An Examination of the Relationship between Perceived Stress and Emotional Intelligence.

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Abstract

Objective: Stress levels are a growing health concern, with many negative impacts on mental and physical health, organisations, and health care providers, who are trying to cope with the growing demand for treatment. Extensive studies have found that emotional intelligence may be a protective factor against the negative effects of stress. The aim of this study is to investigate the relationship between perceived stress and emotional intelligence, and examine the impact that age and gender may have on this relationship.

Methodology: 188 participants (118 females, 70 males) completed a 15 minute survey, including the Perceived Stress Scale and the Schutte Self-Report Emotional Intelligence Test.

Results: There was a significant negative relationship between stress and emotional intelligence. A hierarchical multiple regression revealed that emotional intelligence explained 13.7% of variance in stress scores, after controlling for age and gender.

Discussion: Results from the present study suggest that emotional intelligence can have an impact on perceived stress levels, and may act as a protective factor. Emotional intelligence courses could be implemented to help reduce stress levels. Existing literature, implications of this study, and recommendations for future research are also discussed.

Keywords: perceived stress, emotional intelligence, stress management, mental health.

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Introduction

The World Health Organisation (WHO) has reported that over 300 million people are negatively affected by stress (WHO, 2013). Following this, the WHO stated that stress is the major health epidemic that the 21st century must manage. A recent study by the American Psychological Society (APA) revealed that 75% of adults had experienced moderate to severe levels of stress in the previous month (APA, 2017). Although experiencing short term stress can be beneficial, and may act as motivation to complete goals and tasks (Selye, 1978), exposure to prolonged stress has been found to be associated with anxiety, depression, heart disease, and sexual dysfunction (McEwen, 1998).

Unlike stress, a concept that has been in existence in some form for hundreds of years, emotional intelligence (EI) is a term that first appeared in 1964 (Beldoch, 1964). EI has been studied extensively over the past 55 years, specifically since the concept gained more popularity following Goleman's 1995 book on the topic. EI has been praised as being responsible for giving an individual "...an advantage in any domain in life" by Goleman (1995, p.36). EI is the ability to identify and manage your emotions, as well as being able to identify the emotions of others. In recent years, EI and stress have been terms that are often seen together, as the relationship between stress and EI has been examined more frequently. It is proposed that EI may act as a protective factor against stress, and given the vast number of people that are negatively affected by stress worldwide, this current literature review serves to examine the existing research on the relationship between stress and EI.

1.1 Stress

One of the most common definitions of stress was proposed by Selye in 1936, who posited that stress is "the non-specific response of the body to any demand for change." (p.36). Selye (1936) also noted that the biological systems that control stress within the body are capable of both protecting and damaging the body. The stress response serves to prepare the body both physically and psychologically to deal with any perceived threat we may face (Pakos-Zebrucka, Koryga, Mnich, Ljujic, Samali, & Gorman, 2016). Acute stress, which is also known as the fight-or-flight response, is experienced when the sympathetic nervous system has been activated. Following this activation, the sympathetic nervous system stimulates the release of adrenaline and noradrenaline, both of which can cause an increase in heart rate and blood pressure (Cannon, 1916; Jansen, Van Nguyen, Karpitskiy, Mettenleiter, & Loewy, 1995). This response is evolutionary, and has evolved to protect us, but McEwen (2005) suggests that this response is not suited to the modern stressors we face. Following the activation of the sympathetic nervous system, it takes between twenty and sixty minutes for the body to return to its original pre-arousal state (Milosevic & McCabe, 2015). When faced with the constant stressors of the modern world, this fight-or-flight response often doesn't turn off (Kudielka & Kirschbaum, 2005). Stress triggers the hypothalamic-pituitary-adrenal (HPA) axis, causing the body to release glucocorticoids, which over a long period of time can cause weight gain, fatigue, irritability and increased the risk of heart disease (Raison & Miller, 2003; Tsigos & Chrousos, 2002).

What may distinguish positive stress (eustress) from stress with negative consequences may be one's perception of the stressors we face, and the ability to handle them (Skok, Harvey, & Reddihough, 2006). The perception of a situation can moderate how an individual responds to that situation. Individuals who believe that stress may have a positive impact on their performance are less likely to report experiencing the negative effects

associated with stress (Watson, 1988). To contrast, feeling nervous and worried about a situation can, in turn, increase stress levels (Schulkin, McEwen, & Gold, 1994). Studies have found a link between exposure to stressors in early life, and increased sensitivity to stress in later life (Lupien, McEwen, Gunnar, & Heim, 2009). Frequent exposure to stress can affect brain function; the hippocampus is especially sensitive to the effects of stress, and this frequent exposure may lead the hippocampus to become defective. Exposure to acute stress over a long period of time has been found to cause the hippocampus to lose neurons and shrink (McEwen & Sapolsky, 1995).

