

Perceived stress, self-efficacy, optimism, and social
support: A study of Irish law enforcement officers and
college students

Glynn Higgins

x13432382

BA (Hons) Psychology

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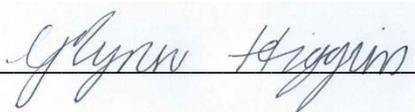
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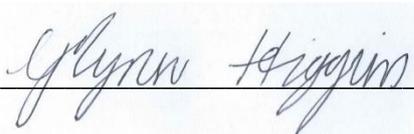
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Abstract

Objective: The current study aimed to compare stress levels between two apparent highly stressed groups. College students are generally perceived to be a high stress group although little research has offered a context to evaluate this claim. An abundant amount of research has recognised law enforcement to be one of the most stressful occupations. Thereby, comparing college students and law enforcement officers stress levels will provide a badly needed context to college student's stress. **Methods:** This study consisted of 813 participants including 516 college students and 297 law enforcement officers. Participants were measured on their levels of perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction. **Results:** College students scored significantly higher in levels of perceived stress and significantly lower in self-efficacy and optimism than law enforcement officers. Females also scored significantly higher in levels of perceived stress and significantly lower in self-efficacy and optimism. Self-efficacy and optimism were also found to be significantly strong predictors of perceived stress. **Conclusions:** Findings from this study point out that college student's experience a substantial amount of stress as the results indicate they have significantly greater stress levels than one of the most stressful occupations. These findings should be further examined as they highlight the presence of a major risk for an already highly vulnerable population.

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Introduction

An annual report conducted by the American Psychological Association entitled Stress in America found work to be the second largest source of reported stress for Americans (American Psychological Association [APA], 2012). Work as a source of stress was marginally behind money and above other stressors such as relationships, family responsibilities and personal health concerns.

Lee, Joo and Choi (2013) note that stress is a costly and extensive, particularly in the workplace. In most occupations, work stress is seen to be inevitable and is sometimes desirable depending on our perception of the stress (Mitani, Fujita, Nakata, & Shirakawa, 2006). However, unrelentingly high levels of work stress are recognised to be a major problem and of grave concern. A large body of empirical studies have demonstrated that high levels of work stress can give rise to many negative outcomes for individual workers as well as the organisation as a whole (Cropanzano, Rupp, & Byrne, 2003; Podsakoff, LePine, & LePine, 2007).

Particular occupations have been seen to encompass more potential for stress (Mizuno, Yamada, Ishii, & Tanaka, 2006). The National Institute for Occupational Safety and Health (1999) identified job stress to be a widespread and costly problem in the workplace and listed occupations such as police officers, prison officers, medical professionals, banking staff, and social care workers as being the most susceptible to work related stress. Early research examining work as a source of stress focused on how experiences of life threatening or traumatic events encountered while working could affect an individual's stress levels (Kendall, Murphy, O'Neill, & Bursnall, 2000). Findings from this research lead to the conclusion that occupations such as the aforementioned are more likely to experience trauma related events and are therefore prone to greater levels of stress.

However, research has since tended to focus more on how universal facets of work and general changes in the nature of work and its changing requirements as opposed to the niche aspect of traumatic experiences have led to work being seen as such a significant source of stress (Szymanski, 1999).

Definition and history of stress

Lazarus and Folkman (1987) note that stress is fundamentally subjective. Defining stress has brought a considerable amount of confusion and difficulty which is reflected in the numerous definitions proposed as process of defining the concept has been approached from many different perspectives (O'Driscoll & Cooper, 1996).

Much of the early work around the concept of stress was conducted by Hans Selye, otherwise known as the “father of stress” (Fink, 2010). Selye (1936) was the first to offer a clear definition of stress and defined it as, the non-specific reaction of our body to any desire for change. This definition can be viewed as a response-based definition as it focuses on the reaction to stress and bodily changes or “diseases of adaption” which result. Response-based definitions are common to medical science and tend to have a physiological perspective by focusing on results rather than causes (Cooper, Dewe, & O'Driscoll, 2001).

Although some of Selye's main ideas regarding stress have generally been rejected, his research helped to highlight the importance of stress finding that it could be detrimental to our immune system and our adrenal glands (Fink, 2010). The impact of stress on these structures can leave us more vulnerable to many diseases and affect hormone production and distribution.

Dipboye, Smith, & Howell (1994) offer a much broader and more substantial understanding of stress and recognise the psychological components viewing it as, any condition that places any psychological or physical demands on an individual that causes an out-of-the-ordinary response to occur.

It was not until the 1950s that the psychological components of stress were recognised and stress was seen as more than just a physiological phenomenon but also a psychological process (Grinker & Spiegel, 1945; Janis, 1958). Lazarus (1966) was the revolutionary researcher in examining the psychological aspects of stress and was also the first to look at coping strategies for stress.

Stress is generally recognised as a multidimensional concept due to the significant amount of scattered research on the concept. However, Lazarus and Folkman's (1984) transactional theory of psychological stress is the most widely accepted theory.

They view stress as, a particular relationship between an individual and their environment which the individual appraises to be taxing or overwhelming on their resources and threatening their well-being. They argue each individual has varying levels of cognition and appraisal of stress and that the feeling of discomfort they experience can be either or all

of physical, mental, or social. This is against the early beliefs which only accepted the physical affects.

Impact of stress

Stress is a substantial risk factor for the development and growth of numerous physiological and psychological diseases (Muscatell & Eisenberger, 2012). It is reported that approximately 60% to 80% of outpatient visits to hospital are potentially related to stress (Avey, Matheny, Robbins, & Jacobson, 2003; Rosch, 1991). In the United States, there are approximately 90 million visits to outpatient departments yearly, which averages at 30 visits per 100 people (Hing, Hall, Ashman, & Xu, 2010). Stress has also been linked to all the major leading physical causes of death (Cohen, Janicki-Deverts, & Miller, 2007).

Research evidence supports postulated links between occupational stress and cardiovascular disease (Brunner et al., 2004; Byrne & Espnes, 2008; Franke, Cox, Schultz, & Anderson, 1997; Franke, Ramsey, & Shelly, 2002). High levels of perceived life stress, substantial work overload, marriage distress and social isolation have been found to increase the likelihood of experiencing a recurrent cardiovascular event and the risk of mortality for individuals with a pre-existing cardiovascular disease (Rozanski, Blumenthal, & Kaplan, 1999). A meta-analysis carried out by Kivimäki et al. (2006) approximates that the risk of cardiovascular disease can be increased by 50% if a large amount of work stress is present. High levels of traumatic stress resulting from the experience of traumatic life events are also seen to enhance long-term risk of cardiovascular disease (Dong et al., 2004; Li, Hansen, Mortensen, & Olsen, 2002).

Experimental research using animal subjects identified that stress is a contributing factor to the instigation, expansion, acceleration and metastasis of select cancerous tumours (Cohen et al., 2007). Cancer is the second leading cause of death in the United States behind heart disease. It is estimated that approximately 1,620 Americans die of cancer each day and one in four deaths occur as a result of cancer (American Cancer Society, 2015). Research evidence in human studies also indicates that stress has a negative impact on important pathogenic processes of cancer, including antiviral protection systems, DNA reparation, and cell maturation (Antoni et al., 2006). Although, by in large the findings associating stress and cancer in humans is varied at best (Duijts, Zeegers, & Borne, 2003; Heffner, Loving, Robles, & Kiecolt-Glaser, 2003; Turner-Cobb, Sephton, & Spiegel, 2001). However, this difficulty definitively identifying a causational relationship between stress and cancer may due the

struggle in detecting cancer at an early stage. Most cases of cancer are only detected after the cancer has been growing for a number of years (Cohen et al., 2007). Yet there is still a general belief that stress is likely to encourage progression of cancer and may increase the likelihood of the disease reoccurring.

Marin et al. (2011) note that stress is linked with the development of many major mental health problems. Stress, depression and anxiety are the most common mental health problems to be diagnosed (Brown, Chorpita, Korotitsch, & Barlow, 1997; Davies, Norman, Cortese, & Malla, 1995; Farmer, 1998; Ollendick & Yule, 1990). There is a strong co-morbid relationship between stress, depression and anxiety with each sharing similar symptoms and potential outcomes (Dobson, 1985; Feldman, 1993; Lovibond & Lovibond, 1995; Stavrakaki & Vargo, 1986).

There is a particularly high co-morbidity rate between depression and anxiety. Gorman (1997) identified that 85% of individuals with depression have significant anxiety and that around 90% of individuals with an anxiety disorder have depression. Hammen (2005) found that research supports a strong association between stress and depression. Studies indicate that increased levels of stress can influence the clinical course of major depression through lengthening duration, heightening symptoms, and enhancing the potential for recurrence (Hammen, 2005; Mazure, 1998).

The experience of stressful life events is also associated with the development of major depressive disorder and experiencing depressive symptoms (Hammen, 2005; Mazure, 1998; Monroe & Simons, 1991; Wang, 2005). Van Pragg, de Koet, and van Os (2004) approximate that 20% to 25% of individuals that are exposed to a significantly stressful event go on to develop depression.

