Rationality and Resilience: Our Protective Shield and the Building Blocks of Positive Mental Health

Gary Treacy

13115936

Submitted in partial fulfilment of the requirements of the BA (Hons) in Psychology at National College of Ireland, Dublin.

Supervisor: Dr. Philip Hyland.

April 2016.

Rationality and Resilience: Our Protective Shield and the Building Blocks of Positive Mental Health.

Submission of Thesis and Dissertation

National College of Ireland
Research Students Declaration Form
(Thesis/Author Declaration Form)

Name: *Gary Treacy*
Student Number: *13115936*
Degree for which thesis is submitted: *Bachelor of Arts (Hons) in Psychology*

Material submitted for award

(a) I declare that the work has been composed by myself.

(b) I declare that all verbatim extracts contained in the thesis have been distinguished by quotation marks and the sources of information specifically acknowledged.
(c) My thesis will be included in electronic format in the College Institutional Repository TRAP (thesis reports and projects)
(d) ***Either*** *I declare that no material contained in the thesis has been used in any other submission for an academic award.
Or *I declare that the following material contained in the thesis formed part of a submission for the award of

____

(State the award and the awarding body and list the material below)

Signature of research student: *Gary Treacy*

Date: *1/04/16*

Submission of Thesis to Norma Smurfit Library, National College of Ireland

Student name: *Gary Treacy* **Student number:** *13115936*

School: *School of Business* **Course:** *Bachelor of Arts (Hons) in Psychology*

Degree to be awarded: *Bachelor of Arts (Hons) in Psychology*

Title of Thesis: *Rationality and Resilience: Our Protective Shield and the Building Blocks of Positive Mental Health*

One hard bound copy of your thesis will be lodged in the Norma Smurfit Library and will be available for consultation. The electronic copy will be accessible in TRAP (http://trap.ncirl.ie/), the National College of Ireland's Institutional Repository. In accordance with normal academic library practice, all theses lodged in the National College of Ireland Institutional Repository (TRAP) are made available on open access.

I agree to a hard bound copy of my thesis being available for consultation in the library. I also agree to an electronic copy of my thesis being made publicly available on the National College of Ireland's Institutional Repository TRAP.

Signature of Candidate: *Gary Treacy*

For completion by the School:

The aforementioned thesis was received by______________________

Date: 1/04/16

This signed form must be appended to all hard bound and electronic copies of your thesis submitted to your school.

Acknowledgements

Firstly, I would like to thank all members of the Dublin Fire Brigade who enthusiastically participated in this study and, to convey my admiration for the incomprehensibly demanding duties they carry out on a daily basis. I would also like to thank, Adrian O` Grady and Michael Redmond, for helping me gain access to and, offering insight into the life of a firefighter.

To my family, Thomas, Anne and Natalie who supported my decision to advance my education over the last three years, while subsequently, creating a home environment idyllic for completion of this research piece. To you, I am forever indebted.

Finally, to my supervisor Dr. Philip Hyland. I feel propitious to have been observed by one of the most innovative and benevolent academics I have ever encountered. Your generosity of both time and knowledge ensured that this endeavour was not only possible, but also more importantly, it remained enjoyable.

Thank you all.

Abstract

With the prevalence of mental illness continuing to rise, the time is at hand to review the literature of clinical psychology to investigate where once innovative psychotherapies like cognitive behaviour therapy (CBT) and rational emotive behaviour therapy (REBT) deviated from progressive and constructive methods of averting psychopathology. Failure to alleviate mental disorders have exposed, both the general population and indispensable members of our society (e.g. firefighters; first responders; emergency services) to endure significant distressing life experiences. It is the contention of the current study, to investigate aspects of positive cognition like rationality and resiliency, indicating beneficial mental health outcomes.

Methods: A sample of 77 firefighters participated in the current study and were assessed in levels of satisfaction with life and general negative mental health by means of measuring, distinct facets of cognition related to rational beliefs; irrational beliefs and resiliency. It was also investigated if perceived stress correlated with the aforementioned cognitions and the number of years' service within the sample.