1.2 Stress and Gender

While we know that an individual's perceptions of stress may impact the levels of stress they feel, and the negative effects they may be exposed to, studies have also found a link between gender and an individual's ability to cope and control stress. Many studies have found that women report experiencing higher levels of stress compared to males (Barnett et al., 1987; McDonough & Walters, 2001; Mirowsky & Ross, 1995). Some of the explanations put forward for this difference are that women tend to rate situations as being more stressful than males do, and females react to stress in an emotion focused way while males respond with a problem focused approach (Miller & Kirsch, 1987; Ptacek, Smith, & Zanas, 1992). Another reason for this finding is that women have been found to be more affected by the stress and emotions of those around them, as they tend to be more emotionally involved with the people in their lives, in comparison to men (Kessler & McLeod, 1984). Further to this, Turner et al., (1995) noted that women internalise the stress felt by others around them, which will result in their own heightened experience of stress. It has been noted that women must also deal with gender-specific stressors: for example, violence against women, discrimination based on their sex, and the pressure to conform to the stereotypical gender roles imposed by

society (Heim et al., 2000; Klonoff, Landrine & Campbell, 2000; Lee, 2001). Studies have also found that females may have a different biological response to stress, compared to males, which makes them more susceptible to its effects: females tend to have a higher HPA axis reactivity, compared to males (Haleem, Kennett, & Curzon, 1988). Despite these findings, Lupien, McEwen, Gunnar and Heim (2009) have noted that the majority of studies that examine the effects of stress on the body tend to primarily use male animals or male human participants in their studies. Previous to 1995, females only made up 17% of the participants included in studies that examined the physiological response to stress, following this a review of 200 studies between 1985 and 2000, which amassed 14,548 participants, 34% of the participants were female (Taylor, Klein, Lewis, Gruenewald, Gurung, & Updegraff, 2000). The discrepancy between the number of male and female participants in these studies may also contribute to the differences that have been found in stress levels between both genders.

1.3 Stress and Age

A second factor that has been studied extensively as a possible factor that may contribute to stress levels is age. Often as a person ages, it is expected that they will encounter more stressors, which will in turn result in experiencing more stress as people age. Older individuals are more likely to have to deal with issues such as health problems, disability, death of family and friends, and accepting their own mortality. Despite this, studies have found that older individuals report having less stressful life events when compared to young people (Paykel, 1983). Aldwin (1991) noted that older individuals, more so than younger ones, have experienced events such as marriage, divorce, parenthood, and other life changing events. During these events, they learn to manage the stress associated with them, and when faced with new stressors, tend to not rate them as being as stressful as younger individuals who have not had the same life experiences. Aldwin (1994) also suggested that

throughout their lives, older individuals have gained more strategies for coping with stressful events, and have had more time in which to implement these strategies, which is why they may report feeling less stress when compared to younger individuals.

1.4 Emotional Intelligence

Naturally, through the course of researching stress, studies have turned to possible factors that may be used to prevent stress, or the consideration of what may be a protective factor against the negative effects often associated with stress. Emotional intelligence (EI) is one of the factors that has been examined for its potential protective abilities against stress. EI has been described as the intelligent crossover of emotion and thoughts (Mayer & Salovey, 1995). EI is the ability to be aware of, control, and express one's emotions, as well as being able to deal with interpersonal relationships effectively (Salovey & Mayer, 1990). Emotional information is one of the first forms of information to which humans are exposed, and must begin to process.

There has been some debate over whether EI is an ability or a trait. Trait EI is related to an individual's self-perception of their emotional abilities, skills and their personality characteristics that influence their ability to cope well with pressure (Petrides, Pita, & Kokkinaki, 2007). To contrast, ability EI has been classed as the ability to perceive and express emotion, as well as being able to regulate emotion in oneself and others (Mayer & Salovey, 1997). Trait EI is associated with personality, while ability EI has been classed as a cognitive skill (Petrides, 2011).

As researchers turned to the positive effects of high EI levels, studies have found that those who report higher levels of EI will, in turn, report lower levels of anxiety and

depression (Fernandez-Berrocal, Alcaide, Extremera, & Pizarro, 2006). EI has been associated with having the ability to sort between feelings, and being able to manage and self-regulate emotional states has been associated with better emotional adjustment. Studies have found that individuals that report having a greater understanding of their own emotions also report a greater ability to manage their emotional states, and also have higher levels of self-esteem (Salovey et al., 2002). Researchers have noted that those who have higher levels of EI also have more meaningful social relations, and are also less likely to engage in problematic behaviours such as violence and drug abuse (Mayer & Geher, 1996). A recent study looking at individuals who had been bullied found that those who had higher levels of EI were less likely to report negative feelings, such as suicidal ideation, compared to those who had lower levels of EI (Extremera, Quintana-Orts, Mérida-López, & Rey, 2018). Studies have also found that EI may be a protective factor against psychopathy, as those who have reported higher levels of EI abilities will in turn also report lower levels of psychopathic tendencies (Gómez-Leal, Gutiérrez-Cobo, Cabello, Megías, & Fernández-Berrocal, 2018). However, it is important to note that among these studies, most use a self-report measure of EI, which can be subject to response bias, as participants will give the answers that they believe are socially desirable rather than answering the measure honestly (Brackett, Rivers, & Salovey, 2011).