Stress, depression and anxiety are seen to have a negative impact on a number of facets of life such as reduced general satisfaction (Kessler et al., 1994; Youngren & Lewinsohn, 1980), low quality of life (Norvell, Hills, & Murrin, 1993), and poor social interactions (Alden & Philips, 1990; Davies et al., 1995).

Stress has also been found to predict negative health behaviours such as smoking (Kassel, Paronis, & Stroud, 2003), alcoholism and illegal substance usage (Herman, 2012), and sleeplessness (Ellis, Gehrman, Espie, Riemann, & Perlis, 2012). The engagement in these harmful activities can also be seen to accompany many cases of cardiovascular disease, cancer, depression, and anxiety disorders.

Overall, the link between stress and many common and harmful diseases both physical and psychological cannot be ignored as there is a large body of evidence supporting

these links. This highlights the importance of extensively studying the concept of stress as it poses not just a massive financial burden but also deeply personal and emotional one for society.

Law enforcement officers and stress

Law enforcement is generally recognised to be one of the most stressful occupations due to the vast amount of stressors law enforcement officers are exposed to as a result of their work (Anshel, 2000; Brown & Campbell, 1994; Carlier, Lamberts, & Gersons, 1997; Horn, 1991; Kroes, 1976; Kroes & Hurrell, 1975; Liberman et al., 2002; Raiser, 1974; Reilly & DiAngelo, 1990; Violanti, 1983; Violanti & Marshall, 1983).

Firstly, law enforcement work incorporates a direct risk of being exposed to critical incident stressors which may include the potential for serious injury or even death (Wang et al., 2010). The Health Service Executive (2016) reported that police officers are 12 times more likely to experience physical assault than other occupations. They found that from 2012 to 2013 in Great Britain, 393 police officers were injured as a result of being assaulted and 157 of these cases led to the experience of major injuries including two fatal injuries. The Federal Bureau of Investigation (FBI; 2016) identified that from 1980 to 2014 in the United States, on average 64 law enforcement officers are feloniously killed per year mainly as a result of performing common work duties such as answering disturbance calls, conducting traffic pursuits and stoppages, and investigating suspicious circumstances.

Many studies have found that incidents where a fellow officer dies or is seriously injured in the line of duty are seen as being especially stressful for any officer involved (Finn & Tomz, 1997; Gershon, Lin, & Li, 2002; Jermier, Gaines, & MacIntosh, 1989; Violanti & Aron, 1994). This finding is not surprising as the experience of such circumstances commonly lead to the development of survivor syndrome or “survivor guilt” (Kępiński, 2008).

Research has also shown the act of killing someone in the line of duty is also a substantial stressor and can potentially be even more stressful than the experience of an incident where a fellow officer dies or is seriously injured (Speilberger, Westbury, Grier, & Greefield, 1981; Violanti & Aron, 1995). However, such events do not tend to occur at great frequencies but nevertheless have great potential for stress when they do occur (Bureau of Justice Statistics, 2001).

Another component of policing which is seen to have massive potential for stress surrounds the area of terrorism, in particular the large and ever increasing threat of terrorism as police officers are asked to respond to it and in some cases may be the target (Dowling, Moynihan, Genet, & Lewis, 2006; Paton & Smith, 1996; Paton & Violanti, 1997).

Other more general and universal aspects of police work such as long shifts and shift work in general, excessive overtime, inconsistent work pace, time pressure, excessive demands, heavy workload, lack of control, and regular contact with the public are all recognised as components of stressful occupations (Brown & Campbell, 1994; Collins & Gibbs, 2003; Gershon et al., 2002; Violanti & Aron, 1994). The combination of these in police work result in the occupation being seen as highly stressful. Also, some tasks that police officers are asked to carry out can be viewed as physically and psychologically demanding (Kopel & Friedman, 1999; Schwartz & Schwartz, 1981; Stotland, 1991).

In recent times, there has been a greater focus and ever increasing scrutiny of law enforcement officer's integrity and impartiality due to many instances of misconduct within law enforcement bodies. Crank and Caldero (1991) note that law enforcement officers are sometimes forced to be discrete and are required to make difficult decisions. Such decisions include deciding whether to arrest certain individuals and also deciding how much force is necessary when making arrests. The process of making these decisions and the consequences of their actions can place a great deal of strain on officers and lead to the experience of substantial stress. The enhanced focus on law enforcement officers actions coupled with greater demands by the public has also added to the stressful nature of the occupation (Collins & Gibbs, 2003; Newman & Rucker-Reed, 2004).

Exposure to these law enforcement work related stressors can lead to the experience of great levels of stress which can result in the development of physiological, psychological, and behavioural problems (Everly & Smith, 1987; Jaffe, 1995; Quick, Quick, Nelson, & Hurrell, 1997; Violanti, 1981; Violanti, Marshall, & Howe, 1983). Research has identified a link between police work stressors and depression, anxiety, psychological distress, alcoholism and addiction in general, burnout, cardiac health problems, and relationship problems both family and marital (Biggam, Power, & MacDonald, 1997; Chen, 1993; Kop, Euwema, & Schaufeli, 1999; Loo, 1999; Naimi et al., 2003; Obst, Davey, & Sheehan, 2001; Rees & Smith, 2008; Swatt, Gibson, & Piquero, 2007; Territo & Vetter, 1981; Violanti, 1992).

A survey carried out by the National Taiwan University Hospital evaluating depression in police officers found that as much as 36% suffered from depression (Chen,

2009). This is much higher than the general population ratio for depression that is around 15% to 20%. Studies have also shown that law enforcement officers are at a greater risk of having suicidal tendencies and are more likely to commit suicide (Charbonneau, 2000; Darensburg et al., 2006; Hartwig & Violanti, 1999; Kposowa, 1999; Violanti, 2004; Violanti, Castellano, O'Rourke, & Paton, 2006).

An area of interest in relation to most health related concepts is its relationship with gender and whether any differences are present. Research examining the relationship between stress and gender suggests that females generally display higher levels of physical and psychological stress (Derogatis & Savitz, 1999).

Epidemiological research also indicates that there are substantial gender differences in the prevalence of many common mental disorders and mental health difficulties (Grant & Weissman, 2007; Shear, Halmi, Widiger, & Boyce, 2007; Widiger, 2007). The National Comorbidity Survey 12 month and lifetime prevalence rates indicated females express considerable greater, approximately double the prevalence rates of their male counterparts in major depression, dysthymia, generalised anxiety disorder, panic disorder, social phobia, and specific phobia (Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993; Kessler et al., 1994). Another study conducted by the National Institute of Mental Health found females to be 2.6 times more prone to depression (Weissman et al., 1996).

The potential differences for exposure to stress between male and female police officers is often inexcusable overlooked as there are many stress related circumstances which are only relevant to female officers (Morash & Haarr, 1995; Thompson, Kirk, & Brown, 2005). For example, research has shown that female officers can be exposed to gender discrimination (Martin, 1992; Potts, 1983; Walker, 1985) and they may feel their male partners provide insufficient backup and are likely to doubt their abilities (Haarr, 1997; Weisheit, 1987). Stotland (1991) argues that males and females may have different perspectives surrounding the understanding of stressors.

Studies have found female police officers general stress, psychological stress, posttraumatic stress, and depression levels to be greater than male police officers (Darensburg et al., 2006; Etzion, 1984; He, Zhao, & Archbold, 2002; Jones & Fletcher, 1993; Silbert, 1982). However, there are also numerous studies that contradict these findings and reveal female police officers do not report greater overall levels of stress in comparison to male police officers (Davis, 1984; Frye & Greenfield, 1980; Koenig, 1978; Morash & Haarr, 1995). Although female police officers are exposed to gender specific stressors and extensive literature suggests females have greater prevalence for mental health difficulties, there is no

clear trend in the research agreeing that female police officers experience more stress than male police officers. Current research examining specifically the variations in stress levels between male and female police officers found no significant difference between the genders (McCarty, Zhao, & Garland, 2007).

Another area of note is the relationship between age and stress. The relationship between age and stress as well as other mental health difficulties remains poorly understood due to conflicting evidence (Folkman, Lazarus, Pimley, & Novacek, 1987; Rothermund & Brandtstädter, 2003; Wittchen, Knauper, & Kessler, 1994). Research examining the impact of age on stress in law enforcement officers offers mixed results. Balakrishnamurthy and Shankar (2009) found stress levels were not affected significantly by age in a sample of central reserve police force officers. Husain (2014) identified that junior police officers reported higher levels of stress, anxiety, and depression than senior police officers. Darensburg et al. (2006) discovered depression and PTSD scores tended to increase with age in police officers.

Most research has been focused on the relationship between age and depression with the relationship between age and other common mental health problems not widely examined. Exploration of the relationship between age and depression has offered many mixed results including findings of a U-shaped function (Mirowsky & Ross, 1992; Schieman, Van Gundy, & Taylor, 2002), positive and negative linear and monotonic trends (Herrmann, 1997; Lawton, Kleban, & Dean, 1993), and stability across age (Fuentes & Cox, 2000; Nolen-Hoeksma & Ahrens, 2002).