Results: Those reporting that perceived stress was associated with their current duties had no difference in satisfaction with life outcomes when compared to, the non-indication of stress group; however, there was an observable difference in general negative mental health between the perceived stress and non-perceived stress groups. Correlation analysis revealed that irrational beliefs were negatively correlated and that rationality and resilience were positively correlated to satisfaction with life; with multiple regression analysis, confirming that resilience was the most significant predictor in satisfaction with life. In addition, irrational beliefs and resilience were the only variables correlated with general negative mental health and inspection of multiple regression reveal that irrational beliefs were a predictor of symptoms of psychopathology, while resiliency functioned to avert individuals from general negative mental health.

Conclusions: Results yielded from this investigation suggest an alternative to previous methods of averting psychopathology and, it is contended that a new direction in clinical psychology is adopted, whereby, cultivation of beneficial cognition are endorsed as a means of helping relieve mental disorders.

TABLE OF CONTENTS

SUBMISSION OF THESIS TO NORMA SMURFIT LIBRARY I
SUBMISSION OF THESIS AND DISSERTATION II
ACKNOWLEDGEMENTS III
ABSTRACT IV
INTRODUCTION 1
HISTORY OF REBT 2
ABCDE MODEL 4
EFFECTIVENESS AND EFFICACY OF REBT 4
NEED FOR NEW DIRECTION 6
RESILIENCE, RATIONAL BELIEFS, AND PSYCHOLOGICAL HEALTH 7
RESILIENCE 9
RESILIENCE AND RATIONAL THINKING WITHIN UNIQUE POPULATIONS 10
YEARS OF EXPERIENCE AND MENTAL HEALTH 11
RATIONALE 12
THE CURRENT STUDY (AIMS AND HYPOTHESES) 13
METHODOLOGY 14
PARTICIPANTS 14
PROCEDURE 16
MEASURES / MATERIALS 16
RESEARCH DESIGN 18
DATA ANALYSIS 18
RESULTS 20
DESCRIPTIVE STATISTICS 20
INFERENTIAL STATISTICS AND T-TESTS 21
CORRELATION ANALYSIS 21
MULTIPLE REGRESSION ANALYSIS 23
DISCUSSION 25
IMPLICATIONS 28
LIMITATIONS 30
CONCLUSION 30
REFERENCES 32
APPENDICES 40
APPENDIX A: INFORMATION SHEET AND CONSENT FORM 40
APPENDIX B: DEMOGRAPHICS QUESTIONNAIRE 42
APPENDIX C: SATISFACTION WITH LIFE QUESTIONNAIRE 43
APPENDIX D: ATTITUDES AND BELIEF SCALE: ABBREVIATED VERSION .. 44
APPENDIX E: GENERAL HEALTH QUESTIONNAIRE 46
APPENDIX F: BRIEF RESILIENCE SCALE 48

Introduction

The most current international research into mental health estimated that 450 million people worldwide suffer from some form of afflicting mental health disorder, while research also concluded that 10% of the adult population would encounter a behavioural or mental disturbance during their lifetime. More disconcerting is that findings suggest that the individual and economic consequences of these disorders will increase from 12% to 15% by 2020 (World Health Organisation, 2001), and in addition European studies concluded that one in five individuals will suffer depression in the course of their lifetime (World Health Organisation, 2003).

Today, human capital is associated with unadulterated physical and mental health due to consistent coverage of mental disorders being associated with economic and social inconvenience. Consequently, it would appear from the aforementioned data, that the current approach to treatment (i.e. talk therapies and psychopharmacology) of those deemed a liability within society has only served to increase psychopathology rates within our society. A sustainable alternative may lay in affirmative mental health endorsement, which pursues superior quantities of positive mental health as a means of protection against its loss (Jané-Llopis, & Barry, 2005; Keyes 2007; Secker 1998). Considering that current research has failed to halt the increase in the prevalence of psychopathology rates globally, it is fair to argue that a review of the literature is essential in order to identify where clinical psychology deviated so strongly away from the endorsement of positive consciousness.

The field of mental health was transformed during the 1960s by a man regarded as the father of cognitive therapy, Aaron T. Beck, a then assistant professor of psychiatry in the University of Pennsylvania. Although a qualified and practising psychoanalyst, Beck remained absolute to the fundamentals of science and believed that in order for psychoanalysis to be acknowledged within the medical community, empirically valid demonstration of its theory was critical. Throughout the 1950s and 60s, Beck conducted a series of experiments to validate the technique of psychoanalysis; however, the results of these studies directed him to investigate pioneering cognitive explanations of mental health disorders. The exploration embarked upon, led Beck to advance a form of psychotherapy in the late 1960s that he termed "cognitive therapy" (CT), which would later become widely known as "cognitive behaviour therapy" or simply, CBT (Beck, 2011).