1.5 Factors Affecting Emotional Intelligence

Based on the abundance of research demonstrating the potential positive results of higher EI, studies have started to look at the factors that may contribute to an individual having higher levels of EI, to see if this is something that can be fostered within individuals. Several studies have reported that females tend to have higher levels of EI when compared to males (Grossman and Wood, 1993; Grewal and Salovey, 2005; Baron-Cohen, 2002). One study, using an EEG, reported that males and females display different brain activity when

completing an emotional task (Jaušovec, & Jaušovec, 2005). Mayer, Caruso, and Salovey (1999) have stated that EI is an ability that improves as an individual ages, and as the individual gains more life experiences, EI grows in conjunction. However, one study has found that when controlling for age, all significant differences between male and female EI scores disappeared (Fernandez-Berrocal, Cabello, Castillo, & Extremera, 2012). One important limitation to consider is that, to the best of the author's knowledge, there have been no longitudinal studies carried out that examine the evolution of EI across an individual's lifespan (O'Brien, Konrath, Grühn, & Hagen, 2013).

1.6 Stress and Emotional Intelligence

As previously mentioned, many researchers have focused on what may act as a protective factor against stress, and EI is one such factor that has been frequently studied for the benefits a higher level of EI may have against stress. Selye (1956) described stress as an emotional reaction to environmental stimuli, which highlights the link EI may have with stress management. Some evidence has suggested that the ability to manage emotions is related to the ability to maintain a positive mood (Ciarrochi et al., 2000), which can help combat stressful emotions when they arise. A study conducted by Ciarrochi, Chan, and Bajgar (2001) found that adolescents who report they are good at managing others' emotions also report having a larger social network and more social support, which has been found to be a protective factor against the negative effects of stress. It has been reported that greater perceived EI is related to a more adaptive reaction to stressors when they arise (Salovey, Stroud, Woolery, & Epel, 2002). Slaski and Cartwright (2002) found that managers with higher levels of EI also tend to report lower levels of stress. Matthews et al., (2006) found that when completing a stressful task, those who have higher EI also worry less, and use less

avoidance coping methods. There is a large volume of current research that suggests that EI may be a protective factor against stress.

Based on the foundation set by previous researchers, this study will examine if there is a relationship between stress and EI. As studies have found that both age and gender can affect stress and EI, the present study will go beyond what exists in the current literature, to examine the potential relationship between stress and EI, while controlling for age and gender. Given the prevalence of stress in society, and the severity of the effects it can have on an individual, it is important to know what may act as a protective factor against the negative effects associated with stress. Though the current literature shows that EI may serve as a protective factor against stress, it is unclear to what extent this relationship is affected by age and gender. As EI has been hailed as a protective factor against stress, one contradiction that has arisen from the literature is that females tend to report higher levels of stress, but also higher levels of EI. It is important to do further research to understand this conflict. The findings of the present study could contribute to the understanding of protective factors against stress, which could hopefully reduce individual stress levels, and improve overall health and wellbeing. The aim of the current study is to identify whether EI has an effect on levels of perceived stress, and examine whether age and gender influence the levels reported. The proposed research question is: “is there a relationship between levels of EI and stress, and how is this relationship affected by age and gender?”. From the existing literature, the current study has five main hypotheses:

1. There will be a correlation between levels of EI and stress levels.
2. There will be a difference in stress levels between males and females.

3. There will be a difference in stress levels between older individuals and younger individuals.
4. There will be a difference in EI scores between males and females.
5. There will be a difference in EI scores between older individuals and younger individuals.

Methods

2.1 Participants

Data was collected from 194 participants. Following a review of the data, 6 participants' responses were excluded as they are non-binary. This left 188 total participants. Of those participants, 62.8% were female (n=118), 37.2% were male (n=70). The mean age of the participants was 27.98 SD=8.60, with an age range of 18-60. For this study, the survey was posted on the researcher's Facebook profile, Twitter profile, and Instagram. Participants were asked to share the survey with their own friends, if they were comfortable doing so. Participants were recruited using a non-probability, convenience sampling method. Participants had to be over the age of eighteen, identify their gender as either male or female, and give full consent to participate. Participants were not given any incentive to complete the study. All participants completed the study in full, with no nonresponse.

2.2 Measures

A study information page was included before the start of the study, which outlined the purpose of the study and what participants would be expected to do in participation. It also detailed the participant's rights and any associated risks, and outlined that the data would be anonymised and analysed at a group level. Finally, it listed the contact numbers for emergency helplines, should any participant become distressed while completing the study *(See Appendix A).*

The perceived stress scale (PSS) is a self-report measure that contains 10 questions, and aims to assess how stressful participants find events in their life, focusing on the last month. A study by Cohen, Kamarack and Mermelstein (1994) evaluated the PSS as a global

measure of perceived stress, and they reported that the PSS has adequate internal and test-retest reliability. Other authors have also noted that the PSS has a strong reliability (Andreou et al., 2011; Khalili, Sirati, Ebadi, Tavallai, Habibi, 2017). The PSS is answered on a 4-point Likert scale (0= never, 4= very often), with a possible range of scores between 0-40. Scores between 0-13 are associated with lower levels of perceived stress, scores between 14-26 are associated with moderate levels of perceived stress, and scores between 27-40 are associated with higher levels of perceived stress.