Overall the relationship between stress and the demographic variable of gender and age provides very mixed and conflicting results meaning there is no suggestion of a clear definitive relationship and more research is required.

College students and stress

The period of time in a student's life when they attend college can be characterised by substantial stress due to the many new experiences and challenges encountered during this time period (Lust, Ehlinger, & Golden, 2010).

College is stressful for many young adults (Pierceall & Keim, 2007). Research has found that at any given time 75% to 80% of college students are moderately stressed and 10% to 12% are severely stressed (Abouserie, 1994; Pierceall & Keim, 2007). The transition from adolescence into adulthood being experienced by most college students is seen to make them more vulnerable to stress (Towbes & Cohen, 1996).

Porter (1990) noted that up to 60% of university students leave their university without finishing their degree and these students mainly leave due to their inability to cope with stress. Another study found that 26% of college students reported being unable to manage their stress (Lust et al., 2010). More and more students feel overwhelmed by the sheer quantity of things they have to do (American College Health Association, 2012; Sax, 1997, 2003).

Students are faced with numerous sources of stress including academic performance and workload, finances and employment, relationships, and daily hassles (Brougham, Zail, Mendoza, & Miller, 2009).

Successful performance and achievement in college usually places a great deal of strain on all components of well-being, including physical, psychological, emotional, spiritual, and social health and well-being (Crystal et al., 1994). Lazarus (1966) notes when students view their education as a challenge, stress can give them a sense of competence and accomplishment and a greater incentive to learn. However, when education is perceived to be a threat, stress can bring with it feelings of hopelessness and an evitable sense of failure. The Yerkes-Dodson Law proposes that we learn best when faced with moderate levels of stress (Yerkes & Dodson, 1908).

Overwhelmingly high levels of stress within college students is linked to poorer mental health outcomes such as depression and anxiety (Dyrbye, Thomas, & Shanafelt, 2006). One study found that one in three undergraduate college students display clinical levels of distress (Bewick, Gill, Mulhearn, Barkham, & Hill, 2008). Beck and Young (1978) discovered 25% of college students report symptoms of depression at any given time. Research has identified that college students academic performance and achievement is affected by stress (Dusselier, Dunn, Wang, Shelly, & Whalen, 2005; Lumley & Provenzano, 2003; Struthers, Perry, & Menec, 2000), depression (Fine & Carlson, 1994; Stark & Brookman, 1994), and anxiety (Anson, Bernstein, & Hobfoll, 1984).

Research has also found that substantial stress can lead to negative health behaviours in college students such as having an unhealthy diet and not exercising regularly (Hudd et al., 2000; Lust et al., 2010; Wichianson, Bughi, Unger, Spruijt-Metz, & Nguyen-Rodriguez, 2009).

However, many students do not seek help for the problems they are experiencing, mainly due to a having a lack of time to do so and the stigma attached to counselling (Eisenberg, Golberstein, & Gollust, 2007). Also, even for the small amount of students that do seek help for their problems this still places a significant strain on inadequately resourced

counselling centres leading to long wait lists for the services (Kitzrow, 2003). A worldwide survey of university and college counselling centres found that 32% of centres have a wait list at some stage during the year (Mistler, Reetz, Krylowicz, & Barr, 2012). The same survey notes that 67% of students that utilised the centres reported that the help provided positively aided their academic performance.

The survey also found that only 34% of the centres clients were male. This finding is not surprising as research has found demographic variances in students' levels of depression and anxiety including gender (Chapell et al., 2005; Grant et al., 2002; Hankin et al., 1998; Howley & Dickerson, 2009; Misra & McKean, 2000) and also age (Rosenthal & Schreiner, 2000). One study found that female college students reported higher levels of stress and the greater usage of stress coping strategies in comparison to male college students (Brougham et al., 2009).

Young adult college students specially the age group of 18 to 24 year olds face numerous academic, financial, and social stressors including the development and maintenance of romantic relationships which can negatively affect their mental health (Dusselier et al., 2005; Meadows, Brown, & Elder, 2006; Zirkel, 1992; Zirkel & Cantor, 1990).

Research investigating stress in college students is reasonable scarce compared to other occupational groups which are also seen to experience a great deal of stress and mental health difficulties. This is surprising as developmental evidence suggests focus should be put on adolescents and young adults mental health as this is recognised as a very important period in development and one which is subjected to substantial vulnerability. It is accepted college life incorporates potential exposure to many stressful circumstances but yet as mentioned this area is not widely researched.

Self-efficacy, optimism, and social support

Lazarus and Folkman (1987) proposed a transactional model of stress which suggests stress is influenced by both personal and situational variables.

Bandura (1977) identified self-efficacy to be the perceived confidence of an individual to execute desired behaviours and may be influenced by persuasion, experience, or by physiological and psychological states, for instance distress.

High levels of self-efficacy have been found to reduce perceived stress and increase quality of life in a sample of cancer patients (Kreitler, Peleg, & Ehrenfeld, 2007). In a sample

of college students, higher levels of stress appeared to endorse lower levels of self-efficacy as well as higher levels of illness (Roddenberry & Renk, 2010). Schwarzer and Hallum (2008) investigating the relationship between self-efficacy, job stress and burnout identified that low self-efficacy preceded burnout. Low levels of self-efficacy have also been associated with lower mental health status as well as high stress levels (Moeini et al., 2008).

Optimism is concerned with the attainability of future outcomes with which we desire (Cassidy, 1999). Conversano et al. (2010) portray optimism as embracing two closely linked concepts, the inclination of an individual to hope and the tendency to believe we occupy the best of all potential worlds.

More optimistic individuals report lower levels of perceived stress (Chang, Rand, & Strunk, 2000; Baldwin, Chambliss, & Towler, 2003; Robinson-Whelan, Kim, MacCallum, & Kiecolt-Glaser, 1997; Vollmann, Antoniw, Hartung, & Renner, 2011). Literature also indicates that dispositional optimism is closely associated with stress and stress outcomes (Chang et al., 2000). Krypkel and Henderson-King (2010) identified that optimistic college students were less likely to view their education as a source of stress and thereby had reduced stress levels.

Hayes and Weathington (2007) found there to be a relationship between job burnout and stress but this relationship was not moderated by dispositional optimism. In a sample of competitive athletes, optimism displayed a significant negative relationship with both stress and burnout. Grote and Bledsoe (2007) discovered that recent mothers who experienced substantial financial, spousal, and physical stress but were also optimistic were considerably less likely to display clinically significant depressive symptoms during the year postpartum.

House (1981) defines social support as an interpersonal transaction that incorporates either one or all of the following; appraisal, instrumental aid, emotional concern, or information about one's environment. Stress researchers in behavioural medicine and psychology identify social support as an important concept (Dunkel-Schetter, Lazarus, & Folkman, 1987).

Gottlieb (1983) found that interventions that include social support for individuals that are stressed appear to offer promise in alleviating distress and facilitating adjustment. A large body of research also recognises that social support seems to mediate the impact of life stress on one's health and well-being (Berkman, 1985; Cohen & Wills, 1985; Kessler & McLeod, 1985; Kessler, Price, & Wortman, 1985; Turner, 1983; Wallston, Alagna, DeVellis, & DeVellis, 1983).

Anderson (1991) also recognises that social support enhances our overall mental health. Social support is seen to reduce the impact of job stress and depression (Chen, Siu, Lu, Cooper, & Phillips, 2009; Ganster, Fusilier, & Mayes, 1986; Holahan, Holahan, Moos, & Brennan, 1997).

Baqutayan (2011) found social support to be a highly useful stress coping mechanism for students. Support which originates in the workplace is understood to reduce negative outcomes including stress (Etzion, 1984). Graf (1986) notes support in law enforcement may have greater salience as officers are required to depend on one another for their security and safety. Empirical research has indicated that officers that express greater levels of support consequently report lower stress levels (LaRocco, House, & French, 1980; Morash, Kwak, & Haarr, 2006). An argument has been made that female police officers may have an increased vulnerability to reduced social support within the workplace due to their minority group status and the recognition of police work being heavily masculine (Kirk-Brown, Thompson, & Brown, 1999; Walker, 1985).

Hulbert and Morrison (2006) investigated the buffering effects of social support, self-efficacy, and optimism on stress in palliative care workers as they deemed this occupation to have the potential to cause a great deal of stress. They found no significant gender differences in perceived stress, optimism, and the amount of social support. However, self-efficacy was significantly higher in males and social support satisfaction was significantly higher in females. Also, optimism was positively correlated with both self-efficacy and social support satisfaction, and negatively correlated with perceived stress. Perceived stress and social support quantity displayed a negative relationship.

Research indicates there appears to be a relationship between stress and self-efficacy, optimism, and social support. However, it is not clear as to how great of an affect each variable has on one another.