Utilising this theory, Beck created an organised, short-term, and present-orientated treatment for depression that focused an individual on elucidating existing anxieties and altering dysfunctional (flawed / unconstructive) beliefs and behaviours. Since the inception of CBT, others have modified Beck`s theory to encompass a wide range of mental health disorders and while these modifications may have changed the emphasis, procedures and extent of treatments, the theoretical hypotheses remains constant. It is acknowledged that all variations of CBT share the same characteristics in that, management of a specific disorder are centred upon the cognitive origination that guides our beliefs and behaviours (Alford & Beck, 1997).

Currently, more than 500 experiments have validated the effectiveness of CBT for a variety of psychiatric disorders and psychological disturbances (Butler, Chapman, Forman, & Beck, 2006), however, it is widely accepted that rational emotive behaviour therapy (REBT) is considered to be the first form of CBT to make an impact on the world`s therapeutic stage. It`s creator, Albert Ellis who originated REBT in 1955, is credited alongside Beck, of having established the basis of the contemporary model of CBT. Similar to Beck, it was Ellis`s disillusionment with psychoanalysis`s efficacy and scientific foundation that propelled him to enhance our understanding of mental illnesses through a cognitive based theory of psychotherapies (Dobson, 2009).

History of REBT

Ellis`s first foray into the psychotherapeutic community during the 1950s, introducing what he then termed "rational psychotherapy", was greeted with much criticism. The cognitive-philosophical aspect of his theory, which was designed to emphasize its distinction from psychoanalytic therapies, led detractors to declare that "rational psychotherapy" disregarded the emotions of its clients. In 1961, subsequent to this condemnation, Ellis replaced "rational psychotherapy" with rational emotive therapy (RET) to acknowledge the significance that RET placed upon the emotional aspects of an individual. RET remained within the psychotherapeutic domain until 1993, when once again Ellis received disparagement for overlooking the behavioural component when considering psychological disturbances. Ellis denounced this criticism, owing to his acknowledgement of some of the original innovators of behaviour therapies and their influence on his ideas and therapeutic

procedures. To combat such comment, Ellis retitled RET to rational emotive behaviour therapy (REBT) (Ellis, 1993a).

REBT stemmed from Ellis`s desire to comprehend the exact characteristics of personality that facilitated a person to retain dysfunctional cognitive and behavioural tendencies. Utilising both Stoic and Adlerian philosophy, Ellis contended that personality was best characterised by establishing how individuals construe and react to experiences within their environment. He argued that an individual's emotional and behavioural responses are governed exclusively by their interpretation of an event and subsequently, not by the event itself (Neenan & Dryden, 2000).

The relevance of these interpretations is that they are regulated by the individual's "core belief system" and consequently Ellis (1994) contended that, it is this belief system that is universally moulded by two significant factors. The first, is determined by an individual's internal desires regarding rationality and irrationality (*e.g., self-constructive and self-defeating motivations*) and the second, relates to social influences that impact upon an individual in the earliest part of their lives (Ard, 1993). Ellis claims that, in general, an individual's belief system encompasses numerous "irrational" features and it is the most prevalent of the features that embodies our "core irrational beliefs" which are commonly implicit and triggered impulsively. Additionally, these "core irrational beliefs" tend to be naive, conclusive, and exaggerated (Ellis, 1993b).

Ellis described principles that accentuate our beliefs when he proposed that irrational cognitions are constructed by Demands (*this must happen*), Catastrophizing (*exaggerated evaluation of an undesirable occurrence*), Low Frustration Tolerance (*seeking immediate pleasure or avoidance of pain*), and Global Evaluations (*negative self-rating prior to an event*) (Ellis & Dryden, 1987). Subsequent to acknowledgement of the factors that emphasise the abovementioned negative thinking styles, Ellis proposed that averting an individual from participating in irrational cognitions and beliefs was the most effective avenue towards self-actualisation (*rational motives*) and he believed that the concept of self-actualisation could be attained by means of reason (Ellis, 1994). To establish how this state was attainable, he developed the "ABCDE" model.