The Schutte Self-Report Emotional Intelligence Test (SSEIT) is a self-report measure that contains 33 questions. This measure of EI has four subscales within it, measuring: emotion perception, utilizing emotions, managing self-relevant emotions, and managing others' emotions. The SSEIT has a reported reliability of .09 (Schutte, et al., 1998) and is known as a reliable measure of EI for both adults and children (Ciarrochi, Chan & Bajgar, 2001). The SSEIT is answered on a 5-point Likert Scale, 1-5 (1= strongly disagree, 5 = strongly agree). When the subscales are combined, scores on the SSEIT can range between 0-165. Higher scores on the SSEIT are related to higher levels of emotional intelligence, and lower scores on the SSEIT are related to lower levels of emotional intelligence.

The PSS was tested for reliability, in the current study, using Cronbach's Alpha. This indicates how well the scale measures what it is intended to measure. The PSS contains 10 questions, and was found to have high reliability within this study (a= .88). This process was then repeated for the SSEIT, which consists of 33 questions, and was found to have a high reliability (a= .88). These results show that both scales have a high internal consistency, which is a measure of whether all items in a scale are measuring what they claim to measure.

2.3 Procedure

Before data collection began, ethics approval was granted for this study from The National College of Ireland's ethics committee. Once ethical approval had been granted, the survey was posted on the researcher's social media profiles - Facebook, Instagram and Twitter. Once participants clicked on the link, they were directed to the survey, which was created using Google Forms.

Participants were first shown the study information page, and this outlined the nature of the study, what it would contain, and the expected duration of the study. It also outlined the participants' rights, the voluntary nature of the study, and highlighted that all answers given would be kept anonymous. Numbers for helplines were also listed in the information sheet: in case participants became distressed during the study, they were encouraged to contact one of the helplines. Participants were asked to confirm that they were over the age of 18, confirm that they had read the provided information, and give their consent to participate in the study **(**See Appendix B**)**. Once this section was completed, participants were asked to give their age and their gender (See Appendix C).

Once these questions were answered, the participants then moved on to answer the PSS. The PSS had 10 self-report questions, in response to which participants had to give a score between 0-4. The PSS focuses on the participant's perceptions of stressful life situations over the last month, and contains questions such as "In the last month, how often have you felt confident about your ability to handle personal problems?" (See Appendix D).

The participants then continued on to complete the SSEIT, which consisted of 33 self-report questions. The SSEIT measures four different dimensions in EI: emotion

perception, utilizing emotions, managing self-relevant emotions, and managing others' emotions. The SSEIT contains questions such as "I easily recognize my emotions as I experience them"(See Appendix E).

Once both scales had been completed, participants were then notified that they had reached the end of the study, and were reminded that if they did not wish to submit their results, they could simply close out of the study. Participants were also provided with the helpline numbers again, and urged to use them if they felt any discomfort or stress as a result of the study.

Overall, it took participants approximately 10-15 minutes to complete the study, and all the data was collected over a two month period, between November 2018 and January 2019. Before the data could be analysed, a data file was created and input to IBM SPSS 24. For this study, the analysis included descriptive statistics, a Pearson correlation analysis, an independent samples t-test, and a hierarchical multiple regression analysis. Following this, all results were analysed, written up, and used to present the findings of the study in this report.

2.4 Design

The current study is a correlation study with a cross-sectional design. No variables are manipulated in this study, and all data is collected from participants at one point in time. This type of design was selected as a cross-sectional study is recommended to determine the prevalence of certain factors within a group at a given point of time. A correlation study was selected to examine what relationship may exist between the variables. As this study is a

correlation design, there was no need to run an experimental study. The independent (predictor) variables in this study are emotional intelligence, age and gender. The dependent (criterion) variable in this study are perceived stress levels.

Results

3.1 Descriptive Statistics

Descriptive statistics were conducted to assess the mean (M) and standard deviation (SD) of each of the study's continuous variables (age, perceived stress levels, and emotional intelligence). From the 188 participants, the age range was 18-60 (M= 27.98, SD = 8.60). The mean perceived stress score (M= 22.81, SD= 7.91) indicates that participants are experiencing moderate stress levels. The mean score of emotional intelligence among participants (M= 115.32, SD= 16.66) suggests that participants are within the average range of emotional intelligence scores. All descriptive statistics are shown in table 1 below.