Current study

Research comparing college students stress levels to that of other occupations is scarce if not non-existent. One such explanation for this may be due to the lack of recognition of tertiary level study as an actual occupation even though it encompasses many common occupational characteristics. This means there is no true means to assess the levels of stress college students experience as no comparison has been made.

Much research has contrasted the occupation of law enforcement with many other occupations and thereby concluded law enforcement to be one of the most stressful occupations. The current study recognises tertiary level study to be an occupation and thus will compare the stress of this occupation with the notably highly stressful occupation of law enforcement to gather a true sense of the amount of stress experienced by students during their time in college.

It is hypothesised that college students will report similar stress levels to that of law enforcement officers as research has indicated that college students experience substantial stress. The study will also look to expand on research examining stress in law enforcement as the majority of research has focused on trauma related stress in law enforcement officers. This study will assess more general perceived stress which is not specific to their occupation but rather their overall daily lives which includes their work.

This study will also utilise a social-cognitive model for stress based on Lazarus and Folkman's (1987) transactional model of stress. This social-cognitive model for stress will assess the relationship between perceived stress, the cognitive variable optimism, the social variables amount of social support and social support satisfaction, and the social-cognitive variable self-efficacy. The study will also aim to determine which of these variables within the social-cognitive model predict and most strongly predict perceived stress levels.

It is hypothesised that perceived stress will have a negative relationship with self-efficacy, optimism, amount of social support, and social support satisfaction. It is hypothesised that each variable will predict perceived stress levels but to varying degrees to which no hypothesis can be offered due to the lack of research available in which to base an hypothesis on.

This study will also compare college students and law enforcement officers in levels of self-efficacy, optimism, amount of social support, and social support satisfaction. It is hypothesised that each occupation will report similar levels in each of these constructs as this hypothesis is formulated based on the same framework used for hypothesising that both occupations would express similar perceived stress levels.

The demographic variables of gender and age and their relationship with perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction will also be assessed. It is predicted that females will report greater perceived stress levels than males and thereby also lower levels of self-efficacy, optimism, amount of social support, and social support satisfaction. It is also anticipated that there will be no clear relationship between age and levels of perceived stress, self-efficacy, optimism, amount of social support,

and social support satisfaction as the little research done in this area has offered mixed results.

This study will also incorporate a mainly Irish sample of law enforcement officers and college students which will in turn offer an Irish perspective as well as a European perspective to all facets of aforementioned research.

Aims

The main aims of the current study are as follows:

- To compare college students and law enforcement officers in levels of perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction.
- To compare males and females in levels of perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction.
- To compare different age groups in levels of perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction.
- Investigate the relationship between perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction.
- Investigate the ability of self-efficacy, optimism, amount of social support, and social support satisfaction in predicting perceived stress levels.

Methods

Participants

The sample for the current study consisted of 813 (Males: $n = 376$; Females: $n = 437$) participants. Within the sample there was 516 (Males: $n = 190$; Females: $n = 326$) college students that were attending a tertiary level educational institute at the time of taking part in the study. Within the sample there was also 297 (Males: $n = 186$; Females: $n = 111$) active law enforcement officers at the time of taking part in the study.

Participants were divided into three age categories; young adults (18 – 25 years of age), middle aged adults (26 – 49 years of age), and older adults (50 years of age or older). The young adults category contained 509 (Males: $n = 183$; Females: $n = 326$) participants, the middle aged adults category contained 272 (Males: $n = 162$; Females: $n = 110$) participants, and the older adults category contained 32 (Males: $n = 31$; Females: $n = 1$) participants.

The sample included 807 (Males: $n = 375$; Females: $n = 432$) residents of Ireland at the time of taking part in the study and 6 (Males: $n = 1$; Females: $n = 5$) residents of other countries at the time of taking part in the study.

See Table 1 in the results section for the demographic statistics for the sample of participants.

Design

This study incorporated a quantitative cross-sectional correlational design. Participants were divided into different groups based on; their occupation, either college student or law enforcement officer, their gender, either male or female, and their age, either 18 to 25 years of age, 26 to 49 years of age, or 50 years of age or older. All participants were assessed in their levels of perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction and each aforementioned group's levels in each of these variables were compared.

The relationship between the criterion variable perceived stress and the predictor variables self-efficacy, optimism, amount of social support, and social support satisfaction was also examined.

Materials

A questionnaire was formulated which included an information sheet, consent form, demographic questions, and scales to assess perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction. The questionnaire was inputted into Google Forms, which is an internet program that allowed for the convenient distribution of the questionnaire and collection of responses. Responses were inputted into IBM SPSS Statistics 21.0 and analyses were carried out using this program.

The information sheet, consent form, and demographic questions were designed by the researcher. The information sheet outlined the participant's rights of taking part in the study, the confidential and voluntary nature of the study, and the requirements of participants in the study. The consent form obligated the participants to offer their informed consent and agree to participate in the study. The demographic questions encompassed a multiple choice format and sought participant's occupation, gender, age, and country of residence.

The perceived stress levels of participants were measured using the Perceived Stress Scale (PSS-10; Cohen, Kamarck, & Mermelstein, 1983). The PSS-10 is a ten item scale designed to measure perceived stress of an individual during the last month. Each item is measured using a five point scale ranging from 0 ("never") to 4 ("very often"). The maximum score that can be obtained is 40 and the minimum is 0, the higher the score on the scale means a greater level of perceived stress. The scale has been found to be a valid and reliable instrument for the assessment of perceived stress (Roberti, Harrington, & Storch, 2006) and has been found to have high internal reliability (Cronbach's alpha) of .91 (Cohen & Janicki-Deverts, 2012). Through use of the scale in the current study it was also found to have high reliability (Cronbach's alpha) of .87.

The self-efficacy levels of participants were measured using the General Self-Efficacy Scale (GSE; Schwarzer & Jerusalem, 1995). The GSE is a ten item scale designed to measure levels of self-efficacy. Each item is measured using a four point scale ranging from 1 ("not at all true") to 4 ("exactly true"). The maximum score that can be obtained is 40 and the minimum is 10, the higher the score on the scale means a greater level of self-efficacious. The scale has been found to have high internal reliability (Cronbach's alpha) of .89 (Hulbert & Morrison, 2006). Through use of the scale in the current study it was also found to have high reliability (Cronbach's alpha) of .89.

The optimism levels of participants were measured using the Revised Life Orientation Test (LOT-R; Scheier, Carver, & Bridges, 1994). The LOT-R is a ten item scale designed to

measure levels of optimism. Each item is measured using a five point scale ranging from 0 (“strongly disagree”) to 4 (“strongly agree”). The maximum score that can be obtained is 40 and the minimum is 0, the higher the score on the scale means a greater level of optimism. The scale has been found to have adequate internal consistency and re-test reliability (Cronbach’s alpha) of .72 (Hirsch, Britton, & Conner, 2010). Through use of the scale in the current study it was found to have high reliability (Cronbach’s alpha) of .82.

The social support levels of participants were measured using the Social Support Questionnaire (SSQ6; Sarason, Sarason, Shearin, & Pierce, 1987). The SSQ6 is a 12 item scale designed to measure levels of social support and social support satisfaction. The scale is thereby divided into two subscales, six items measure amount of social support and six items measure social support satisfaction. The SSQ6 has been found to have high internal reliability (Cronbach’s alpha) of .95 (Sarason, Sarason, Shearin, & Pierce, 1987; Hulbert & Morrison, 2006). Through use of the amount of social support subscale in the current study it was also found to have high reliability (Cronbach’s alpha) of .90. Through use of the social support satisfaction subscale in the current study it was also found to have high reliability (Cronbach’s alpha) of .93.

Procedure

Prior to data collection a questionnaire was created which contained an information sheet, consent form, demographic questions, and scales to assess perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction. This questionnaire was inputted in Google Forms in order to make it available to potential participants to fill it out and partake in the study.

Data collection for the study took place over a two month period from the 13th of December 2015 to the 13th of February 2016.

The college students sample of participants were recruited via the social media platform Facebook (n = 516). The link to the questionnaire on Google Forms was posted on social media and advertised to college students. The advertisement post asked college students to participate in the study by clicking on the link to the questionnaire on Google Forms included in the advertisement and fill out the questionnaire in order to participate in the study.

The law enforcement sample of participants were recruited using the snowball sampling method (n = 297). The link to the questionnaire on Google Forms was sent via

electronic mail to a number of active law enforcement member contacts asking them to fill out the questionnaire at the link and then to forward on the link to any of their active law enforcement member colleagues also asking them to do the same.

Once each participant finished filling out the questionnaire on Google Forms their response was sent to a Microsoft Excel file in the possession of the researcher. This file was then inputted into IBM SPSS Statistics 21.0. Analyses were then carried out using the IBM SPSS Statistics 21.0 program.