ABCDE Model

The "ABCDE" model is the foundation of REBT and, with minimal amendments, of all the cognitive-behavioural psychotherapies (David, Szentagotai, Eva, & Macavei, 2005). The model states that (*A*) signifies an activating event, that is, an external event causing an individual to acknowledge a stimulus within their environment. (*B)* indicates the individual's internal belief or expectancies regarding the activating event (*A*) and, it is the subsequent belief (*B*) that generates both emotive and behavioural consequences or, (*C).* At this point, Ellis focuses on drawing attention to the relationship that exists between beliefs (*B*) and consequences (*C*), whereby, when expectancies or beliefs become unrealistic or unreasonable, the consequences foster detrimental and maladaptive emotive reactions. Consequently, when the belief is perceived as practical or tolerable, although the emotional reaction may be negative (e.g., *frustration*), it is not characterised as harmful (e.g., *depression*), thus consequential behaviours will not become maladaptive (Neenan et al., 2000).

Once the association between beliefs (*B*) and consequences (*C*) are comprehended and acknowledged, an individual who engages in REBT is encouraged to recognise the beliefs that are unrealistic or unreasonable by contesting and disputing (*D*) them. Ellis asserts that the purpose of disputing these beliefs will evoke transformation, thus, unreasonable expectancies will be superseded by reasonable expectancies. When the activity of disputing (*D*) is conducted in a beneficial manner by an individual, Ellis`s model give rise to an effective (*E*) outlook, resulting in emotive and behavioural consequences that can now be deemed adaptive (Ellis, 1994). Furthermore, the REBT theory claims that once an individual engages in disputing (*D*) and an effective (*E*) outlook, the catalyst for the adaptation of a new belief system is utilised and, classifying and contesting unreasonable expectancies becomes internalised, hence allowing an individual to examine and restrict irrational beliefs objectively while, simultaneously acquiring and reinforcing their rational beliefs (*preferences; non-catastrophizing; high frustration tolerance; acceptance*) (Kirby, 1993).

Effectiveness and efficacy of REBT

In one of the first quantitative reviews, the original psychotherapy meta-analysis placed REBT as the second highest average effect size within ten of the cited recognised forms of psychotherapy (Smith & Glass, 1977). While many proponents of REBT cite the prolificacy of both the theory and its effectiveness in the therapeutic setting, the outcome research since

then, concerning the use of REBT when compared to other cognitive-behavioural methods, could be construed as unreliable. Additionally, REBT has repeatedly been criticised as an unvarying and rigid therapy, incompetent of tackling specific disorders and continuously delivering segregated interpretation of the cognitive activities that provoke numerous varieties of psychopathology (Beck, Rush, Shaw, & Emery, (1979); Padesky & Beck, 2003). Disputing this assessment, Szentagotai, David, Lupu, and Cosman (2008) claim that only superior quality outcome studies report greater effectiveness of REBT due to assessments being conducted over significantly longer periods of time, thus acknowledging the correlation that results from the higher number of REBT sessions yielding greater outcomes.

As highlighted earlier, REBT was constructed as an evidence based theory and in order to solidify its existence within the scientific community, exponents of this theory cite meta-analyses findings related to the efficacy of REBT to demonstrate its suitability for numerous clinical diagnoses and clinical outcomes (Dryden, & David, 2008). Results concluded that REBT functioned consistently across three meaningful domains outlined in the meta-analyses categories. Firstly, efficacy was deemed significant for both clinical and non-clinical populations; secondly, no difference was found for the effectiveness of REBT treatment in relation to gender with both males and females reporting proportionately comparable outcomes subsequent to treatment and finally, results indicate that across a substantial age range (e.g. *9-70 years of age*) REBT techniques remained reliable (Dryden et. al, 2008).

When compared to Behaviour Therapy, Cognitive-Behaviour Modification and other therapies (e.g. humanistic, gestalt, and psychodynamic), REBT continuously yielded a superior effect size and, founded upon this data one could conclude that REBT was efficacious in enhancing a client's well-being when compared to placebo or control groups (Haaga & Davidson, 1993). Intriguingly REBT was shown to display a greater effect on "low reactivity" outcomes that exhibited no observable relationship with the treatment (e.g. physiological measures), than on "high reactivity" measures that are considered to have a direct relationship with treatment (e.g. *irrational beliefs*). The conclusion of this finding implies that the impact of REBT is not owing to compliance or task-demand characteristics.