Table 1

Presenting Descriptive Statistics for Continuous Variables

	Mean (95% Confidence Intervals)	Std. Error Mean	Median	SD	Range
Age	27.98 (26.80-29.30)	.626	25	.62	18-60
PStress	22.81 (21.68-23.89)	.577	24	.57	6-38
EI	115.32 (113.05-117.68)	1.22	116	1.20	74-155

N=188. PStress = The participants total Perceived Stress Scale score; EI = The participants total Perceived Stress Scale.

3.2 Inferential Statistics

To test whether there is a correlation between levels of EI and stress, a Pearson product-moment correlation coefficient was used. Preliminary analyses were carried out to ensure there were no violations of the assumptions of normality, linearity, and homoscedasticity. There was a medium, negative relationship between levels of EI and perceived stress (r= -.32, n= 188, $p < .000$). This indicates that the two variables share approximately 10% of variance in common. These results indicate that higher levels of EI are associated with lower levels of stress.

To examine if stress levels differ between older and younger individuals, a Pearson product-moment correlation coefficient was used. Preliminary analyses were carried out to ensure there were no violations of the assumptions of normality, linearity, and homoscedasticity. There was a small, negative relationship between age and perceived stress levels (r= -.22, n= 188, $p = .002$). These results indicate that the two variables share approximately 5% of variance in common. These results indicate that there is a decrease in stress levels as an individual gets older.

To compare if EI levels differ between older and younger individuals, a Pearson product-moment correlation coefficient was used. Preliminary analyses were carried out to ensure there were no violations of the assumptions of normality, linearity, and homoscedasticity. There was a small, negative relationship between age and EI levels, (r= -.01, n= 188, $p = .98$). These results indicate that there is a slight increase in EI levels as an individual gets older.

To explore if there is a difference in EI levels between males and females, an independent samples t-test was conducted to compare EI levels between males and

females. There was a significant difference in scores (t(186) = 2.59, *p*= .01), with females (M= 117.70, SD= 17.16) scoring higher than males (M= 111.30, SD=15.07). The magnitude of the difference in the means (mean difference = 6.40, 95% CI: 1.52-11.29) was small (Cohen's d= .40).

To explore if there is a difference in stress levels between males and females, an independent samples t-test was conducted to compare stress levels between males and females. There was a significant difference in stress scores (t(186) = 3.62, $p < .000$) with females (M= 24.37, SD= 7.01) scoring higher than males (M= 20.19, SD= 8.57). The magnitude of the differences in the means (mean difference = 4.19, 95% CI: 1.91-6.47) was medium (Cohen's d= .53).

Hierarchical multiple regression was performed to investigate the ability of EI to predict levels of stress, after controlling for age and gender. Preliminary analyses were conducted to ensure no violation of the assumption of normality, linearity and homoscedasticity. Additionally, the correlations amongst the predictor variables (EI, age and gender) were examined and are presented in Table 2. All correlations were weak ranging between r= -.001, $p = .49$ and r= .32, $p < .000$. This indicates that multicollinearity was unlikely to be a problem (see Tabachnick & Fidell, 2013). All PVs were statistically correlated with perceived stress levels, which indicates that the data is suitable for multiple linear regression analysis.

In the first step of the hierarchical multiple regression, gender was the predictor variable entered. This model was statistically significant F (1, 186) = 13.11; $p < .001$ and explained 6.6% of the variance in perceived stress scores. After the entry of age at

Step 2 the total variance explained by the model was 10.7% (F (2, 185) = 11.14; p < .001). The introduction of emotional intelligence explained an additional 13.7% variance in perceived stress scores, after controlling for gender and age, a change that was statistically significant (R2 Change = .136; F (3, 184) = 19.78; p < .001).

In the final model, all PVs uniquely predicted perceived stress levels to a statistically significant degree. All three variables were negative predictors of perceived stress, and emotional intelligence (β = -.38, p < .001) was the strongest predictor (see Table 3 for full results).

Table 2

Correlations between all continuous variables.

Variables	1	2	3	4
1. Perceived Stress	1			
2. Gender	-.257***	1		
3. Age	-.220***	.063	1	
4. Emotional Intelligence	-.317***	-.186**	-.001	1

Note. Statistical significance: *p < .05; **p < .01; ***p < .001

Table 3

Multiple regression model perceived stress scores

	R^2	Adj R^2	β	B	SE	CI 95% (B)

Step 1	.066	.061				
Gender			-.26***	-4.19	1.16	-6.47 / -1.91
Step 2	.107	.098				
Gender			-.24***	-3.98	1.14	-6.22 / -1.74
Age			-.20**	-1.89	.064	-.315 / -.062
Step 3	.244	.232				
Gender			-.31***	-5.12	1.07	-7.23 / -3.02
Age			-.20**	-.19	.06	-.30 / -.07
EI			-.38***	-.18	.03	-.24 / -.12

Note. R^2 = R-squared; Ajd R^2 = Adjusted R-squared; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; CI 95% (B) = 95% confidence interval for B; N = 188; Statistical significance: *p < .05; **p < .01; ***p < .001

Discussion

The current study sought to identify whether there is a relationship between stress and EI, and to explore what impact gender and age may have on this relationship. For the most part, the results of this study supported the hypotheses put forward by the researcher. These hypotheses were suggested based on previous research, which found that EI may be a protective factor against stress, and that age and gender may have an impact on both stress levels and EI.

