses through factor analytic procedures, and have come up with alternative organisations. For example, in the adolescent arena Seiffe-Krenke (1993; cited in Frydenberg, 1999) identified three approaches to coping which have been described as "active coping", "internal coping" and "withdrawal". Frydenberg and Lewis (1993; cited in Frydenberg, 1999), while analysing data obtained from the Adolescent Coping Scale (ACS) (the coping measure used in this study), have described three broad-band coping styles. These styles have been characterised as "problem-focused", "non-productive" strategies and "reference to others". Problem-focused coping can be seen as those behaviours that are performed in order to solve the problem or alleviate the source of stress, such as studying hard for an exam in order to relieve feelings of test-anxiety. Non-productive coping strategies are those which do not actively try to solve the problem or alleviate the emotional distress associated with stressors. Non-productive coping includes over-eating, denial, aggression, and depression. Reference to others includes seeking out peers, family and professionals for both emotional and instrumental reasons – for example, seeking out support groups in order to share

feelings, release emotions, and obtain information. Frydenberg and Lewis posit that these three styles can be differentiated further into 18 coping strategies (Frydenberg, 1999).

While we are able to determine the coping styles which people may draw upon in relation to a specific and current stressor, knowledge of a person's coping styles is not sufficient to predict future coping. The relationship between resources and coping can be affected by personal and environmental constraints and perceived level of threat (Lazarus & Folkman, 1984). For this reason, a measure of stress appraisal has been included in the present study. Furthermore, coping resources are usually not constant over time; they are likely to change as a function of experience, time of life, and the requirements for adaptation associated with different periods of life.

Therefore, the presence of a given resource at a given time does not imply that it will be available for the same individual, to the same extent, at another time (Lazarus & Folkman, 1984). These findings indicate the importance of situations that require individuals to broaden the range of productive coping strategies available, such as the ESOEP. The present researcher contends that those with high resilience are more likely than less resilient individuals to use problem-focused coping strategies when faced with a stressful event. Moreover, it is hypothesised that more resilient individuals are likely to appraise a stressful event as less stressful than less resilient individuals, and report greater mental health.

This link between the utilisation of productive coping strategies and mental health outcomes has been established by prior research. Productive coping strategies, such as active coping and planning, have been positively associated with optimism, the feeling of generally being able to do something about stressful situations, self-esteem, hardiness, and Type A behaviour (Carver, Scheier, & Weintraub, 1989).

Active coping was inversely related to trait anxiety. This pattern of association suggests that coping strategies generally regarded as functional are linked to personality qualities that are widely regarded as beneficial. Similarly, coping tendencies hypothesised to be less functional were inversely associated with desirable personality qualities, such as resilience (Carver, Scheier, & Weintraub, 1989).

Carver, Scheier, and Weintraub's (1989) study further determined that primarily emotion-focused styles of coping (such as the tendencies to focus on and vent emotions and to seek emotional support, for both instrumental and emotional reasons) exhibited significant gender differences. These tendencies were greater among women, consistent with sex-role stereotypes. The only tendency that was stronger among men than women in this study was the use of alcohol or drugs as a way of coping (Carver, Scheier, & Weintraub, 1989). These findings led to a hypothesis for the current study that females use more emotion-focused styles of coping, whereas males will use more problem-focused and non-productive styles of coping.

Resilience, Coping with ESOEP, and Mental Health – Research Aims

The present study is a modified replication of a longitudinal study completed by Florian, Mikulincer, and Taubman (1995) on Israeli soldiers who were undergoing a stressful training period. Their study examined the role of stress appraisals and coping in relation to a real-life stressful event and the mediational role of hardiness on mental health. The present study will be conducted using a similar longitudinal design to that used by Florian and colleagues (1995). However the researcher aims to examine the role of resilience, not hardiness. The reasons for an examination of resilience rather than hardiness include the inherent difficulties of examining hardiness due to problems in elements of the hypothetical construct, a lack of

consistent results concerning hardiness, and the lack of an appropriate measurement tool. The construct of resilience, however, has received substantial support and the Resilience Scale (RS), which will be used in this study, has received considerable empirical support (i.e. Aroian et al., 1997).

The present study is unique in that it aims to empirically test the relationships among resilience, perceived stress during the ESOEP, coping styles and their perceived effectiveness, and mental health in Australian adolescents. This study contains a longitudinal design, which is rare in this field of study, and is also one of a limited number of studies that have been conducted regarding adolescent resilience, particularly within Australia. The present study aims to determine whether participation in an ESOEP will enhance adolescents' resilience and mental health. It also aims to determine the precise nature of the relationship among resilience, perceived stress, coping styles and their effectiveness and mental health in Australian adolescents undergoing an ESOEP. Gender differences in resilience, use of various coping styles, and mental health are also investigated.

For the present study it was specifically hypothesised that:

1. adolescent's levels of resilience would increase as a result of engaging in the ESOEP;
2. adolescents with high resilience, as measured at Time 1, would use more problem-focused and less emotion-focused styles of coping during the ESOEP;
3. adolescents with high resilience (at Time 1 and Time 2), and low levels of perceived stress, in combination with use of productive coping styles, would have greater mental health following a stressful situation, such as the ESOEP; and

4. coping styles and perception of coping well with the ESOEP would mediate the relationship between resilience at Time One and Time Two, and psychological well-being and distress, as measured five weeks into the ESOEP.

Method

Design

In order to test the hypotheses postulated in this study, questionnaires were administered to participating adolescents attending ESOEPs conducted within two single-sex schools. Measures were taken at two points in time, five weeks apart. At the first administration of the questionnaires (Time One), the dimensions of resilience, psychological well-being and psychological distress were assessed. At the second administration (Time Two), resilience, psychological well-being, psychological distress, coping strategies, perception of coping strategy effectiveness and stress appraisal were measured. In order to match the questionnaires from the two data collection times, a matching procedure was used. At Time One, participants were asked to provide the last four digits of their home phone number and their favourite breed of dog. Participants were advised that they would be required to remember, and keep their own record of, these details. At Time Two they were asked again to provide the same information. Questionnaires could then be matched, and each pair of questionnaires given an identification code.

Participants

The participants in this longitudinal study were 99 grade 9 students (71 male and 28 female) who were attending an ESOEP at a Sydney-based private boys' school and a Melbourne-based private girls' school respectively (see Appendix A for information on the ESOEP). The participants had a mean age of 14.3 years (SD =

.509 years) and ranged between 13 and 15 years of age. These students were all in their ninth grade of schooling and the majority reported receiving a B grade on average, ranging from average grades of A to D. The students, with parental consent, volunteered their participation and did not receive any reward, monetary or otherwise, for their participation.

During the first questionnaire administration, viable questionnaires were obtained from 99 participants (71 males and 28 females). However, seven of these participants did not take part in the second survey, primarily due to health reasons. Thus, the questionnaires able to be matched numbered 92 (65 males and 27 females). This figure reflects an encouraging response rate of 91% over the two administration periods. Unfortunately, for reasons mentioned in the Discussion, viable questionnaires were obtained from only 59 participants (31 males and 28 females) during the second administration period. This disappointing return of completed questionnaires both raises concerns regarding the method used in this study, and requires the Results section to be interpreted with caution.

Materials

Two questionnaires were used to conduct this study. The first questionnaire used at the first administration time, consisted of five parts: informed consent; the University of Canberra's "Contacts for information on the project and independent complaints procedure" form; the Time One instructions and demographic information; the Resilience Scale; and General Well-Being. These components are detailed further in the following sub-sections.

Informed consent (Appendix B). Participants were advised as to the nature and aims of this research, and that the questionnaires would be administered at the

camp on two separate occasions five weeks apart. Participants were advised that participation in the survey reflected their informed consent.

Contacts for information on the project and independent complaints procedure form (Appendix C). Participants were advised who they could contact regarding this study if they had any questions, or complaints, or if they wanted further information on this study.

Time One instructions and demographic information (Appendix D).

Participants were given instructions on how to complete the questionnaires and asked to provide information on their gender, age in years, year of schooling, and average academic grade.