In relation to the criticism of REBT being labelled unvarying and inept at tackling specific disorders, Ellis and Dryden (2007) cite the utilization of REBT in a number of distinct environments including individuals and couples, family and group therapies, as well as educational settings. Also the treatment of REBT encompasses a broad spectrum of

disorders ranging from depression, anxiety, and personality disorders to relationship issues, substance abuse, eating disorders and many more. In light of the adaptability proposed by Ellis et al., (2007), data also suggests that, REBT may be as efficient as medication in the treatment of non-psychotic major depressive disorders (Szentagotai et.al, 2008). While many detractors of REBT may question the efficacy and effectiveness at treating the above mentioned populations and disorders, citing a lack of empirical research associated with the therapy (Terjesen, Salahany and Sciutto 2009), it is worth nothing, that numerous meta-analyses available under the universal heading of CBT also include REBT studies (David, 2013).

Need for new direction

Akin to other theories within psychology, REBT has not only evolved and influenced many disciplines within the field, it has also exposed aspects of its theory that have failed to acknowledge advantageous outcomes associated to positive mental health. To date, the extensive amount of research involving REBT concentrates on the degree to which perpetuation of irrational beliefs has been positively correlated with the materialisation of general psychopathology (Browne, Dowd, & Freeman, 2009). It is the emphasis placed exclusively on the significance of irrational beliefs and subsequently, the disregard of rationality within the REBT model that has attracted most condemnation of Ellis`s theory. Empirical studies and multiple research articles claim that REBT, due to its fundamental overgeneralisation and amplification of irrational beliefs, has presently stagnated and that REBT is currently in prerequisite of redevelopment and new direction. (David, Szentagotai, Eva and Macavei, 2005).

Previously, Tugade, Fredrickson, and Feldman-Barrett (2004) investigated the above conclusion that REBT had to a large degree declined, however, the authors contend that recent empirical evidence gathered in the field of psychotherapy may offer a framework for an exciting renaissance of REBT. Tugade et al. (2004) indicates that rational thinking styles theoretically may be significantly more protective and, offer a far more solid groundwork of progressive mental health than the long held acceptance that altering irrational beliefs are the most significant variable in the outcome of positive mental health. In concluding, the authors provide data that not only demonstrates a correlation between rational thinking and positive

emotional granularity (the inclination to signify occurrences of positive emotion with accuracy and diligence), but also increased physiological well-being.

Exciting research has already begun to establish how the rational variables contained within the REBT model may offer a more introspective form of treatment. Hyland, Maguire, Shevlin, & Boduszek, (2014) recently examined the probability that rational beliefs could function as cognitive protective influences against the commencement of symptoms related to post traumatic stress disorder (PTSD). Data produced by the research found that rational beliefs were negatively associated with indicators related to PTSD and consequently indicate a need to endorse the significance of rational thinking styles in the practice of psychotherapy.

Assessing the origins of REBT, it is clear that Ellis (1962) accredited initial inspirations of his work by referencing and quoting Stoics like Epictetus, Marcus Aurelius, Seneca, and Cicero. As discussed previously, Stoicism philosophy is an influential building block of REBT and, is an impressively pragmatic philosophy that encourages self-discipline, objectivity, and individual resilience through ethical superiority, forceful management, and rationality. Stoicism is a philosophy of protection; it diminishes exposure of an individual by simply negating that which remains out of one's control. Many of the predominant tenets of REBT (e.g. acceptance, tolerance) and the overall flexibility of its rational constructs convey components of affirmative psychology, thus evoking hypothetical investigations linked to resiliency, rationality and overall constructive mental health (MacLaren, Doyle, & Di Giuseppe, 2016).

Resilience, rational beliefs, and psychological health

Establishing how a relationship could exist between resilience and rational beliefs, thus, influencing beneficial psychological health appears observable utilising the framework of the *broaden-and-build theory* of positive emotions. Similar to the concepts of the rational belief construct of REBT, the *broaden-and-build theory* states that adaptive emotions are flexible, integrative, receptive and efficient, therefore allowing distinct constructive emotions to contribute in extending an individual's momentary thought-action capacity, and facilitating them to develop lasting personal resources ranging from physical and rational to, social and psychological (Fredrickson, 1998; 2001). Whereas undesirable emotions amplify one`s anxiety activity and constrict responsiveness to focus on harmful drives (e.g. fight or flight),

constructive emotions have the capability to control autonomic arousal and broaden one`s reasoning, awareness and behavioural abilities (Fredrickson & Branigan, 2005).