4.1 Discussion of Results

The results from this study support the first hypothesis, finding a significant negative relationship between stress and EI. This is consistent with the current literature, which suggests that EI may be a protective factor against the negative effects of stress. Individuals who report having higher levels of EI in turn also report lower levels of perceived stress. Studies of EI have found that those who have better EI abilities tend to have increased general well-being (Austin, Saklofske, & Egan, 2005), and further studies have found an inverse relationship between stress and EI (Duran et al. 2004; Lopes et al. 2006). Overall, many researchers agree that higher levels of EI are related to better overall psychological functioning (Salovey & Grewal 2005, Brown & Schutte 2006, Schutte et al. 2007).

One study found that ability EI, rather than trait EI, can help reduce stress levels in some individuals - those who have high ability EI, but do not believe in their ability to use EI, reported similar levels of stress when compared to those with low ability EI (Gohm, Corser, & Dalsky, 2005). Individuals who experience high levels of stress have been found to have increased vulnerability to addiction (Sinha, 2008), increased depression rates (Willner, 2017) and lower levels of physical activity (Holt-Lunstad, Smith, & Layton, 2010). The current

studies' findings are critical, when considering the negative impact that stress can have on one's mental and physical health. The current findings may suggest that increasing levels of EI in individuals could potentially reduce stress levels.

In line with the existing literature, the results from the current study support the hypothesis that males and females will experience differences in stress levels. Recent studies have found that females report higher levels of stress when compared to males, and this finding was mirrored in the current research. These findings are consistent with the current literature that report that females are more likely to report higher levels of stress compared to males. Studies have found that females are twice as likely as males to develop a chronic stress disorder over their lifetime (Lehavot, Katon, Chen, Fortney, & Simpson, 2018). There is still some debate among researches about from where the difference arises; is it psychosocial, such as the experience of being a female, or is it biological, related to hormones (Yehuda, 1999)? It has also been suggested that males tend to cope by externalising their problems, while females internalise their problems, which is why females are more prone to feelings of stress (Lockett, Lai, Tuason, Jury, & Fergusson, 2018). Based on what we know about the negative effects of stress, if there is a factor that makes one gender more susceptible, it is essential that we understand this difference to hopefully help improve overall well-being of individuals who are negatively affected by stress.

Consistent with the current research, this study found that older individuals report lower levels of stress when compared to younger individuals. One explanation for this difference may be that as an individual gets older, they encounter more stressful and emotionally draining life events, and in doing so, they learn how to better manage stressful situations. Younger individuals do not have the same levels of life experience, and therefore,

are more susceptible to the negative effects of stress. Despite this, some older studies have noted findings that stress increases as an individual ages (Ge, Lorenz, Conger, Elder, & Simons, 1994; Larson, & Ham, 1993). Almeida and Horn (2004) described findings highlight that individuals aged 25-59 experienced less daily stress than individuals aged 60-74. However, some studies have found that individuals aged 60+ are more vulnerable to stress, as they start to lose their independence, encounter more health problems, and face the loss of family and friends (Martin, Grünendahl, & Martin, 2001). As the participant age range of the current study is 18-60, this highlights an avenue for future research.

The fourth hypothesis is also supported by the existing research on stress and EI. The current findings show that females score higher on EI compared to males. Based on the abundance of research that is available, these results were expected. However, it does highlight an issue in the proposed hypotheses, which future studies need to examine. While females report having higher levels of EI, but simultaneously report higher levels of stress, can EI then be considered a protective factor against stress? Researchers have suggested that the relationship between EI and gender is dependent on the scale used to measure EI levels. It has been found that males tend to score higher than women on the Trait Emotional Intelligence Questionnaire (Mikolajczak, Luminet, Leroy, & Roy, 2007). Despite this, multiple studies using a variety of measures of EI have found the negative relationship between gender and EI is consistent despite the measure used (Davis & Humphrey, 2012; Hansenne & Bianchi, 2009; James, Bore, & Zito, 2012; Russo et al., 2012; Salguero, Extremera, & Fernández-Berrocal, 2013).

The final hypothesis was the only one in this study that yielded insignificant results. It was hypothesised, based on the existing literature that there would be a difference in EI

scores between older and younger individuals. However, contradicting the existing literature, the current study found no significant difference between the EI scores of older individuals compared to the EI scores of younger individuals. While the age range of participants in this study was 18-60, the mean age was 28, which may be an explanation as to why no significant result was found. Developmental psychologists have created a developmental milestone index for measuring EI progress from infancy through to adolescence, as it is expected that EI develops as we age (Denham, Wyatt, Bassett, Echeverria, & Knox, 2009; Eisenberg, Spinrad, & Eggum, 2010; Saarni, 1999). Researchers also suggest that EI increases with age, as individuals accrue more life experience (Mayer, Caruso, & Salovey, 1999). Based on the research, it was expected that there would be a significant difference in results between older and younger individuals, but there was no significant difference found. One study examined the development of EI beginning in early adolescence and found it increased to a certain age, where it would plateau, and in some cases would even decline with age (Rivers, Brackett, Reyes, Mayer, Caruso, & Salovey, 2012). Further, a study carried out by Cabello, Sorrel, Fernández-Pinto, Extremera, & Fernández-Berrocal (2016), found that gender was a better predictor of EI ability than age.