Resilience Scale. The personality characteristic of resilience was assessed using the 15-item Resilience Scale (RS) (Appendix E). The RS used in this study was a modification of Wagnild and Young's (1993) 25-item RS. The modified RS was comprised of the 15 items from the original 25-item RS which had the greatest face validity and unrotated factor loadings, as determined by Neill and Dias (2000). This modified RS was used in this study as it is shorter than the original RS, and the researcher was mindful that the adolescents had many questions to respond to, particularly in the second administration of the questionnaires.

The modified scale consists of positively stated self-descriptions to be responded to on a 7-point Likert-type response scale, ranging from 1 (Strongly Agree) to 7 (Strongly Disagree). Overall resilience was determined by totalling the respondents' responses and then dividing by the number of items to obtain a mean resilience score. These responses were then re-coded so that a high score indicated a high level of resilience, with 7 being the maximum possible score.

The factor structure of the 25-item RS was explored by Wagnild and Young (1993), who determined that both a uni-dimensional and a two-dimensional factor structure fit the data. These two factors were labelled “Personal Competence” and “Acceptance of Self and Life”. A confirmatory factor analysis performed by the researcher on the modified RS used in this study determined that a uni-dimensional factor was most appropriate, due to the small sample size, multiple cross-loadings on the factors, unsatisfactory fit of the data, and a theoretical basis for examining overall resilience. This was consistent with Neill and Dias’ (2000) findings, which also supported the use of a global resilience factor.

The internal consistency reliability of the 25-item RS obtained in six studies ranged from $\alpha = .76$ to $.91$ (Cooley, 1990; Killien & Jarrett, 1993; Klaas, 1989; Wagnild & Young, 1988, 1990, 1993; cited in Aroian et al., 1997). The modified 15-item RS has been found to have an alpha of $.91$ when used in a study of 41 adults taking part in an Outdoor Education Program (Neill & Dias, 2000). Concurrent validity for the original RS has also been demonstrated in various studies by obtaining significant correlations between the RS and measures of constructs that are theoretically linked with resilience, including morale, life satisfaction, stress, self-esteem, depression and health (Cooley, 1990; Killien & Jarrett, 1993; Klaas, 1989; Wagnild & Young, 1988, 1990, 1993; cited in Aroian et al., 1997). During the present study the 15-item RS has displayed a Cronbach’s alpha level ranging from $.85$ (Time One administration) to $.90$ (Time Two administration), once again reflecting the high internal consistency of this scale.

General Well-Being. Psychological well-being (10 items) and distress (10 items), both within the past month, were assessed using the 20-item General Well-Being (GWB) scale (Appendix F). The 20 items that comprise the GWB were

derived from Veit and Ware's (1983) 38-item Mental Health Index (MHI). Each statement of the GWB asks the respondent to rate how often they have felt that way, or to what extent they have felt that way within the past month. Each statement has a choice of six responses, ranging from "All of the time" to "None of the time", for questions such as "During the past month, how much of the time have you generally enjoyed things?", and from "Always" to "Never" for questions such as "When you got up in the morning, during the past month, about how often did you expect to have an interesting day?" (see Appendix G for the items which comprise the two scales).

Veit and Ware (1993), using exploratory and confirmatory factor analytic methods, have reported three hierarchical factor models for the MHI. These include a general underlying psychological distress versus well-being factor; a higher order structure defined by two correlated factors - Psychological Distress and Well-Being; and five correlated lower order factors - Anxiety, Depression, Emotional Ties, General Positive Affect, and Loss of Behavioural Emotional Control. Ostroff and colleagues (1996) have since found support for a two-factor model rather than the original five-factor model for the assessment of adolescents' mental health. This finding has also been supported with Australian adolescents (Heubeck & Neill, 2000), in a study which had high internal consistency ($\alpha > .9$) and stability over time ($\sim .7$) over a 10-week period.

The present study has also found support for a two-factor model of the GWB, with the Psychological Well-being subscale displaying a substantial Cronbach's $\alpha = .90$ at Time One, and $\alpha = .88$ at Time Two. The Psychological Distress subscale also displayed a substantial $\alpha = .89$ at Time One, and $\alpha = .91$ at Time Two. These scales have been coded so that a high score on well-being indicated greater well-being, and a

high score on distress indicated greater distress. These two scales have been found to be highly correlated at Time One ($r = -.72$) and Time Two ($r = -.65$).

For the second administration time, the questionnaire consisted of six parts: Time Two instructions and demographics; three questions regarding the participants' stress appraisals of the ESOEP; the RS; the GWB; Adolescent Coping Scale; and one question regarding how well participants thought they had generally coped. The measures new to the second questionnaire are detailed below.

Stress appraisal. The participants' perceived stress was assessed using three questions answered on a seven-point (1-7) scale regarding the stressful situations experienced in the past month (Appendix H). These questions were: "Taking into account other stressful situations you have experienced, how would you rate the experiences from the past month?" (A) Extremely difficult (1)...Not difficult at all (7); (B) Extremely severe (1)...Not severe at all (7); and (C) Most stressful situation I have experienced (1)...Not very stressful (7). The responses on these questions were then totalled and divided by the number of questions, to obtain a mean stress appraisal score. The score was coded with a high score reflecting a high stress appraisal. This stress appraisal scale had a satisfactory alpha of .85.

Adolescent Coping Scale. The coping strategies used by the adolescents during the ESOEP were assessed using the Adolescent Coping Scale (ACS) (Frydenberg & Lewis, 1993) (Appendix I). The ACS used in this study was a modification of Frydenberg and Lewis' (1993) original ACS, derived using Australian adolescents. The original ACS contains both an 80-item long form and an 18-item short form. The respondent rates the items on a 5-point Likert-type scale, ranging from 1 (didn't do it) to 5 (used a great deal). The ACS used in this study contains 22 5-point Likert type questions and one open-ended question regarding other coping

strategies used by the adolescents during the ESOEP not included in the 22-item questionnaire. These 22 items were comprised of the 18-item short form of the questionnaire, and four items that were determined by the researcher to be possible coping mechanisms used by adolescents.

The ACS assesses 18 conceptually and empirically distinct coping strategies and has significant item reliability ($>.32$) (Frydenberg & Lewis, 1993). A principal components with Oblimin rotation factor analysis was performed by Frydenberg and Lewis (1993), which demonstrated clearly 18 distinct constructs, as was anticipated. These 18 distinct constructs can be seen to represent 3 higher-order constructs – “Non-productive coping”, “Solving the problem” and “Reference to others”, as posited by Frydenberg and Lewis (1993) (see Appendix J for the items which comprise these scales). While other researchers have suggested a 6 factor solution to the ACS (Heubeck, Neill, & Rickwood, 1999), the present study has utilised these three original higher-order constructs for this research due to conceptual basis. The present research has found Cronbach’s alpha levels of .68 for Reference to Others, .70 for Solving the Problem, and .62 for Non-productive coping.

Generally coped. The Time Two questionnaire contained one question relating to how well the participant perceived they had coped with the ESOEP (Appendix I). This question was scored on a scale of 1 (did not cope at all) to 7 (coped extremely well).

Procedure

Administration of the questionnaires took place at two different points in time: Time One was within 24 hours of the participants arriving at the ESOEP camp in Week 1, and Time Two was during Week 6 of the camp. Administration at both times took place during class periods, and at the ESOEP camp. Participants were

instructed that participation was voluntary and that they did not have to respond to all items. All participants were advised that their participation in the survey reflected their informed consent. Participants were assured that their responses were completely confidential, that it would take about 25 minutes for the first administration, and about 35 minutes for the second administration. The instructions on the front of the survey were highlighted when administering the survey. Participants were also asked to make note of their particular matching code, and to use the same code in the second survey. At the end of each survey, participants were thanked for their participation and any questions answered. Following the second survey, participants were provided with a short debriefing, and told when the results of the survey would be available and with whom they could discuss these results.

Results

Descriptive Statistics

Table 1 shows the descriptive statistics and Cronbach's alpha coefficients for resilience, psychological well-being and distress at the Time One administration of the questionnaires. The mean scores for well-being and resilience were negatively skewed, falling considerably above the midpoint of potential scores, while the mean score for distress was positively skewed.