Results

Table 1

Frequencies for the current sample on each demographic variable ($n = 813$)

Group	Gender		
	Males (%)	Females (%)	Total (%)
<u>Occupation</u>			
College student	190 (36.8%)	326 (63.2%)	516 (63.5%)
Law enforcement officer	186 (62.6%)	111 (37.4%)	297 (36.5%)
<u>Age</u>			
18 – 25 years of age	183 (36%)	326 (64%)	509 (62.6%)
26 -49 years of age	162 (59.6%)	110 (40.4%)	272 (33.5%)
50 years of age or older	31 (96.9%)	1 (3.1%)	32 (3.9%)
<u>Country of residence</u>			
Ireland	375 (46.5%)	432 (53.5%)	807 (99.3%)
Other	1 (16.7%)	5 (83.3%)	6 (.7%)

Descriptive statistics

The descriptive statistics for perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction are presented in Table 2. Histograms and normal Q-Q plots were examined for each aforementioned variable in order to assess normality.

The mean score for perceived stress ($M = 23.31$, $SD = 7.42$) indicated participants reported moderately high levels of perceived stress. For perceived stress, the histogram was normally distributed achieving a bell curve shape and the normal Q-Q plot had a reasonable straight line which suggests a normal distribution is present.

The mean score for the self-efficacy ($M = 27.49$, $SD = 5.48$) indicated participants reported moderately high levels of self-efficacy. For self-efficacy, the histogram was normally distributed achieving a bell curve shape and the normal Q-Q plot had a reasonable straight line which suggests a normal distribution is present.

The mean score for the optimism ($M = 12.1$, $SD = 5.08$) indicated participants reported moderate levels of optimism. For optimism, the histogram was normally distributed achieving a bell curve shape and the normal Q-Q plot had a reasonable straight line which suggests a normal distribution is present.

The mean score for the amount of social support ($M = 23.28$, $SD = 11.96$) indicated participants reported a moderate amount of social support. For amount of social support, the histogram was normally distributed achieving a bell curve shape and the normal Q-Q plot had a reasonable straight line which suggests a normal distribution is present.

The mean score for social support satisfaction ($M = 24.81$, $SD = 7.51$) indicated participants reported moderately high satisfaction with their social support. For social support satisfaction, the histogram was negatively skewed but the normal Q-Q plot still had a reasonable straight line which suggests a normal distribution is present.

Table 2

Descriptive statistics and reliability of all continuous variables

Variable	Mean	SD	Range	Possible Range	Cronbach's Alpha
Perceived stress	23.31	7.41	1 – 40	0 – 40	.87
Self-efficacy	27.49	5.48	10 - 40	10 – 40	.89
Optimism	12.1	5.07	0 – 24	0 – 24	.82
Amount of SS	23.28	11.96	0 – 54	0 – 54	.90
SS satisfaction	24.81	7.51	6 – 36	6 – 36	.93

Occupation comparison analysis

A number of independent samples t-tests were conducted to compare scores in perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction between college students and law enforcement officers. Results for these t-tests are presented in Table 3.

There was a significant difference in perceived stress scores between the two occupational groups, $t(811) = -8.72$, $p < .001$, two tailed college students ($M = 25.00$, $SD = 6.85$) scoring higher than law enforcement officers ($M = 20.39$, $SD = 7.47$). The magnitude in difference in the means (mean difference = -4.61, 95% CI: -5.64 to -3.57) was medium to large (eta squared = .10)

There was also a significant difference in self-efficacy scores between the two occupational groups, $t(811) = 8.04$, $p < .001$, two tailed college students ($M = 26.36$, $SD = 5.36$) scoring lower than law enforcement officers ($M = 29.45$, $SD = 5.14$). The magnitude in difference in the means (mean difference = 3.09, 95% CI: 2.34 to 3.85) was medium (eta squared = .07).

There was also a significant difference in optimism scores between the two occupational groups, $t(811) = 3.76$, $p < .001$, two tailed college students ($M = 11.59$, $SD = 4.97$) scoring lower than law enforcement officers ($M = 12.97$, $SD = 5.13$). The magnitude in difference in the means (mean difference = 1.38, 95% CI: .66 to 2.09) was small (eta squared = .02).

There was a non-significant difference in social support number scores between the two occupational groups, $t(811) = .39$, $p > .05$, two tailed college students ($M = 23.26$, $SD = 11.91$) scoring lower than law enforcement officers ($M = 23.5$, $SD = 12.05$). The magnitude in difference in the means (mean difference = .34, 95% CI: -1.37 to 2.05) was small (eta squared = .001).

There was also a non-significant difference in social support satisfaction scores between the two occupational groups, $t(811) = -.99$, $p > .05$, two tailed college students ($M = 25$, $SD = 7.32$) scoring higher than law enforcement officers ($M = 24.46$, $SD = 7.82$). The magnitude in difference in the means (mean difference = -.54, 95% CI: -1.61 to .53) was small (eta squared = .001).

Table 3

Results of t-tests and descriptive statistics for all continuous variables by occupation

	Occupation								
	College students			Law enforcement officers			95% CI for		
	M	SD	n	M	SD	n	Mean	Difference	t
Perceived stress	25	6.85	516	20.39	7.47	297	-5.64, -3.57	-8.72***	
Self-efficacy	26.36	5.36	516	29.45	5.14	297	2.34, 3.85	8.04***	
Optimism	11.59	4.97	516	12.97	5.13	297	.66, 2.09	3.76***	
Amount of SS	23.16	11.91	516	23.5	12.05	297	-1.37, 2.05	.39	
SS satisfaction	25	7.32	516	24.46	7.82	297	-1.61, .53	-.99	

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$

Gender comparison analysis

A number of independent samples t-tests were also conducted to compare scores in perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction between all male and female participants in the study. Results for these t-tests are presented in Table 4.

There was a significant difference in perceived stress scores between the two genders, $t(811) = -9.06$, $p < .001$, two tailed males ($M = 20.85$, $SD = 7.96$) scoring lower than females ($M = 25.43$, $SD = 6.19$). The magnitude of difference in the means (mean difference = -4.58 , 95% CI: -5.58 to -3.59) was medium to large (eta squared = $.11$).

There was a significant difference in self-efficacy scores between the two genders, $t(811) = 9.75$, $p < .001$, two tailed males ($M = 29.4$, $SD = 5.2$) scoring higher than females ($M = 25.84$, $SD = 5.18$). The magnitude of difference in the means (mean difference = 3.56, 95% CI: 2.84 to 4.28) was medium to large (eta squared = .10).

There was a significant difference in optimism scores between the two genders, $t(811) = 4.8$, $p < .001$, two tailed males ($M = 13.01$, $SD = 5.22$) scoring higher than females ($M = 11.32$, $SD = 4.81$). The magnitude of difference in the means (mean difference = 1.69, 95% CI: 1 to 2.38) was small (eta squared = .03).

There was a non-significant difference in social support number scores between the two genders, $t(811) = 1.78$, $p > .05$, two tailed males ($M = 24.09$, $SD = 12.38$) scoring higher than females ($M = 22.59$, $SD = 11.55$). The magnitude in difference in the means (mean difference = 1.5, 95% CI: -.16 to 3.16) was small (eta squared = .003).

There was a non-significant difference in social support satisfaction scores between the two genders, $t(811) = -1.77$, $p > .05$, two tailed males ($M = 24.3$, $SD = 7.79$) scoring lower than females ($M = 25.24$, $SD = 7.23$). The magnitude in difference in the means (mean difference = -.94, 95% CI: -1.98 to .1) was small (eta squared = .003).

A number of independent samples t-tests were also conducted to compare scores in perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction between genders in each of the occupational groups, college students and law enforcement officers. Results for these t-tests are presented in Table 5 and Table 6.

Table 4

Results of t-tests and descriptive statistics for all continuous variables by gender for all participants

	Gender						95% CI for Mean	
	Male			Female			Difference	t
	M	SD	n	M	SD	n		
Perceived stress	20.85	7.96	376	25.43	6.19	437	-5.58, -3.59	-9.06***
Self-efficacy	29.4	5.2	376	25.84	5.18	437	2.84, 4.28	9.75***
Optimism	13.01	5.22	376	11.32	4.81	437	1, 2.38	4.8***
Amount of SS	24.09	12.38	376	22.59	11.55	437	-.16, 3.16	1.78
SS satisfaction	24.3	7.79	376	25.24	7.23	437	-1.98, .1	-1.77

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5

Results of t-tests and descriptive statistics for all continuous variables by gender in college students

	Gender						95% CI for Mean	
	Male			Female			Difference	t
	M	SD	n	M	SD	n		
Perceived stress	22.84	7.84	190	26.25	5.85	326	-4.7, -2.12	-5.21***
Self-efficacy	28.31	5.36	190	25.22	5.03	326	2.16, 4.01	6.56***
Optimism	12.25	5.36	190	11.21	4.69	326	.12, 1.96	2.23*
Amount of SS	24.47	12.36	190	22.39	11.6	326	-.05, 4.21	1.92
SS satisfaction	24.48	7.57	190	25.31	7.17	326	-2.14, .49	-1.23

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6

Results of t-tests and descriptive statistics for all continuous variables by gender in law enforcement officers

	Gender						95% CI for Mean Difference		t
	Male			Female					
	M	SD	n	M	SD	n			
Perceived stress	18.82	7.57	186	23.03	6.54	111	-5.85, -2.57	-5.06***	
Self-efficacy	30.52	4.8	186	27.66	5.21	111	1.69, 4.03	4.81***	
Optimism	13.77	4.97	186	11.62	5.13	111	.97, 3.34	3.57***	
Amount of SS	23.7	12.43	186	23.16	11.44	111	-2.31, 3.39	.37	
SS satisfaction	24.12	8.03	186	25.05	7.46	111	-2.77, .92	-.99	

Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$

Age comparison analysis

A number of one-way between groups analysis of variance were conducted to explore the impact of age on scores in perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction. Participants were divided into three groups according to their age (young adults = 18 – 25; middle aged adults = 26 – 49; and older adults = 50 or older).