4.2 Implications

Understanding how to reduce stress and improve individuals' coping abilities should be of utmost importance. As stress levels are increasing globally, it is even more of a concern to discover any protective factors that may decrease an individual's stress levels. While results consistently suggest that EI is a protective factor, it is important to continue the research to understand why females report higher levels of EI but also report higher levels of stress. The present findings contribute further research, which demonstrates the relationship that exists between stress and EI. One proposed implication from these findings, is that

individuals who experience higher levels of stress may be referred to a course that aims to improve their EI, to hopefully help them cope better with their stress. There are multiple courses available across Ireland that aims to educate people about EI and techniques to improve their own EI abilities.

It is important to raise awareness surrounding the importance of EI, and highlight the benefits it may have, above and beyond helping individuals deal with their stress levels. Courses in EI could be aimed at school-age children, to help them develop their EI and learn to deal with stressful situations as they arise. It could be incorporated into the educational system, especially around times such as transitioning from primary school to secondary school, completing state examinations, and transitioning to third level education. These are periods of time frequently associated with stress due to the experience of change, potentially moving away from classmates and having to make new friends, and the pressure to perform well in exams. The information gained from this study can be used to implement psychological interventions for individuals that struggle with the overwhelming negative effects of stress, with the aim to help them manage stress they feel, and decrease the negative effects of this stress.

4.3 Limitations and Future Recommendations

It must be noted that there are some limitations of this study, and these should be considered by future researchers who may conduct similar studies. The age of participants in this study ranged from 18 to 60, but the majority of participants were in their late 20s (M=28). While the results show non-significant results in the case of EI

and age, this may be due to the limited number of older individuals who participated in this study. Response bias must also be taken into consideration, as perceived stress and EI were measured using a self-report measure. Participants may have responded with answers they felt would be the most desirable to give, rather than answering honestly. One variable for which the study did not control, which may have had an impact on the results, is the occupation of the participants. If participants are students, or if they are working in certain jobs, they may be more susceptible to stress than non-students or those in less stressful jobs.

When conducting future research, it is important to note that EI has been found to have a relationship with many factors that were not controlled for in this study: for example, EI has been found to increase coping abilities (Saklofske, Austin, Galloway, & Davidson, 2012), increase professional success (Daus, & Ashkanasy, 2005), and improve social relationships (Gallagher, & Vella-Brodrick, 2008). These relationships should be explored, as each could have their own unique impact on stress levels, beyond the influence of EI.

During this study, six participants were excluded as they listed their gender as non-binary. A recent study revealed that 5% of LGBTQ youth in the UK do not class themselves as being male or female, and currently over one million individuals aged 16 and over consider themselves part of the LGBTQ community (METRO Youth Chances. (2014). The lack of information about how stress or EI affects non-binary individuals is an obvious gap in the literature that prospective studies should aim to address.

Future studies should ensure an even spread across all age groups, to guarantee that the results are not being influenced by a lack of participants that fall into the categories being studied. Future studies could examine the possible impact occupation or college course may have on an individual's perceived stress levels. Future research could take an experimental approach, in which an EI intervention is used, and both stress and EI levels are measured before and after the intervention. These approaches are necessary to get a more comprehensive understanding of the impact that EI has on stress.

4.4 Strengths

Despite the limitations mentioned above, this study also has a number of strengths. Firstly, there were a number of significant findings in the current study, which contributed important information to the existing body of literature on the subject. One notable strength of this study is that both the Perceived Stress Scale and the Schutte Self Report Emotional Intelligence test are highly reliable and valid scales, both of which are used frequently in research. When tested with Cronbach's Alpha, the scales showed a high reliability, which shows that the scales were examining the correct variables.

The flexibility involved in completing the study is a noted strength of this research. The questionnaires could be completed in the participants' homes if they wish, at the participants' leisure. The participants were reassured that all results given would be anonymous, and as they didn't have to complete this study in front of a researcher, it may have led respondents to be more honest and open when answering the scales.