Table 2 shows the descriptive statistics and alphas for resilience, coping styles, and psychological well-being and distress at Time Two. The mean scores for well-being, resilience, solving the problem and general coping fell considerably above the midpoint of possible scores. Distress, non-productive coping, reference to others, and stress appraisals fell considerably below the midpoint of possible scores.

Table 1

Descriptive Statistics for Resilience and Psychological Well-being and Distress at Time One

	<u>M</u>	<u>SD</u>	Min	Max	Possible range	Skewness	Kurtosis	α
Resilience	5.44	.76	2.67	6.53	1-7	-1.05	1.04	.84
Well-being	4.13	.87	1.00	5.50	1-6	-0.86	0.69	.89
Distress	2.73	.85	1.20	5.50	1-6	0.73	0.51	.89

Table 2

Descriptive Statistics for the Hypothesised Predictors of Resilience, Coping Styles, and Psychological Well-being and Distress at Time Two

	<u>M</u>	<u>SD</u>	Min	Max	Possible range	Skewness	Kurtosis	α
Resilience	5.42	0.90	2.60	7.00	1-7	-.61	.13	.90
Non-productive coping	2.46	0.65	1.00	4.13	1-5	-.01	-.03	.62
Reference to others	2.78	0.77	1.29	5.00	1-5	.38	-.07	.68
Solving problem	3.42	0.74	1.57	5.00	1-5	-.41	-.12	.70
General coping ^a	5.04	1.47	1.00	7.00	1-7	-.87	.23	--
Stress appraisal	3.50	1.38	1.00	7.00	1-7	.32	.37	.85
Well-being	4.27	0.84	2.38	6.00	1-6	-.38	-.65	.88
Distress	2.60	0.87	1.10	4.80	1-6	.33	-.48	.91

^a An alpha level for general coping is inappropriate as it is a one-item measure.

Impact of the ESOEP on Resilience and Mental Health

Paired samples t-tests determined that there were no significant differences in resilience at Time One and Time Two ($t(91) = .12, p = .91$), well-being at Time One

and Time Two ($t(91) = -1.29, p = .20$), or distress at Time One and Time Two ($t(91) = -1.37, p = .17$).

Gender Differences

Independent samples t-tests were conducted to examine gender differences, with all analyses requiring a Bonferroni adjustment of $.05/11 = .0045$ for a significant result. It was determined that there were no significant gender differences in resilience at Time One ($t(97) = 1.05, p = .23$), resilience at Time Two ($t(90) = .68, p = .49$), well-being at Time One ($t(97) = 2.51, p = .01$), well-being at Time Two ($t(90) = -.88, p = .38$), distress at Time One ($t(97) = 2.66, p = .01$), distress at Time Two ($t(90) = 1.86, p = .07$), reference to others ($t(72) = 1.44, p = .15$), non-productive coping ($t(72) = -2.29, p = .03$) and stress appraisals ($t(77) = .01, p = .93$). An independent samples t-test further determined that there were no significant gender differences in the adolescents' perceptions of how well they generally coped with the ESOEP ($t(65) = 2.92, p = .01$). An independent samples t-test determined that there was a significant gender difference in the use of solving the problem coping strategies, with males using more ($M = 3.66$) of these strategies than girls ($M = 2.96$) throughout the ESOEP ($t(72) = 4.29, p = .00$).

Intercorrelations

Table 3 displays the intercorrelations between the hypothesised predictors of mental health measures at Time Two.

Time One resilience was significantly positively correlated with Time One and Time Two well-being, and negatively with Time One distress, suggesting that those with high resilience report greater mental health, both at the onset of the study, and five weeks in to the ESOEP. Time One resilience was also negatively correlated with Time Two distress, however this relationship was not significant.

Table 3

Intercorrelations Between the Hypothesised Predictors of Psychological Well-Being and Distress

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Sex (female)	--	-.10	-.07	-.25*	.26**	-.45**	-.17	.26*	.01	-.34**	.09	.19
2. T1 Resilience		--	.25*	.52**	-.37**	.09	.12	.04	-.07	.09	.21*	-.17
3. T2 Resilience			--	.15	-.17	.63**	.29*	-.21	-.26*	.61**	.44**	-.39**
4. T1 Well-Being				--	-.72**	.14	.00	-.14	-.23*	.17	.34**	-.23*
5. T1 Distress					--	-.19	.08	.28*	.34**	-.33**	-.38**	.41**
6. Solving problem						--	.54**	-.20	-.21	.63**	.30**	-.44**
7. Reference to others							--	.13	.04	.21	.13	.00
8. Non-Productive coping								--	.22	-.43**	-.28*	.48**
9. Stress appraisal									--	-.51**	-.41**	.56**
10. General coping										--	.51**	-.70**
11. T2 Well-Being											--	-.64**
12. T2 Distress												--

* $p < .05$. ** $p < .01$.

Time One resilience was also significantly positively correlated with Time Two resilience, suggesting consistency of resilience during the ESOEP. Time Two resilience was significantly positively correlated with Time Two well-being and negatively with Time Two distress, suggesting that those reporting high levels of resilience also report greater mental health outcomes five weeks into the ESOEP. Time Two resilience was also significantly positively correlated with solving the problem, reference to others and general coping, suggesting that resilience is associated with productive styles of coping, and that these coping strategies are appraised as effective by the students during the ESOEP. Time Two resilience has a significant negative correlation with stress appraisal, suggesting that those with high Time Two resilience also appraised the ESOEP as less stressful than those with low resilience.

Time Two well-being was significantly positively correlated with solving the problem and negatively with non-productive coping, indicating that those who report high levels of psychological well-being use more problem-focused styles of coping and less non-productive styles of coping. Time Two well-being was not significantly correlated with reference to others.

Time Two distress was significantly negatively correlated with solving the problem and positively with non-productive coping, suggesting that those who report high levels of psychological distress also report using more non-productive coping styles and less problem-focused styles of coping. Time Two distress was not significantly related to reference to others.

Stress appraisal was significantly negatively correlated with Time Two well-being and positively with Time Two distress, suggesting that those who appraise the ESOEP as

less stressful experience greater mental health outcomes than those who appraise the ESOEP as stressful.

General coping was significantly positively correlated with Time Two well-being and negatively with Time Two distress, indicating that those who perceived their coping strategies to be effective also reported greater levels of mental health and lower levels of psychological distress.

Partial Correlations Between Resilience and Time Two Mental Health

Partial correlation determined that the correlation between Time One resilience and Time Two well-being is not significant when controlling for Time One well-being ($r^2 = .03$, $p = .76$). The relationship between Time Two resilience and Time Two well-being is significant when controlling for the effects of reference to others ($r^2 = .37$, $p = .001$); solving the problem ($r^2 = .28$, $p = .02$); and non-productive coping ($r^2 = .35$, $p = .002$).

Framework for Multiple Regression Analyses

Four multiple regression analyses were conducted on Time One and Time Two well-being and distress. These analyses were conducted in order to evaluate the relative contributions of the various hypothesised predictors of mental health. The small sample size available at the Time Two administration of the questionnaires raises concerns regarding the appropriateness of these Time Two multiple regression analyses, and suggests that all findings are to be interpreted with caution. Only variables that were significantly correlated with the dependent variables were entered into the multiple regression analyses.

Hierarchical Regression of Time One Well-Being

Table 4 shows a summary of a hierarchical regression of well-being at Time One against the demographic variable of sex and pre-existing resilience. The assumptions of multiple regression were met. The assumption of ratio of cases to independent variables was not violated. There was no evidence of heteroscedasticity and, although an examination of the residuals showed a few outliers, the maximum Cook's Distance was .17, suggesting that the outliers were unlikely to have had a significant effect on the regression. The collinearity statistics were acceptable, with tolerance levels of .98 and greater, indicating that there were no problems with multicollinearity.

In the first step the demographic variable of sex was entered into the equation to control for its effects. This was followed by Time One resilience, in order to determine whether experiencing high levels of pre-existing resilience would aid the prediction of psychological well-being. Cumulatively these two variables accounted for a significant 31% of the variance in Time One well-being.