There was a statistically significant difference in perceived stress scores for the three age groups, $F(2, 810) = 57.36$, $p < 0.001$. The difference in mean scores was medium to large. The effect size, calculated using eta squared, was .12. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for young adults ($M = 25.13$, $SD = 6.69$) was significantly higher than ($p = .000$) than middle aged adults ($M = 20.9$, $SD = 7.39$); and

significantly higher ($p = .000$) than older adults ($M = 14.88$, $SD = 7.12$). Middle aged adults also scored significantly higher ($p = .000$) than older adults.

There was a statistically significant difference in self-efficacy scores for the three age groups, $F(2, 810) = 36.91$, $p < 0.001$. The difference in mean scores was medium to large. The effect size, calculated using eta squared, was .08. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for young adults ($M = 26.3$, $SD = 5.23$) was significantly lower ($p = .000$) than middle aged adults ($M = 29.25$, $SD = 5.34$); and significantly lower ($p = .000$) than older adults ($M = 31.34$, $SD = 4.86$). Middle aged adults scored non-significantly lower ($p = .084$) than older adults.

There was a statistically significant difference in optimism scores for the three age groups, $F(2, 810) = 13.12$, $p < 0.001$. The difference in mean scores was small. The effect size, calculated using eta squared, was .03. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for young adults ($M = 11.52$, $SD = 4.98$) was significantly lower ($p = .002$) than middle aged adults ($M = 12.78$, $SD = 5.02$); and significantly lower ($p = .000$) than older adults ($M = 15.44$, $SD = 4.87$). Middle aged adults scored non-significantly lower ($p = .013$) than older adults.

There was a non-significant difference in social support number scores for the three age groups, $F(2, 810) = 1.03$, $p < 0.05$. The difference in mean scores was small. The effect size, calculated using eta squared, was .002. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for young adults ($M = 23.16$, $SD = 11.93$) was identical ($p = 1$) to middle aged adults ($M = 23.16$, $SD = 11.83$); and non-significantly lower ($p = .331$) than older adults ($M = 26.25$, $SD = 13.38$). Middle aged adults scored non-significantly lower ($p = .351$) than older adults.

There was a non-significant difference in social support satisfaction scores for the three age groups, $F(2, 810) = .43$, $p < .05$. The difference in mean scores was small. The effect size, calculated using eta squared, was .001. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for young adults ($M = 24.99$, $SD = 7.29$) was non-significantly higher ($p = .664$) than middle aged adults ($M = 24.51$, $SD = 7.89$); and non-significantly higher ($p = .893$) than older adults ($M = 24.38$, $SD = 7.75$). Middle aged adults scored non-significantly higher ($p = .995$) than older adults.

Correlation analysis

Prior to carrying out the regression analysis it was first necessary to conduct bivariate correlation analysis to ascertain the relationships between the independent variables and the dependent variable; as well as the relationship between the independent variables.

The relationship between all continuous variables was investigated using Pearson product-moment correlation coefficient. Results of this Pearson product-moment correlation coefficient are presented in Table 7. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity.

There was a strong, negative correlation between perceived stress and self-efficacy, $r = -.57$, $n = 813$, $p < .01$, with high levels of perceived stress associated with lower levels of self-efficacy.

There was a strong, negative correlation between perceived stress and optimism, $r = -.54$, $n = 813$, $p < .01$, with high levels of perceived stress associated with lower levels of optimism.

There was a moderate, negative correlation between perceived stress and social support number, $r = -.31$, $n = 813$, $p < .01$, with high levels of perceived stress associated with lower levels of social support number.

There was a weak, negative correlation between perceived stress and social support satisfaction, $r = -.29$, $n = 813$, $p < .01$, with high levels of perceived stress associated with lower levels of social support satisfaction.

Table 7

Correlations between all continuous variables

Variables	1	2	3	4	5
1. Perceived stress	1				
2. Self-efficacy	-.57**	1			
3. Optimism	-.54**	.49**	1		
4. Amount of SS	-.31**	.27**	.36**	1	
5. SS satisfaction	-.29**	.3**	.38**	.62**	1

*Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$*

Regression analysis

Multiple regression was performed to investigate the ability of self-efficacy, optimism, amount of social support, and social support satisfaction to predict levels of perceived stress. The results for this multiple regression analysis are present in Table 8. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. Additionally, the correlations between the predictor variables included in the study were examined. The correlations were weak, moderate, and strong, ranging between $r = -.29, p < .01$ and $r = -.57, p < .01$. This indicates that multicollinearity was unlikely to be a problem. All predictor variables were statistically correlated with perceived stress which indicates that the data was suitable correlated with the dependent variable for examination through multiple linear regression to be reliable undertaken.

Since no a priori hypotheses had been made to determine the order of entry of the predictor variables, a direct method was used for the multiple linear regression analysis. The four independent variables explained 42% of the variance in levels of perceived stress ($F(4, 808) = 146.94, p < .001$).

In the final model three of the predictor variables were statistically significant with social support satisfaction being non-significant. Self-efficacy recorded a higher Beta value ($\beta = -.39, p < .001$) than optimism ($\beta = -.32, p < .001$), amount of social support ($\beta = -.09, p < .05$), and social support satisfaction ($\beta = .001, p > .05$).

Table 8

Multiple regression model predicting perceived stress

	R ²	β	B	SE	CI 95% (B)
Model	.42***				
Self-efficacy		-.39***	-.53	.04	-.61 / -.44
Optimism		-.32***	-.47	.05	-.56 / -.37
Amount of SS		-.09*	-.06	.02	-.1 / -.01
SS satisfaction		.001	.001	.04	-.07 / .07

*Note. Statistical significance: * $p < .05$, ** $p < .01$, *** $p < .001$*

Discussion

The main objective of this study was to provide a context to which college students stress levels can be based. College students are generally recognised as a high stress group but there is scarce research evidence offering a context to this substantial stress experienced by them as the group is generally looked at in isolation.

A large amount of research has been conducted examining the encompassment of varying degrees of stress in different occupational domains. In said research, being a college student is generally not recognised to be an occupation. Therefore it is not included in any group or occupational comparisons even though it can be argued the college student role includes much of the same characteristics of most occupations.

Common trends in research which has compared stress levels between different occupations have generally found that occupations which have the potential to be exposed to significant trauma also have greater prevalence of stress. A large body of research has identified the law enforcement occupation as being very stressful due to the amount of trauma law enforcement officers have the potential to be exposed to and other more general sources of stress the occupation entails (Anshel, 2000; Brown & Campbell, 1994; Carlier, Lamberts, & Gersons, 1997; Horn, 1991; Kroes, 1976; Kroes & Hurrell, 1975; Liberman et al., 2002; Raiser, 1974; Reilly & DiAngelo, 1990; Violanti, 1983; Violanti & Marshall, 1983).

This study set about forming a context to college student's stress by comparing the amount of stress they experience to that of law enforcement officers to which a considerable amount of research has found to be one of the most stressful occupations.

The study also proposed a social-cognitive model for stress by evaluating the impact of self-efficacy, optimism, amount of social support, and social support satisfaction on stress and the relationship between each of these variables. Each aforementioned construct was also assessed in terms of an occupation comparison including college students and law enforcement officers, gender comparison, and age comparison.

Occupation comparison

This study aimed to assess whether any differences exist in perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction between two occupations, college students and law enforcement officers. No research was found which directly compared these two occupations in their levels of the aforementioned continuous variables.

However, research has recognised both occupations as being high stress groups and identified a negative relationship between stress and the other study variables. It was this research upon which the hypothesis was based that college students and law enforcement officers would express similar levels of perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction.

Independent samples t-tests were used to assess if differences existed between both occupations in reported scores in each variable. There were significant differences in levels of perceived stress, self-efficacy, and optimism between both occupations. There were non-significant differences in amount of social support and social support satisfaction scores between both occupations.

College students scored significantly higher in levels of perceived stress and significantly lower in self-efficacy and optimism levels than law enforcement officers. Focusing on the differences between both occupations in the main study variable of perceived stress, the difference was seen to be substantial as indicated by the medium to large eta squared value. This finding was against the conventional paradigm and a large amount of research findings which argue that law enforcement officers are one of the most stressed groups. This finding was of course also against the hypothesis which said both occupations would express similar perceived stress levels.