As discussed previously, the REBT model contains two common belief categorises, specifically irrational and rational beliefs and within each category consists four distinct belief processes. The opposing constructs of REBT`s irrationals beliefs concern four types of rational beliefs which support beneficial functioning in individuals. The rational concepts display characteristics similar to the positive emotions outlined in the broad-and-build theory in that, they are consistent with flexibility, logic, congruent with reality, and indicate advantageous outcomes. The four processes denoting rational beliefs are said to be: Preference beliefs *(signalling plasticity, relating to an individual's wants and desires)*, Non-Catastrophizing beliefs *(undesirable experiences are appraised by practical means),* High Frustration Tolerance beliefs *(ability of an individual to persevere and accept adversity in their life)* and Acceptance beliefs *(global evaluations are reflective of the whole self, not one single event)* (Dryden, 2003).

Similar to the aforementioned constructs of rational beliefs, literature concerning resilience subscribes universally to the consensus that resilient individuals are distinguishable by an ability to recover from adversity and possibly more significant, their eminent constructive emotionality (Block & Kremen, 1996; Klohnen, 1996; Wolin & Wolin, 1993). An array of studies related to the broad-and-build theory convey the presence of a relationship between constructive emotions and psychological resilience (Davis, Nolen-Hoeksema & Larson, 1998; Folkman & Moskowitz, 2000) by utilising several methodologies (e.g. self-report, observational, and longitudinal) to validate how individuals who exhibit resilience are characterised by distinct affirmative emotionality (Tugade et al., 2004).

As highlighted earlier, REBT has received criticism for lacking empirical research in support of the rational constructs contained within the model. Therefore, considering current literature progressing towards validating the effect of positive emotions and rationalisation (Seligman & Csikszentmihalyi, 2000) as potential protective factors in relation to undesirable mental health, it would now appear appropriate to explore the power of rational thinking styles.

Resilience

In 2003, the New Freedom Commission on Mental Health reported that treatments utilised by mental health services needed to be revolutionised from that of reactive approaches to methods that are, exclusively proactive and focused on building resilience (Ng, Ang & Ho, 2012). Resilience is classified as a fundamental psychological process that has the potential to safeguard an individual from undesirable life experiences (Ruter, 1987). Contained within this concept of resilience are two significant circumstances; the first being the experience of threat or acute distress suffered by an individual; and secondly the attainment of constructive adjustment and ability of functionality, albeit occurring simultaneous, to a perceived danger or distress (Luthar & Zigler, 1991; Masten, Best, & Garmezy, 1990).

Initial research into patients with debilitating psychological disturbances concentrated predominantly on comprehending dysfunctional emotions and behaviours, and as a result disregarded patients who exhibited comparatively robust patterns of functionality as being "abnormal", thus allocating significantly less time to these individuals. By the 1970s, researchers focusing on patients categorised as exhibiting the most serious psychological disorders discovered a subset within this population, whereby, individuals with the least incapacitating symptoms of these disorders were observed to report productive work environments, social relationships, marriage and an ability to function dependably within society in advance of receiving a clinical diagnosis (Zigler & Glick, 1986).

Concurrent to this finding, studies into children and adolescents inhabiting an environment where a caregiver displayed indicators of psychological instabilities concluded that, despite their at-risk category, data implied that both children and adolescents flourished, thus guiding researchers to explore the distinct adaptations of an individual in response to adversity (Garmezy & Streitman, 1974). Considering that resilience was not recognised as a significant characteristic during this period of research regarding mental illness, concluding that resilience may explain how, a clinically diagnosed subgroup could function within society and; the capacity of children and adolescents to succeed within an environment previously viewed as detrimental to development, may have been ridiculed. Therefore, it is fair to argue that these results may be regarded today as a significant prediction of the role resilience impacts upon positive mental health.