Table 4

Summary of Hierarchical Regression Analysis for Time One Well-Being (listwise N = 99)

Variable	<u>B</u>	<u>SE B</u>	B	<u>R</u> ²	<u>ΔR</u> ²
Step 1					
Sex (female)	-.46	.19	-.25*	.06*	.06*
Step 2					
Sex (female)	-.37	.17	-.19*		
T1 Resilience	.56	.10	.50***	.31**	.25**

* $p < .05$. ** $p < .01$. *** $p < .001$.

Entering the demographic variable of sex in the first step significantly accounted for 6% of the variance in well-being at Time One, and attained a significant coefficient. In the second step, the addition of resilience adds a significant 25% of variance in well-being, with both sex and resilience attaining significant coefficients. In the final model, the significant predictors of Time One well-being were high levels of resilience and being male.

Hierarchical Regression of Time One Distress

Table 5 displays the results of a hierarchical regression on Time One distress. In the first step the demographic variable of sex was entered into the equation to control for its effects. This was followed by Time One resilience, in order to determine whether experiencing high levels of pre-existing resilience would aid the prediction of psychological distress. Cumulatively these two variables accounted for a significant 19% of the variance in Time One distress. The assumptions of multiple regression were met. The assumption of ratio of cases to independent variables was not violated. There was no evidence of heteroscedasticity and, although an examination of the residuals showed a few outliers, the maximum Cook's Distance was .09, suggesting that the outliers were unlikely to have had a significant effect on the regression. The collinearity statistics were acceptable, with tolerance levels of .99 and greater, indicating that there were no problems with multicollinearity.

In the first step of this hierarchical regression entering the demographic variable of sex significantly accounted for 7% of the variance in Time One distress, and attained a significant coefficient. In the second step, the addition of resilience added a significant further 12% to the amount of variance in Time One distress, with both sex and resilience

attaining significant coefficients in this step. In the final model the predictors of Time One distress were being female and low on resilience.

Table 5

Summary of Hierarchical Regression Analysis for Time One Distress (listwise N = 99)

Variable	<u>B</u>	<u>SE B</u>	β	<u>R</u> ²	Δ <u>R</u> ²
Step 1					
Sex (female)	.49	.19	.26**	.07**	.07**
Step 2					
Sex (female)	.42	.18	.22*		
T1 Resilience	-.39	.10	-.35***	.19***	.12***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Hierarchical Regression of Time Two Well-Being

Table 6 displays the results of a hierarchical regression of well-being at Time Two. In the first step, the demographic variable of sex was entered to control for its effects. In the second step, Time Two resilience was added to determine whether this personality characteristic aids the prediction of Time Two well-being. In the third step the two coping strategies which had significant bivariate correlations with Time Two well-being (solving the problem, and non-productive coping), the perception of the effectiveness of these two coping strategies (general coping) and stress appraisal were added to the equation. These variables cumulatively explained 32% of the variance in Time Two well-being. The assumptions of multiple regression were met. The minimum ratio of cases to independent variables was not violated, although it is important to keep in mind the small sample size when interpreting these results. There was no evidence of

heteroscedasticity and, although an examination of the residuals showed a few outliers, the maximum Cook's Distance was .26, suggesting that the outliers were unlikely to have had a significant effect on the regression. The collinearity statistics were acceptable, with tolerance levels of .47 and greater, indicating that there were no problems with multicollinearity.

Table 6

Summary of Hierarchical Regression of Well-Being at Time Two (listwise N = 59)

Variable	<u>B</u>	<u>SE B</u>	B	<u>R²</u>	<u>ΔR²</u>
Step 1					
Sex (female)	.04	.20	.03	0.0	0.0
Step 2					
Sex (female)	.06	.19	.04		
T2 resilience	.31	.09	.38**	.12**	.12**
Step 3					
Sex (female)	.46	.21	.31*		
T2 resilience	-.01	.13	-.02		
Non-productive coping	-.24	.15	-.21		
Solving the problem	.19	.18	.18		
General coping	.17	.10	.35		
Stress appraisal	-.04	.07	-.08	.32**	.20**

* $p < .05$. ** $p < .01$. *** $p < .001$.

In the first step adding the demographic variable of sex did not significantly account for variance in well-being at Time Two, and did not attain a significant coefficient. The addition of Time Two resilience in the second step added a further

significant 12% to the amount of variance in Time Two well-being, with resilience, but not sex, attaining a significant coefficient. The addition of the two coping styles, general coping and stress appraisal, in the third step added a further 20% to the amount of variance in Time Two well-being. However the only significant coefficient in this step was the demographic variable of sex. In this final model, being female is the only predictor of Time Two well-being.

Hierarchical Regression of Time Two Distress

Table 7 displays the results of a hierarchical regression of distress at Time Two. In the first step, the demographic variable of sex was entered. In the second step, Time Two resilience was added to determine whether this personality characteristic aids the prediction of Time Two distress. In the third step the two coping strategies that had significant bivariate correlations with Time Two well-being (solving the problem, and non-productive coping), together with the perception of the effectiveness of these two coping strategies (general coping) and stress appraisal, were added to the equation. These variables cumulatively explained 60% of the variance in Time Two distress. The assumptions of multiple regression were met. The assumption of ratio of cases to independent variables was not violated, although it is important to keep in mind the relatively small sample size. There was no evidence of heteroscedasticity and, although an examination of the residuals showed a few outliers, the maximum Cook's Distance was .13, suggesting that the outliers were unlikely to have had a significant effect on the regression. The collinearity statistics were acceptable, with tolerance levels of .47 and greater, indicating that there were no problems with multicollinearity.

Table 7

Summary of Hierarchical Regression of Distress at Time Two (listwise N = 59)

Variable	<u>B</u>	<u>SE B</u>	β	<u>R²</u>	<u>ΔR^2</u>
Step 1					
Sex (female)	.53	.23	.29*	.08*	.08*
Step 2					
Sex (female)	.49	.21	.27*		
T2 resilience	-.32	.11	-.35**	.20**	.12**
Step 3					
Sex (female)	-.07	.19	-.01		
T2 resilience	.04	.12	.04		
Non-productive coping	.37	.14	.27**		
Solving the problem	-.09	.17	-.08		
General coping	-.23	.08	-.39**		
Stress appraisal	.19	.06	.32**	.60***	.40***

* $p < .05$. ** $p < .01$. *** $p < .001$.

In the first step of this hierarchical regression, the demographic variable of sex explains a significant 8% of the variance in Time Two distress, and attained a significant coefficient. In the second step, the addition of Time Two resilience adds a further 12% to the amount of variance explained, with both sex and resilience attaining significant coefficients. In the third step, the addition of the two coping styles, perception of their effectiveness, and stress appraisal, adds a significant further 40% to the amount of variance explained, with non-productive coping, general coping, and stress appraisal attaining significant coefficients. The results of this hierarchical regression suggest that

use of non-productive coping, perceiving the coping styles adopted to be ineffective, and appraising the ESOEP as stressful are the best predictors of distress at Time Two.

The findings (that the predictive relationship between Time Two resilience and Time Two well-being and distress becomes insignificant when coping styles, their perceived effectiveness, and stress appraisal were added to the regressions), led to further analyses to determine the nature of this relationship between resilience and measures of Time Two mental health. As seen in the results of the previous regression, general coping, non-productive coping and stress appraisal were significant predictors of distress at Time Two. For this reason, these variables were seen to be possible mediators of the relationship between Time Two resilience and Time Two distress. It was further determined that stress appraisal and non-productive coping did not mediate the relationship between Time Two resilience and Time Two distress (see Appendix K). However, general coping was determined to mediate the relationship between Time Two resilience and Time Two distress, as demonstrated below.

Hierarchical Regression Demonstrating the Mediation of General Coping Between Time Two Resilience and Time Two Distress

Table 8 demonstrates the mediational role of general coping between Time Two resilience and Time Two distress. The assumptions of multiple regression were met. The assumption of ratio of cases to independent variables was not violated, however it is important to keep in mind the relatively small sample size. There was no evidence of heteroscedasticity and, although an examination of the residuals showed a few outliers, the maximum Cook's Distance was .17, suggesting that the outliers were unlikely to have had a significant effect on the regression. The collinearity statistics were acceptable,

with tolerance levels of .39 and greater, indicating that there were no problems with multicollinearity.