One such possible explanation for why this surprising result occurred may be due to the time at which data collection for this study took place. Data collection took place over a two month period between December and February. Most college students have their end of semester exams during this time period. The process of studying for exams, taking the exams, and waiting for exam results usually encompasses a large amount of stress for individuals. Also, the PSS-10 which was used to assess the perceived stress of participants measures the amount of stress experienced in the last month by the individual. If participants had been going through the exam process the month before they filled out the questionnaire this could of course have resulted in them reporting much higher than expected perceived stress scores. Also, this study was limited as a self-report questionnaire was used to assess all continuous variable including perceived stress whereas the gold standard is to use a diagnostic interview scale.

Although, the data collection time period can be seen as a very stressful period for college students, it is also recognised as quite stressful for the general population. This time period is synonymous with money difficulties and stress about money. The Stress in America report noted that money is the greatest source of stress (American Psychological Association

[APA], 2012). Thereby, it could be argued that law enforcement officers were also exposed to an unusually large amount of stress during the data collection period but this stress was manifesting itself in a different form to the stress college students were experiencing.

Therefore, there must be attention placed on this study's finding that college students are experiencing substantial stress even if it is only at a specific time period. As numerous research evidence suggests the experience of substantial and overwhelming stress can be detrimental to us both physically and mentally meaning this finding cannot be ignored (Cohen, Janicki-Deverts, & Miller, 2007; Marin et al., 2011; Muscatell & Eisenberger, 2012). It may be easier to ignore substantial stress experienced by law enforcement officers as in the context of the general population this is a fairly niche occupation. Even still, there is a significant focus on stress in law enforcement and dealing with the problem as evident by the large body of research conducted examining stress in law enforcement. A large percentage of the general population attend college at some stage in their lives and this number is ever increasing as there is a greater encouragement towards allowing people to acquire tertiary level education. Thereby, it is unusual that there has not been a great deal of work done examining stress in college students if it were compared to the amount of research on stress in law enforcement.

Future research should look to further analyse stress in college students as it is clear that they experience substantial stress. There is a lack of focus on understanding this problem of substantial stress in college students and offering a solution to solve the problem. The period of time when most individuals attend college is also an important developmental period. If problems are experienced during this time and not dealt with appropriately they can lead to detrimental later life outcomes. As a survey of worldwide university and college counselling centres noted, services that can help college students which such problems are inadequate (Mistler, Reetz, Krylowicz, & Barr, 2012). Thereby, this study should also offer a reason to review the services available which are supposed to help students deal with stress. Of course more research is required to further examine stress in college students and the affects experiencing substantial stress can have on them. Research should look to be carried out longitudinally to determine when college students are most vulnerable to stress. Also, research should look to determine the causes of stress in college students and how to limit the impact of these stressors.

The results of this study also have implications for how we look at stress in law enforcement officers. It was anticipated that law enforcement officers would report considerable large stress levels as prior research has identified them as being one of the most

prone to stress occupations. It was surprising when results indicated law enforcement officers were not experiencing substantial stress as expected.

An explanation for this unusual result is that this study examined perceived stress in law enforcement officers. Majority of previous research examining stress in law enforcement focused on stress that results from trauma. As law enforcement officers are more likely than most to experience trauma the occupation would of course have more prevalent rates in stress which result from trauma. However, this study examined more general perceived stress which can come from any aspect of our lives and not solely from work experiences.

This study was carried out on a sample of Irish law enforcement officers which may also be an explanation for the unusual result. Irish law enforcement officers may be even less likely than law enforcement officers in other countries to experience some of the more unlikely but major sources of stress for law enforcement officers such as the death or serious injury of a fellow officer in the line of duty, killing an individual in the line of duty, or experiencing a terrorist incident. However, law enforcement officers in any country generally have greater potential to experience these incidents due to the universal nature of the occupation. Future research should look to replicate this study in different countries and see if the results vary.

Gender comparison

This study also aimed to investigate if any differences exist in perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction between genders. Most research indicates mental health difficulties including stress, depression, and anxiety are much more prominent in females (Derogatis & Savitz, 1999; Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993; Kessler et al., 1994; Weissman et al., 1996). It was thereby anticipated that females would report higher levels of perceived stress. Also, it was predicted females would report lower levels of self-efficacy, optimism, amount of social support, and social support satisfaction as these variables are seen to have a negative relationship with stress.

Through use of independent samples t-tests it was found that females expressed significantly greater perceived stress levels and significantly lower self-efficacy and optimism levels than males. There were non-significant differences in amount social support and social support satisfaction scores between both genders. These results were also the same within the sample of college students and the sample law enforcement officers in isolation.

The differences in perceived stress, self-efficacy, and optimism levels were correctly predicted. These results further add to and support previous research findings. However, it was anticipated that there would be significant differences in amount of social support and social support satisfaction scores between both genders though these differences were not evident.

The findings of this study further add to the argument that females require greater attention when it comes to stress and more broadly mental health difficulties as a whole. It is interesting that the results by in large did not alter even when controlling for occupation as the trend is the same in college students and law enforcement officers. Evaluating potential causes for these differences in stress between both genders it was discovered that more social or environmental aspects such as occupation or social support do not appear to influence these differences. However, results found differences in the more cognitive entwined variables of optimism and self-efficacy. Therefore, the assumption may be made that these clear differences between the genders may be heavily influenced by internal or cognitive aspects as opposed to external or environmental factors. Future research should look to develop on the findings of this study and further analyse potential reasons for why these gender differences exist putting particular focus on internal aspects such as cognition.

Age comparison

This study also aimed to evaluate if differences were evident in perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction between different age groups. Participants were divided into three age groups; young adults aged 18 to 25, middle aged adults aged 26 to 49, and older adults aged 50 and above.

Research examining age differences in the aforementioned variables is scarce if not non-existent. Research has tended to focus on age differences in depression which has a high co-morbidity with stress making this research relevant to this current study. However, this research evaluating the relationship between age and depression has offered very mixed results (Fuentes & Cox, 2000; Herrmann, 1997; Lawton, Kleban, & Dean, 1993; Mirowsky & Ross, 1992; Nolen-Hoeksema & Ahrens, 2002; Schieman, Van Gundy, & Taylor, 2002). Thereby, it was not possible to produce a hypothesis for this particular research aim.

One-way between groups analysis of variance were used to investigate the potential age differences. In perceived stress levels, there were significant differences between all groups with young adults scoring highest followed by middle aged adults and then older

adults. There were also significant differences in level of self-efficacy and optimism and non-significant differences in amount of social support and social support satisfaction between the age groups.

Focusing on the main study variable of perceived stress, the differences in the means between each age group were quite substantial and a reasonable large effect size was evident. This was a very clear and abundant difference between the three age groups. This result indicates that stress levels tend to decrease as we age as there was a negative relationship between stress and age. Future research may seek to determine the potential reasons for explaining the occurrence of this relationship.

However, the validity of the results in this study for this particular analysis should be questioned. This study's main aim and subsequent design and sampling methods may not have allowed for an accurate investigation into the relationship between age and stress. The majority of participants in the young adult age group were college students and the majority of participants in the other age groups were law enforcement officers. Therefore, it must be questioned whether the significant differences in scores of perceived stress, self-efficacy, and optimism are explained by age or by occupation. Also, for the older adult age group sample there was considerable large gender bias evident as males represented 96.9% of this sample. As previous gender comparisons indicated males report significantly lower levels of perceived stress, self-efficacy, and optimism it must be questioned whether the scores in the older adult age group can be explained by age or gender bias within the sample.

Future research should examine the relationship between age and the continuous variables within this study using a more general population sample to evaluate if a negative relationship is still evident.

A social-cognitive model of stress

This study also aimed to investigate the relationship between perceived stress, self-efficacy, optimism, amount of social support, and social support satisfaction. Hulbert and Morrison (2006) investigated said relationship but on a much smaller scale and in a sample of palliative care workers. Through evaluation of this research it was anticipated there would be a correlation between each aforementioned variable within the relationship.

Through use of a Pearson product-moment correlation coefficient it was found that there was a statistical correlation between each variable but with each correlation varying in strength. Self-efficacy, optimism, amount of social support, social support satisfaction all had

a negative relationship with the main study variable of perceived stress. A standard multiple regression analysis was carried out to investigate the aim to determine the ability of self-efficacy, optimism, amount of social support, and social support satisfaction to predict perceived stress levels. No hypothesis was offered for this aim as there was no research evidence found which investigated the ability of each predictor variable to forecast perceived stress levels. Self-efficacy was found to be the strongest predictor closely followed by optimism and then amount of social support with each being statistically significant predictors. Social support satisfaction was a non-significant predictor of perceived stress levels.

The results indicate that the more cognitive geared variables of optimism and self-efficacy within the proposed social-cognitive model of stress were better predictors of stress. Therefore, it may be assumed that cognitive aspects have a greater impact on stress than social aspects. Majority of research has tended to focus on the social aspects which have an impact on stress (Berkman, 1985; Cohen & Wills, 1985; Kessler & McLeod, 1985; Kessler, Price, & Wortman, 1985; Turner, 1983; Wallston, Alagna, DeVellis, & DeVellis, 1983).