4.5 Conclusion

In conclusion, as hypothesised, and in line with previous literature, individuals with higher levels of EI will also report having lower levels of stress, showing that EI may be a protective factor against the harmful effects of stress. Present findings show that gender plays a significant role in both perceived stress levels and levels of EI, with females scoring higher on both scales. Findings from the current study have also revealed that age does not have a significant impact on perceived stress and levels of EI, contradicting existing literature. From these results, engaging in programs or interventions that help increase an individual's EI may serve as a protective factor against stress, resulting in reduced stress levels, and improved overall health and functioning. This could potentially have implications within healthcare, education and businesses - introducing EI programs may help patients, students and staff cope better with stress. Future studies could conduct an EI intervention, where EI and perceived stress are measured pre- and post-intervention, to further examine the relationship between EI and stress. This study shows that EI is an important protective factor against stress, and reveals the effects of gender on both EI and stress, which has yielded highly significant results. Thus this study can be considered influential in the research areas of perceived stress and emotional intelligence.

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Appendices

Appendix A

Study Information

INVITATION

You are being asked to take part in a research study looking at the relationship between emotional intelligence and stress. This study is being carried out by Rachel Ennis, an undergraduate Psychology student at the School of Business, National College of Ireland, as part of her final year project. The method proposed for this research project has been approved in principle by the Departmental Ethics Committee, which means that the Committee does not have concerns about the procedure.

WHAT WILL HAPPEN

In this study, you will be asked to complete a survey which will gather different information. Firstly, you will be asked to provide information on your age and gender. Following this, there will be two short surveys to complete. The first is the Perceived Stress Scale which has 10 questions. The second is the Emotional Intelligence Scale which has 33 questions. The study typically takes 10 minutes to complete. It is a single session, and once your responses are submitted you will not be required to provide any further information.

PARTICIPANTS' RIGHTS

By proceeding to study section, you are agreeing that: (1) you have read and understood the information provided about the study (2) questions about your participation in this study have been answered satisfactorily, (3) you are aware of the potential risks (if any), (4) you are aware once you submit your responses it will be impossible to withdraw from the study, and (5) you are taking part in this research study voluntarily (without coercion).

BENEFITS AND RISKS

There are no known benefits or risks for you in this study, however if at any point you become distressed or feel uncomfortable you can withdraw from the study without penalty.

COST, REIMBURSEMENT AND COMPENSATION

Your participation in this study is voluntary, with no cost associated to you. There is no reimbursement for completing this study.

CONFIDENTIALITY/ANONYMITY

The data we collect does not contain any personal information about you except your age and gender.The data collected will be made anonymous. This is to ensure that all responses remain completely confidential, and there is no chance that your responses can be linked back to you once you submit them. It will be impossible to remove your data from the analysis, as there will be no way to identify which set of responses are yours. All data will be

analysed at a group level. The data collected from this study is going to be used to complete an undergraduate dissertation, and will be presented at the PSI Students Congress in April 2019. All results will remain anonymous, and you will not be able to be identified once they have submitted your results.

FOR FURTHER INFORMATION

Researcher's email address: x15001539@student.ncirl.ie
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EMERGENCY HELPLINE CONTACT

Samaritans: 116 123 or jo@samaritans.ie
NiteLine: 1800 793 793

Appendix B

Informed Consent

1. I confirm that I am over the age of 18

   ▢ Yes

   ▢ No

2. I confirm I have read the information give my consent to participate in this study.

   ▢ Yes

   ▢ No

Appendix C

Demographics

1. How old are you?

   _____ years

2. What is your gender?

   _____

Appendix D

Perceived Stress Scale

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**

Appendix E

The Schutte Self Report Emotional Intelligence Test

Instructions: Indicate the extent to which each item applies to you using the following scale:

1 = strongly disagree **2 = disagree** **3 = neither disagree nor agree**

4 = agree **5 = strongly agree**

1. I know when to speak about my personal problems to others
2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them
3. I expect that I will do well on most things I try
4. Other people find it easy to confide in me
5. I find it hard to understand the non-verbal messages of other people*
6. Some of the major events of my life have led me to re-evaluate what is important and not important
7. When my mood changes, I see new possibilities
8. Emotions are one of the things that make my life worth living
9. I am aware of my emotions as I experience them
10. I expect good things to happen
11. I like to share my emotions with others
12. When I experience a positive emotion, I know how to make it last
13. I arrange events others enjoy
14. I seek out activities that make me happy
15. I am aware of the non-verbal messages I send to others
16. I present myself in a way that makes a good impression on others
17. When I am in a positive mood, solving problems is easy for me

18. By looking at their facial expressions, I recognize the emotions people are experiencing
19. I know why my emotions change
20. When I am in a positive mood, I am able to come up with new ideas
21. I have control over my emotions
22. I easily recognize my emotions as I experience them
23. I motivate myself by imagining a good outcome to tasks I take on
24. I compliment others when they have done something well
25. I am aware of the non-verbal messages other people send
26. When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself
27. When I feel a change in emotions, I tend to come up with new ideas
28. When I am faced with a challenge, I give up because I believe I will fail*
29. I know what other people are feeling just by looking at them
30. I help other people feel better when they are down
31. I use good moods to help myself keep trying in the face of obstacles
32. I can tell how people are feeling by listening to the tone of their voice
33. It is difficult for me to understand why people feel the way they do*

* Items marked with an asterisk must be reverse coded.