Table 8

Hierarchical Regression Demonstrating the Mediation Role of General Coping Between Time Two Resilience and Time Two Distress (listwise N = 59)

Dependent Variable	Variable	<u>B</u>	<u>SE B</u>	B	<u>R²</u>
General coping	Step 1				
	T2 resilience	.98	.16	.61***	.38***
T2 distress	Step 1				
	T2 resilience	.38	.09	.40***	.16***
	Step 2				
	General coping	.43	.07	.72***	
	T2 resilience	0.0	.11	-.03	.49***

* $p < .05$. ** $p < .01$. *** $p < .001$.

The significant regression of Time Two resilience on general coping displays that variations in the level of the independent variable (Time Two resilience) significantly account for variations in the mediator (general coping), accounting for 38% of this variance. The significant regression of Time Two resilience on Time Two distress, accounting for 16% of the variance in Time Two distress, establishes that there is a relationship between the independent and dependent variables to be mediated by the

mediator. The regression of Time Two distress on both Time Two resilience and general coping displays that the relationship between Time Two resilience and Time Two distress is fully mediated by general coping, as the previously significant Time Two resilience beta is attenuated by the effects of general coping on Time Two distress.

Partial Correlations Controlling for Additional Variables

The strength of the relationship between general coping and Time Two distress has also been demonstrated by a partial correlation which determined that, when the effects of sex, reference to others, solving the problem, non-productive coping, stress appraisal and Time One distress were accounted for, there was still a significant negative correlation between general coping and Time Two distress ($r_2 = -.31, p < .03$). This indicates that when all other factors are held constant, the perception of coping well is associated with lessened psychological distress five weeks into the ESOEP.

Discussion

The first hypothesis, that attending the ESOEP would increase the adolescents' levels of resilience, was rejected as there was no significant difference between resilience at the onset of the study and at five weeks into the ESOEP experience. Furthermore, there was no evidence that the ESOEP either significantly increased the adolescents' reported levels of well-being or significantly decreased reported distress during the five weeks. These findings suggest that attending an ESOEP enhances neither adolescents' mental health nor the personality characteristic of resilience.

Time Two resilience however, was found to be associated with increased use of productive coping strategies such as "solving the problem" and "reference to others". This provides partial support for the second hypothesis, that adolescents with high

resilience at both Time One and Time Two would use more productive coping strategies. Pre-existing resilience, however, was not found to be significantly associated with any of the coping strategies. This indicates that the measurement of resilience at Time One is not widely beneficial in predicting the use of productive coping strategies during a challenging experience.

The third hypothesis, that individuals with high resilience at the onset of the study and five weeks into the ESOEP, low on perceived stress, and who report using productive coping styles would have greater mental health five weeks into the ESOEP, was also only partially supported. Time One resilience was significantly related only to high levels of reported well-being five weeks into the ESOEP, again casting doubt on the predictive value of resilience prior to a stressful experience. High levels of resilience five weeks into the ESOEP were associated with low levels of stress appraisals, increased use of “reference to others” and “solving the problem” coping strategies, and greater well-being and lessened distress five weeks into the ESOEP, as hypothesized. This provides concurrent support for the construct of resilience, as this personality characteristic has been shown to be related to other constructs in the hypothesised directions.

The fourth hypothesis, that coping styles and their perceived effectiveness would mediate the relationship between resilience and Time One and Time Two well-being and distress, was also partially supported. The findings reveal that it was the perception of coping effectiveness, and not the actual coping strategies adopted, which mediated the relationship between Time Two resilience and Time Two distress. It was further determined that the relationship between Time One resilience and any mental health measure administered five weeks into the ESOEP was not mediated by either the actual

coping styles adopted or the perceived effectiveness of these coping strategies. This finding once again casts doubts on the predictive value of pre-existing resilience levels prior to a stressful situation. These findings have potential implications for the development of intervention programs which, while enhancing the actual coping strategies adopted to cope with a specific event, also aim to increase adolescents' perceptions of the effectiveness of these coping strategies, through highlighting previous effective use and positive outcomes.

The poor predictive value of pre-existing resilience, demonstrated above, provides further support for the stress inoculation model of resilience enhancement. This model suggests that resilience does not stem from the avoidance of stressful situations, and that individuals require exposure to stressful and challenging experiences in order to develop resilience (Rutter, 1993, 1996). Consequently, an individual's level of resilience prior to a stressful experience may not be an adequate predictor of their possible attainable levels of resilience subsequent to that stressful experience, as they have not yet been exposed to a situation capable of enhancing levels of resilience, such as the ESOEP.

Gender differences in psychological well-being and distress, resilience, and coping strategies were explored within this study. It was found that the only significant gender difference was the greater reported use of "solving the problem" strategies by boys. However, whether this gender difference is a function of the ESOEP is not apparent, as coping strategies were not measured prior to the ESOEP. Further research would be necessary to determine whether this gender difference in the use of "solving the problem" strategies was apparent prior to the ESOEP, or whether the ESOEP experience itself leads boys to utilize these coping strategies more than girls. Additionally, being

female was the best predictor of increased well-being five weeks into the ESOEP, contrary to expectations. While this finding must be interpreted with caution due to the methodological concerns regarding this study, it is possible that gender mediates the relationship between resilience and mental health measures. Further research will need to be conducted to determine the nature of these relationships.

The finding that boys and girls report statistically similar levels of mental health both at the onset and five weeks into the ESOEP is contrary to data reported previously, which found that boys generally report greater levels of mental health than girls (Heubeck & Neill, 2000; Ostroff et al., 1996). This discrepancy may be a function of the sample size in this study, and certainly no firm conclusions can be drawn due to the methodological issues discussed below.

There are several methodological concerns that need to be recognised in relation to this study. It would have been beneficial to measure the adolescents' coping strategies both prior to the ESOEP and five-weeks into the program. Coping strategies were only assessed five weeks into the ESOEP, in order to determine the actual coping strategies used throughout the ESOEP. This proved to be problematic, as the absence of a baseline determination of coping strategies prohibited an examination of the role of ESOEP in enhancing the use of effective coping mechanisms.

There were issues regarding test-retest bias, in that the adolescents completed the RS and GWB on two occasions five weeks apart. While this is of some concern, the researcher nevertheless suggests that this was sufficient time to attenuate the problems associated with test-retest bias, and that the benefits of obtaining baseline measures outweighed the risks of such bias.

The relatively low correlation between resilience as measured at Time One and at Time Two may also be of concern, as resilience has been conceptualised as a stable internal personality characteristic by many researchers (Jew, Green, & Kroger, 1999; Nettles & Pleck, 1996; Rutter, 1996). This low test-retest correlation suggests that either this characteristic may not be stable over time, or that there are problems regarding the measurement of resilience used within this study. As all items in the RS are positively-worded, this may have led to a desirable response set being exhibited by the adolescents. Future research using the RS should aim to adapt this measurement tool by introducing some negatively-worded items in order to reduce the distorting effects of having all positively-worded items.

While it was determined that the relationship between resilience and distress five weeks into the ESOEP was mediated by the perceived effectiveness of the coping styles adopted, it is possible that the broader relationships between resilience, coping styles and mental health are further mediated by variables which were not measured within this study. If resilience is in fact further mediated by variables not measured, this may explain the poor predictive role of pre-existing resilience in regard to the coping styles adopted and the subsequent mental health outcomes from stressful experiences. Further research needs to be conducted within this field in order to determine the relationship between resilience and related constructs, such as self-efficacy, resourcefulness, social support, and more specific mental health measures. This further research would also be able to determine the stability of the personality construct of resilience over time.

Further, there are issues associated with the representativeness of this sample. The students sampled in this study all attend prestigious, private, single-sex schools,

suggesting that their families are of high socio-economic status, a demographic variable that was not assessed. Also, no measure of ethnic origin was taken. Accordingly, the relative importance of neither familial background nor economic status was analysed in this study in relation to resilience, coping styles and mental health. Another factor reducing the ability to generalise from these findings is the small proportion of Australian students who undergo programs such as the ESOEP. Whether these findings can in fact be generalized to students who undergo different stressful and challenging educational experiences could also be a fruitful area for future research.