However, more recently work has looked to focus more on the cognitive aspects which may affect stress. This study emphasises that this shift in focus may be the correct direction going forward. Of course social aspects still influence stress and this study does not deny that as can be seen from the results. Although, an argument can be made that social or external factors do not have as significant an effect on stress as cognitive or internal factors pose.

The findings from this study indicate that when developing methods in dealing with the serious problem of overwhelming stress there should be a focus placed on improving negative cognitive aspects which are damaging towards our stress instead of social aspects which are seen to not have as large an affect. Future research should look to further examine the role cognition plays in stress and how adaptations to our cognition can help reduce the occurrence of overwhelmingly high stress levels. Future research should also look to see if results on the impact of cognitive and social factors on stress can be replicated in less stressed samples and the general population.

Conclusion

Overall, this study expanded on the already existing research which assessed stress levels in college students and law enforcement officers. However, this study provided a context to the

amount of stress experienced by college students. Previous research has failed to deliver a scale in which college students stress levels can be compared and a true sense of the amount of stress they experience that can be realised.

It is very important that there is an in depth understanding of stress and specifically which groups or individuals are most susceptible to stress as it can have a massive impact on both our physiological and psychological well-being. Knowing which groups are most stressed can help in determining who requires the most help and where resources should be focused. As well as helping identifying that college students are a high stressed group, this study also further added to the literature which suggests females are more prone to experience substantial stress. Also, it was discovered that stress was more prominent in younger individuals.

Finally, this study also examined stress using a social-cognitive model and results of this examination indicated cognitive aspects including optimism and self-efficacy were much stronger predictors of stress than social aspects.

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Appendices:

Questionnaire

Information sheet and consent form

It is of vital importance that you read through this section thoroughly and in its entirety. This section will outline any relevant information about the study and will inform you of your rights in participating in this study.

The researcher:

My name is Glynn Higgins and I am a final year undergraduate psychology student in the National College of Ireland.

Purpose of this study:

As part of my degree I am required to carry out a research study. My research study is investigating the influence of occupation on stress levels.

What will participation in this study involve?

Participation in this study involves the completion of a short questionnaire that should take approximately five minutes to complete. Participants must only complete this questionnaire once.

Who can participate in this study?

In order to participate in this study you must be currently attending a tertiary level educational institution (i.e. be a college student) or currently be a law enforcement member. Also, participants must be 18 years old or older at the time of taking part in the study.

Do you have to participate in this study?

Participation in this study is voluntary meaning that you do not have to take part in this study if you do not want to. If you do choose to continue and participate in this study by answering the questions please be aware that you have the right to stop participating at any time and have any information you have given up to that point removed from the study and destroyed.

Confidentiality of the study:

Participants in this study will not be required to disclose their identity as this study is completely anonymous.

Results from the study:

By agreeing to participate in this study, participants must recognise that any answers they give in the questionnaire may be used for analysis and the formulation of a research report which will be examined and potentially published.

Is there any potential risk in participating in this study?

Participation in this study will require you to answer questions about your occupation, gender, age, country of residence, levels of stress, self-efficacy, optimism, and social support. By answering these questions it is unlikely that you will be harmed in anyway but you must

be made aware that these questions are personal and in unlikely cases could cause distress to a participant. If this highly unlikely occurrence occurs, contact the researcher for assistance.

Debriefing process:

A debriefing process is available to all participants in this study. This process will offer participants an opportunity to learn more about the study and if necessary give any participants who have developed any problems from participating an opportunity to express these to the researcher. For more information regarding this process, contact the researcher.

Problems or queries:

If you have any problems with or queries about this study, do not hesitate to contact the researcher.

Researcher contact details:

Glynn Higgins
The National College of Ireland
E-mail; Glynn.Higgins@student.ncirl.ie

By clicking the "Agree to participate" option below and continuing onto the next section of this questionnaire and answering the questions that follow you agree to participate in this study and give informed consent recognising that you have read the information sheet thoroughly and understand your rights with regard to participating in this research study.

Demographic questions:

Instructions: Circle the category that applies to you.

Occupation:

Law enforcement officer Office Worker College student

Age:

18 – 25 26 – 49 50 or older

Gender:

Male Female

Perceived Stress Scale (PSS-10):

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

- 0 = Never
- 1 = Almost Never
- 2 = Sometimes
- 3 = Fairly Often
- 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?

0 1 2 3 4

2. In the last month, how often have you felt that you were unable to control the important things in your life?

0 1 2 3 4

3. In the last month, how often have you felt nervous and “stressed”?

0 1 2 3 4

4. In the last month, how often have you felt confident about your ability to handle your personal problems?

0 1 2 3 4

5. In the last month, how often have you felt that things were going your way?

0 1 2 3 4

6. In the last month, how often have you found that you could not cope with all the things that you had to do?

0 1 2 3 4

7. In the last month, how often have you been able to control irritations in your life?

0 1 2 3 4

8. In the last month, how often have you felt that you were on top of things?

0 1 2 3 4

9. In the last month, how often have you been angered because of things that were outside of your control?

0 1 2 3 4

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

0 1 2 3 4

Social Support Questionnaire 6 (SSQ6):

Instructions: The following questions ask about people in your life who provide you with help or support. Each question has two parts. For the first part, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. Give the person's initials and their relationship to you (see example). Do not list more than one person next to each of the numbers beneath the question. For the second part, circle how satisfied you are with the overall support you have. If you have no support for a question, check the words "No one," but still rate your level of satisfaction. Do not list more than nine persons per question. Please answer all questions as best you can. All your answers will be kept confidential.

Example:

Who do you know whom you can trust with information that could get you in trouble?

No one	1) T.N. (brother)	4) T.N. (father)	7)
	2) L.M. (friend)	5) L.M. (employer)	8)
	3) R.S. (friend)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little dissatisfied	2 – fairly dissatisfied	1 - very dissatisfied
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1. Whom can you really count on to be dependable when you need help?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little dissatisfied	2 – fairly dissatisfied	1 - very dissatisfied
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2. Whom can you really count on to help you feel more relaxed when you are under pressure or tense?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little dissatisfied	2 – fairly dissatisfied	1 - very dissatisfied
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3. Who accepts you totally, including both your worst and your best points?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little dissatisfied	2 – fairly dissatisfied	1 - very dissatisfied
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4. Whom can you really count on to care about you, regardless of what is happening to you?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little dissatisfied	2 – fairly dissatisfied	1 - very dissatisfied
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5. Whom can you really count on to help you feel better when you are feeling generally down-in-the-dumps?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little dissatisfied	2 – fairly dissatisfied	1 - very dissatisfied
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6. Whom can you count on to console you when you are very upset?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How Satisfied?

6 – very satisfied	5 – fairly satisfied	4 – a little satisfied	3 – a little dissatisfied	2 – fairly dissatisfied	1 - very dissatisfied
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General Self-Efficacy Scale (GSE):

Instructions: Circle the most appropriate number response for each question.

- 1 = Not at all true
- 2 = Hardly true
- 3 = Moderately true
- 4 = Exactly true

1. I can always manage to solve difficult problems if I try hard enough.

1 2 3 4

2. If someone opposes me, I can find the means and ways to get what I want.

1 2 3 4

3. It is easy for me to stick to my aims and accomplish my goals.

1 2 3 4

4. I am confident that I could deal efficiently with unexpected events.

1 2 3 4

5. Thanks to my resourcefulness, I know how to handle unforeseen situations.

1 2 3 4

6. I can solve most problems if I invest the necessary effort.

1 2 3 4

7. I can remain calm when facing difficulties because I can rely on my coping abilities.

1 2 3 4

8. When I am confronted with a problem, I can usually find several solutions.

1 2 3 4

9. If I am in trouble, I can usually think of a solution.

1 2 3 4

10. I can usually handle whatever comes my way.

1 2 3 4

Revised Life Orientation Test (LOT-R):

Instructions: Please answer the following questions about yourself by indicating the extent of your agreement using the following scale:

- 0 = strongly disagree
- 1 = disagree
- 2 = neutral
- 3 = agree
- 4 = strongly agree

Be as honest as you can throughout, and try not to let your responses to one question influence your response to other questions. There are no right or wrong answers.

1. In uncertain times, I usually expect the best.

0 1 2 3 4

2. It's easy for me to relax.

0 1 2 3 4

3. If something can go wrong for me, it will.

0 1 2 3 4

4. I'm always optimistic about my future.

0 1 2 3 4

5. I enjoy my friends a lot.

0 1 2 3 4

6. It's important for me to keep busy.

0 1 2 3 4

7. I hardly ever expect things to go my way.

0 1 2 3 4

8. I don't get upset too easily.

0 1 2 3 4

9. I rarely count on good things happening to me.

0 1 2 3 4

10. Overall, I expect more good things to happen to me than bad.

0 1 2 3 4