There are also other concerns arising from the sample size, particularly for female students generally, and for male students at the second administration of the questionnaires. In accordance with Ethics Committee recommendations, the parents of all students were required to provide positive consent for their children to take part in this study. This proved to be problematic, in that only approximately 25% of the female students' parents approached returned the positive permission slips, compared with approximately 80% of the male students' parents. The characteristics of those whose parents did not send back positive consent slips could not be measured, which prompts further doubts on the representativeness of this sample. Concerns also arose regarding the responses made by the male students at the second administration of the questionnaires, with only approximately 60% of the participating males completing the whole questionnaire. This may have been due to the male participants, who were required to complete the questionnaire at the end of a class period, being informed that they were free to leave for leisure activities once they had finished the questionnaire. Alternatively, a questionnaire of 61 items may have been too long for participants of this

age. Future research should desirably aim to administer questionnaires at the beginning of a class period, and to keep the length of such questionnaires to a minimum.

One of the primary aims of this research was to determine the effectiveness of the ESOEP in enhancing adolescents' levels of resilience and subsequent mental health, in order to make recommendations about the role of ESOEPs within the field of mental health interventions. Although this study has found that the ESOEP did not enhance measures of resilience and mental health, it is important to consider these findings within the constraints placed upon them by sample size and methodological concerns. The present researcher contends that there are many positive aspects of the ESOEP capable of enhancing a variety of mental health measures, as determined previously (Eccles & Lord, 1991; Hans, 2000; Hattie, Marsh, Neill, & Richards, 1997). Further research with larger sample sizes, measuring a wider range of constructs, and with more clearly representative samples, may define the beneficial role of ESOEP and confirm the positive role of outdoor education which has been advocated by adventure theorists for many years (eg Gray, 1993). Notwithstanding the methodological concerns discussed in preceding paragraphs, the research believes that this study may nevertheless be of significant benefit. The findings of this study suggest potentially important directions for further research and thus, in turn, may influence the future development of ESOEP and similar programs.

The present study was unique in that it empirically tested the relationships between resilience, perceived stress during an ESOEP, coping styles and their perceived effectiveness, and mental health in Australian adolescents. It contained a longitudinal design, which is rare in this field of study, and was also one of a limited number of

studies that have been conducted concerning adolescent resilience, particularly within Australia. The present study aimed to determine whether participation in an ESOEP would enhance adolescents' resilience and mental health, and was the first to determine the nature of the relationship between this personality measure, mental health measures, and the relative importance of coping styles and their perceived effectiveness.

While the study found no mediational relationship between resilience, coping styles and mental health, it did determine that the perceived effectiveness of the coping strategies adopted does mediate this relationship. These findings should provide an important impetus for future research to build upon this conceptualisation in order to determine the precise nature of this relationship and thereby promote better understanding in an area of significance to future education design.

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Appendix A

Information on Extended Stay Outdoor Education Program (ESOEP).

The fundamental aim of outdoor education is to promote the development of the whole person, both as a social being and as an individual, in a balanced and integrated way. In particular, it aims to strengthen the values of social responsibility through team activities and involvement in community welfare and developmental projects (Gray, 1993). At the same time, it aims to promote a sense of self-esteem and personal capability by providing opportunities to explore individual interests and develop a range of practical skills beyond those of the normal academic curriculum.

Glengarry provides an ESOEP for all Year 9 boys from Scots College, Sydney, each of whom spends half this academic year in residence, engaging in a variety of outdoor activities while maintaining the normal academic curriculum undertaken by all students at the college. Glengarry is situated approximately 2 ½ hours south of Sydney in Kangaroo Valley, and combines a rigorous schedule of academic studies, domestic and social responsibilities, and outdoor education. The outdoor education component involves on average at least two days per week, and may extend to three to four days for major expeditions (Gray, 1993). Regular activities include cross-country running, abseiling, caving, bush-walking, canoeing and individual and group-based games appropriate to the outdoor setting. Each student is required to undertake a two-day solo camping experience, and is assigned to assist one of the local organisations in a three-day community service project. Weekly activities sessions also cater for a variety of hobbies, sports, and other personal interests.

Marshmead provides an optional term-long ESOEP for Year 9 girls from Methodist Ladies College, Melbourne, which aims to promote the development of self-confidence and respect for others within the context of a challenging and secure environment. Marshmead is located on a 114-hectare operating farm in far-east Gippsland, near Mallacoota. All elements of the Marshmead curriculum relate directly to the students' environmental and social experiences, and students are required to learn, live, and work as a team. Students live in a household of eight, and are responsible for their own cooking, cleaning, and menu-planning. Marshmead students participate in up to eight expedition days, consisting of a two-day training trip, a four-day extended canoe trip and bushwalk, and an optional Duke of Edinburgh expedition. These students are introduced to activities such as canoeing, navigation, sailing and first aid. On recreation days, students can enjoy activities of their choice, such as swimming, cross-country training and cycling. Marshmead aims to empower students to take responsibility for both themselves and others, and fosters personal qualities such as resourcefulness, leadership, judgement, tolerance and determination.

Appendix B

Informed Consent Form

UNIVERSITY OF CANBERRA
Centre for Applied Psychology
School of Human and Biomedical Sciences
Division of Science and Design
Principal Researcher: Claire Skehill
Research Supervisor: James Neill, ph: 6201 5405



Resilience, coping styles and well being

Hi,

We are asking you to participate in a research study into what young people think about themselves and how they cope with difficult things. This study is being conducted in order to meet part of the requirements for the Honours in Applied Psychology at the University of Canberra.

Your school has given its permission to conduct a study using a number of its students.

The University of Canberra Committee for Ethics in Human Research has considered and approved this study.

Your participation is completely voluntary (you may refuse to participate, and can withdraw at any time) and anonymous (there is no identifying information taken).

You will be asked to complete questionnaires on two separate occasions, one month apart. The first occasion (today) will take approximately 10 minutes, and the second occasion will take approximately 25 minutes.

It is expected that the results of this study will provide important information about the ways in which young people cope with difficult experiences. The information collected will be kept securely stored at the University of Canberra (for a required time of 5 years) and will not be disclosed outside of the research team. The results of this study will be forwarded to your school.

If you'd like more information about this study, please contact:

Honours Student: Claire Skehill

Supervisor: James Neill ph: (02) 62015405 (Science & Design, University of Canberra)

If you agree to participate in this research, then please complete the survey.

If you do not wish to participate, then please return your uncompleted survey.

Postal Address: University of Canberra ACT 2601 Australia Location: Kirinari Street Bruce ACT

Telephone: +61 (0)2 6201 5405 Facsimile: +61 (0)2 6201 5753

World Wide Web: <http://www.canberra.edu.au>

Appendix C

“Contacts for information on the project and independent complaints procedure form”

UNIVERSITY OF CANBERRA
COMMITTEE FOR ETHICS IN HUMAN RESEARCH



Document for people who are participants in a research project

CONTACTS FOR INFORMATION ON THE PROJECT AND
INDEPENDENT COMPLAINTS PROCEDURE

The following study has been reviewed and approved by the Committee for Ethics in Human Research:

Project title: *...Resilience, coping styles and well being in adolescents*

Project number: **01/28** Principal researcher: **Miss Claire Skehill**

1. As a participant or potential participant in research, you will receive written information about the research project. If you have questions or problems which are not answered in the information you have been given, you should consult the researcher or (if the researcher is a student) the research supervisor. For this project, the appropriate person is

Name: **Mr James Neill**

Contact details: **School of Human and Biomedical Sciences, Division of Science and Design,
University of Canberra**

Phone: **(02) 6201 5405** Fax: **(02) 6201 2653** e-mail: neill@scides.canberra.edu.au

2. If you wish to discuss with an independent person a complaint relating to

- conduct of the project, or
- your rights as a participant, or
- University policy on research involving human participants,

you should contact the **Secretary of the University Research Committee**

Telephone (02) 6201 2466 Room 1D85, Secretariat, University of Canberra, ACT 2601.

Providing research participants with this information is a requirement of the National Health and Medical Research Council *National Statement on Ethical Conduct in Research Involving Humans*, which applies to all research with human participants conducted within Australia. Further information on University of Canberra research policy is available in *University of Canberra Guidelines for Responsible Practice in Research and Dealing with Problems of Research Misconduct* and the Committee for Ethics in Human Research *Human Ethics Manual*. These documents are available from the Research Office at the above address or on the University's web site at

[http://wasp.canberra.edu.au:80/secretariat/ethics'human_ethics/manual-1.html](http://wasp.canberra.edu.au:80/secretariat/ethics%27human_ethics/manual-1.html) (Human Ethics Manual)

Postal Address: University of Canberra ACT 2601 Australia Location: Kirinari Street Bruce ACT

Telephone: +61 (0)2 6201 5405 Facsimile: +61 (0)2 6201 5753

World Wide Web: <http://www.canberra.edu.au>

Appendix D

“Instructions and Demographic Information” form

INSTRUCTIONS

We would like you to complete these questionnaires, which ask questions about how you have felt recently, and how YOU view the world. THIS IS NOT A TEST – there are no right or wrong answers.

These questionnaires are anonymous. Please do not write your name anywhere on these forms. Participation is voluntary – you may refuse to participate, or withdraw from this study at any time. It will take about 10 minutes to complete these questionnaires.

The results of this study will be forwarded to your school. If you would like more information about this study, please contact: Honours Student: Claire Skehill via James Neill (supervisor) ph: (02) 6201 5405 (University of Canberra).

Please complete the following questions by circling the appropriate response or entering your details.

1. What is your age in years? _____
2. Gender – (please circle) Male Female
3. On average what is your academic grade? A B C D E
4. What school do you attend? _____
5. What year are you in at school? _____

In order for us to match up this questionnaire with the one you will complete in about a month, please record your favourite type of dog and the last four (4) numbers of you home phone number. We will not be able to identify you personally, but need to be able to match the questionnaires.

6. Favourite type of dog: _____
7. The last four (4) numbers of your home phone number: ____ ____ ____ ____

Appendix E

Resilience Scale

Resilience Scale

Please complete your answers to the following statements by circling the number which best corresponds to how much you feel that the statement describes you.

Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree		
1	2	3	4	5	6	7

- | | | | | | | | | |
|-----|--|---|---|---|---|---|---|---|
| 1. | When I make plans I follow through with them. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. | I usually manage one way or another. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. | I feel proud that I have accomplished things in my life. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. | I usually take things in my stride. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. | I am friends with myself. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. | I feel that I can handle many things at a time. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. | I am determined. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. | I have self-discipline. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. | I keep interested in things. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. | I can usually find something to laugh about. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. | My belief in myself gets me through hard times. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. | I can usually look at a situation in a number of ways. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. | My life has meaning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. | When I am in a difficult situation, I can usually find my way out of it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. | I have enough energy to do what I have to do. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Appendix F

General Well-Being

GENERAL WELL-BEING (G.W.B)©

This is an opportunity for you to tell us how things have been with you lately. There are no right or wrong answers. Give your own views and be honest in your answers. Your answers will only be used for research, and will be confidential.

These questions are about how you feel, and how things have been with you mostly during the past month. For each question, please circle the number for the one answer that comes closest to the way you have been feeling.

1. How happy, satisfied, or pleased have you been with your personal life during the past month?

1. Extremely happy, could not have been more satisfied or pleased
2. Very happy most of the time
3. Generally satisfied, pleased
4. Sometimes fairly satisfied, sometimes fairly unhappy
5. Generally dissatisfied, unhappy
6. Very dissatisfied

2. How much of the time, during the past month, has your daily life been full of things that were interesting to you?

- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time. |

3. How much of the time, during the past month, did you feel relaxed and free of tension?

- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time |

4. During the past month, how much of the time have you generally enjoyed things?
- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time |
5. Did you feel depressed during the past month?
1. Yes, to the point that I did not care about anything for days at a time
 2. Yes, very depressed almost every day
 3. Yes, moderately depressed on several occasions
 4. Yes, quite depressed at least a couple of times
 5. Yes, a little depressed now and then
 6. No, never felt depressed at all
6. When you got up in the morning, during the past month, about how often did you expect to have an interesting day?
- | | |
|-----------------|-----------------|
| 1. Always | 4. Sometimes |
| 2. Very often | 5. Almost never |
| 3. Fairly often | 6. Never |
7. During the past month, how much of the time have you felt tense or 'high-strung'?
- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time |
8. How much of the time, during the past month, have you felt calm and peaceful?
- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time |
9. How much of the time, during the past month, have you felt downhearted and blue?
- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time |
10. How much of the time, during the past month, were you able to relax without difficulty?
- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time |

11. How often, during the past month, did you feel that nothing turned out for you the way you wanted it to?

- | | |
|-----------------|-----------------|
| 1. Always | 4. Sometimes |
| 2. Very often | 5. Almost never |
| 3. Fairly often | 6. Never |

12. During the past month, how much of the time has living been a wonderful adventure for you?

- | | |
|---------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. Fairly often | 6. None of the time |

13. How often, during the past month, have you felt so down in the dumps that nothing could cheer you?

- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time |

14. During the past month, how much of the time have you been moody or brooded about things?

- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time |

15. How much of the time, during the past month, have you felt cheerful, light-hearted?

- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time |

16. During the past month, how often did you get rattled, upset, or flustered?

- | | |
|-----------------|-----------------|
| 1. Always | 4. Sometimes |
| 2. Very often | 5. Almost never |
| 3. Fairly often | 6. Never |

17. During the past month, have you been anxious or worried?

1. Yes, extremely so, to the point of being sick or almost sick
2. Yes, very much so
3. Yes, quite a bit
4. Yes, some, enough to bother me
5. Yes, a little bit

6. No, not at all

18. During the past month, how much of the time were you a happy person?

- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time |

19. How often during the past month did you find yourself having difficulty trying to calm down?

- | | |
|---------------------|-------------------------|
| 1. Always difficult | 4. Sometimes |
| 2. Very often | 5. Almost never |
| 3. Fairly often | 6. Never any difficulty |

20. During the past month, how much of the time have you been in low or very low spirits?

- | | |
|---------------------------|-------------------------|
| 1. All of the time | 4. Some of the time |
| 2. Most of the time | 5. A little of the time |
| 3. A good bit of the time | 6. None of the time |

Appendix G.

Items Comprising Well-Being and Distress from the GWB.

Table G1

Items Comprising the Well-Being Subscale

Item	<u>M</u>	<u>SD</u>
1. How happy, satisfied, or pleased have you been with your personal life during the past month?	4.2	1.3
2. How much of the time, during the past month, has your daily life been full of things that were interesting to you?	4.3	1.1
3. How much of the time, during the past month, did you feel relaxed and free of tension?	3.7	1.3
4. During the past month, how much of the time have you generally enjoyed things?	4.6	1.0
6. When you get up in the morning, during the past month, about how often did you expect to have an interesting day?	4.1	1.2
8. How much of the time, during the past month, have you felt calm and peaceful?	3.7	1.2
10. How much of the time, during the past month, were you able to relax without difficulty?	4.2	1.3
12. During the past month, how much of the time has living been a wonderful adventure for you?	3.7	1.5

15.	How much of the time, during the past month, have you felt cheerful, light-hearted?	4.1	1.1
18.	During the past month, how much of the time were you a happy person?	4.4	1.1

Note. Items are scored on a six-point likert-type scale, with a low score indicating low well-being.

Table G2

Items Comprising the Distress subscale

Item	<u>M</u>	<u>SD</u>
5. Did you feel depressed during the past month?	2.8	1.2
7. During the past month, how much of the time have you felt tense or tense or 'high-strung'?	3.2	1.2
9. How much of the time, during the past month, have you felt downhearted and blue?	2.5	1.2
11. How often, during the past month, did you feel that nothing turned out for you the way you wanted it to?	2.9	1.2
13. How often, during the past month, have you felt so down in the dumps that nothing could cheer you?	2.2	1.1
14. During the past month, how much of the time have you been moody or brooded about things?	2.8	1.1

15. During the past month, how often did you get rattled, Upset, or flustered?	3.1	1.1
17. During the past month, have you been anxious or worried?	3.1	1.4
19. How often during the past month did you find yourself having difficulty trying to calm down?	2.6	1.2
20. During the past month, how much of the time have you been in low or very low spirits?	2.6	1.2

Note. Items are scored on a six-point likert-type scale, with a low score indicating low levels of distress.

Appendix H

Stress Appraisal

Taking into account other stressful situations you have experienced, how would you rate the experiences from the past month? Please circle the number that best represents how you feel towards the statement on the following scales.

'Extremely difficult' 1 2 3 4 5 6 7 *'Not difficult at all'*

'Extremely severe' 1 2 3 4 5 6 7 *'Not severe at all'*

'Most stressful situation 1 2 3 4 5 6 7 *'Not very stressful'*

I have experienced

Appendix I

Adolescent Coping Scale (ACS) and Generally Coped Item

INSTRUCTIONS

We are interested in how you have coped with any problems and concerns you may have experienced in the past month. Listed below are a number of ways in which people deal with the concerns and problems they experience. Please circle the number which best corresponds with how often you used each of the ways of coping listed below

➡ CIRCLE 1, 2, 3, 4 or 5 for how **OFTEN** you used each way of coping.

<u>When dealing with</u> Problems or concerns <i>How often did you....</i>	1	2	3	4	5
	Didn't do it	Used very little	Used some- times	Used often	Used a great deal
Work at solving the problem to the best of your ability	1	2	3	4	5
Keep fit and healthy	1	2	3	4	5
Pray for help and guidance so that everything would be alright	1	2	3	4	5
Work hard	1	2	3	4	5
Wish a miracle would happen	1	2	3	4	5
Look on the bright side of things and think of all that is good	1	2	3	4	5
Improve your relationship with others	1	2	3	4	5
Have no way of dealing with the situation	1	2	3	4	5
Not let others know how you were feeling	1	2	3	4	5
Talk to other people about your concern to help you sort it out	1	2	3	4	5
Ask a professional person for help	1	2	3	4	5
Worry about what would happen to you	1	2	3	4	5

Join with people who had the same concerns	1	2	3	4	5
See yourself as being at fault	1	2	3	4	5
Shut yourself off from the problem so that you could avoid it	1	2	3	4	5
Spend more time with boy/girl friend	1	2	3	4	5
Find ways to let off steam; eg cry, scream, drink, take drugs	1	2	3	4	5
Accept the problem	1	2	3	4	5
Feel sick as a way of dealing with the problem	1	2	3	4	5
Watch and learn from how others coped with similar problems	1	2	3	4	5
See the problem as an opportunity for personal growth	1	2	3	4	5
Look on the funny side of the situation	1	2	3	4	5

List any other things you did to cope with your concerns:

In general, **how well** did you cope with these concerns or problems?

Did not cope at all 1 2 3 4 5 6 7 Coped extremely well

Appendix J

Items Comprising “Solving the Problem”, Reference to Others” and “Non-Productive Coping” from the ACS

Table J1

Items Comprising “Solving the Problem”

Item	<u>M</u>	<u>SD</u>
1. Work at solving the problem to the best of your ability	3.6	1.0
2. Keep fit and healthy	3.7	1.1
4. Work hard	3.5	.09
6. Look on the bright side of things and think of all that is good	3.7	1.2
18. Accept the problem	3.2	1.3
21. See the problem as an opportunity for personal growth	2.9	1.4
22. Look on the funny side of things	3.4	1.4

Note. Items are scored on a five-point likert-type scale, with a high score indicating high levels of use of that coping strategy.

Table J2

Items Comprising “Reference to Others”

Item	<u>M</u>	<u>SD</u>
3. Pray for help and guidance so that everything would be alright	2.9	1.5
7. Improve your relationship with others	3.6	0.8
10. Talk to other people about your concern to help you sort it out	2.9	1.2
11. Ask a professional person for help	1.9	1.1
13. Join with people who had the same concerns	2.7	1.3
16. Spend more time with boy/girlfriend	2.4	1.4
20. Watch and learn from how others coped with similar problems	2.7	1.3

Note. Items are scored on a five-point likert-type scale, with a high score indicating high levels of use of that coping strategy.

Table J3

Items Comprising “Non-Productive Coping”

Item	<u>M</u>	<u>SD</u>
5. Wish a miracle would happen	2.6	1.3
8. Have no way of dealing with the situation	2.1	1.1
9. Not let others know how you are feeling	2.9	1.1
12. Worry about what would happen to you	2.7	1.2
14. See yourself as being at fault	2.4	1.2

15. Shut yourself off from the problem so that you could avoid it	2.7	1.3
17. Find ways to let off steam; eg cry, scream, drink, take drugs	2.4	1.5
19. Feel sick as a way of dealing with the problem	2.0	0.9

Note. Items are scored on a five-point likert-type scale, with a high score indicating high levels of use of that coping strategy.

Appendix K

Examining Possible Mediation of Non-Productive Coping” and “Stress Appraisal”

Between Time Two Resilience and Time Two Distress

Hierarchical Regression Examining Possible Mediation of Non-Productive Coping

Between Time Two Resilience and Time Two Distress

Table K1 displays the results of an examination of the mediational role of non-productive coping between Time Two resilience and Time Two distress. The assumptions of multiple regression were met. The assumption of ratio of cases to independent variables was not violated. However it is important to keep in mind the relatively small sample size. There was no evidence of heteroscedasticity and, although an examination of the residuals showed a few outliers, the maximum Cook's Distance was .42, suggesting that the outliers were unlikely to have had a significant effect on the regression. The collinearity statistics were acceptable, with tolerance levels of .35 and greater, indicating that there were no problems with multicollinearity.

Table K1

Hierarchical Regression Examining a Possible Mediation Role of Non-Productive Coping Between Time Two Resilience and Time Two Distress (listwise N = 59)

Dependent Variable	Variable	<u>B</u>	<u>SE B</u>	B	<u>R²</u>
Non-productive coping	Step 1				
	T2 resilience	-.31	.16	-.22	.04
T2 distress	Step 1				
	T2 resilience	-.38	.09	-.39***	.16***
	Step 2				
	Non-productive coping	.54	.13	.41***	
	T2 resilience	-.3	.09	-.32**	.33***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table K1 demonstrates that the relationship between Time Two Resilience and Time Two distress is not mediated by the use non-productive coping styles, as Time Two resilience does not significantly predict the use of non-productive coping strategies. As levels in the independent variable (Time Two resilience) do not predict levels of the mediator (non-productive coping), it is concluded that non-productive coping does not mediate the above-mentioned relationship.

Hierarchical Regression Examining a Possible Mediation Role of Stress Appraisal
Between Time Two Resilience and Time Two Distress

Table K2 displays the results of an examination of the mediational role of stress appraisal between Time Two resilience and Time Two distress. The assumptions of multiple regression were met. The assumption of ratio of cases to independent variables was not violated. However it is important to keep in mind the relatively small sample size. There was no evidence of heteroscedasticity and, although an examination of the residuals showed a few outliers, the maximum Cook's Distance was .39, suggesting that the outliers were unlikely to have had a significant effect on the regression. The collinearity statistics were acceptable, with tolerance levels of .28 and greater, indicating that there were no problems with multicollinearity.

Table K2

Hierarchical Regression Examining a Possible Mediation Role of Stress Appraisal
Between Time Two Resilience and Time Two Distress (listwise N = 59)

Dependent Variable	Variable	<u>B</u>	<u>SE B</u>	B	<u>R²</u>
Stress appraisal	Step 1				
	T2 resilience	-.38	.18	-.24	.05
T2 distress	Step 1				
	T2 resilience	-.44	.10	-.41***	.18***
	Step 2				
	Stress appraisal	.51	.14	.43***	
	T2 resilience	-.28	.10	-.35**	.36***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table K2 demonstrates that the relationship between Time Two Resilience and Time Two distress is not mediated by the use non-productive coping styles, as Time Two resilience does not significantly predict the use of non-productive coping strategies. As levels in the independent variable (Time Two resilience) do not predict levels of the mediator (non-productive coping), it is concluded that non-productive coping does not mediate the above-mentioned relationship.