Over the last decade, studies and treatments focused on the function of resilience in relation to mental health have become conventional in multiple disciplines (e.g. psychology, psychopathology, sociology and cognitive neuroscience) (Haskett, Nears, Sabourin Ward, & McPherson, 2006; Windle, 2011). The necessity to manoeuvre resilience as not only a characteristic but also an ability at averting psychopathology is presently harvesting momentum. Utilising meta-analysis, Hu, Zhang, & Wang, (2015) reviewed 60 empirical research findings to quantitatively investigate the association between resilience and both, positive and negative mental health outcomes. Results indicated that mental health outcomes owing to resilience were observable not only in the attainment of positive mental health but also in the maintenance of constructive well-being, even in the face of exposure to traumatic life experiences.

Resilience and rational thinking within unique populations

Rescue personnel, such as firefighters, represent a high-risk segment of society in comparison to the general population owing to their daily exposure of distressing and traumatic events. Evidence suggests that symptoms related to PTSD span from 17% to 22% among firefighters (Vieweg, Julius, Fernandez, Beatty-Brooks, Hettema & Pandurangi, 2006: Wagner, Heinrichs & Ehlert, 1999), while the general population extents from only 1% to 8% (Hauffa, Rief, Brähler, Martin, Mewes & Glaesmer, 2011: Kessler, Sonnega, Bromet, Hughes & Nelson, 1995). Despite this variance, a noticeable lack of research exists in helping the hierarchy of the fire brigade in areas such as, recruiting suitable candidates through psychological screening and, highlighting potential protective and beneficial means of deconstructing otherwise harmful events to current firefighters (Lee, Ahn, Jeong, Chae, & Choi, 2014).

It is worth noting at this point that, multiple studies focusing on the impact of experiencing a distressing incident concluded that those individuals with continued exposure to traumatic events are more prone to identify disturbing events as endangering and overwhelming (Hammack, Cooper & Lezak, 2012: Maier, 2001) due to their propensity towards beliefs of learned helplessness and consequently, a reduction in coping skills (Gilbar, Plivazky, & Gil, 2010: Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009). Early psychological responses to traumatic events may include anxiety, distress or perceived helplessness (indications of PTSD), followed by related feelings of blame, despair and

erosion of belief system, which notably, may occur regardless of the presence of PTSD indicators (Foa, Stein, & McFarlane, 2006).

A deficiency in the field subsists regarding the research of protective factors that moderate maladaptive mental health symptoms related to disabling psychological disturbances, however, progressive recent studies highlight data confirming that not all individuals exposed to a significant traumatic life event will develop detrimental mental health outcomes. Research into the psychological responses of firefighters in the aftermath of experiencing a traumatic event concluded that the majority of individuals acquire suitable coping methods (Foa et al, 2006). These findings are interpreted as a clear indication of the function that resilience and rational thinking styles achieve following exposure to adversity and in serving as a hypothetical protective factor (Agaibi & Wilson, 2005: Hoge, Austin, & Pollack, 2007).

Years of experience and mental health

Further support for why unique members of society develop resiliency is observable in the fact that firefighters and other emergency response personnel are subjected continuously to both distressing and disturbing events, not only on a daily basis but also, over a significant period of their lifetime (Declercq, Meganck, Deheegher, & Van Hoorde, 2011). As was indicated previously, initial psychological responses to traumatic events can have the propensity to foster perceived helplessness within an individual (Foa et al, 2006). Nevertheless, recent research implies that firefighters may be "uncommonly resilient" and undergo personal growth as a result of exposure to multiple life-threatening episodes (Gist, 2007). Numerous contact with life threating events can afford the motivation for personal growth and other positive outcomes; for example, firefighters can experience amplified understanding for lifetime priorities and engage in positive lifestyle changes subsequent to a disturbing event (Groleau, Calhoun, Cann, & Tedeschi, 2012). It has been shown that experienced firefighters cultivate and acquire superior coping skills; endure new levels of self-efficacy in the aftermath of a traumatic event and, that these positive consequences can to a large degree compensate future negative experiences (Sattler, Assanangkornchai, Moller, Kesavatana-Dohrs, & Graham, 2014).

To date, only two studies have been conducted concerning job-related affective change and an individual's well-being over a significant time-period (Mäkikangas, Hyvönen, Leskinen, Kinnunen, & Feldt, 2011; Mäkikangas, Feldt, Kinnunen, & Tolvanen, 2012). In an effort to bridge this gap in the literature, Airila, Hakanen, Luukkonen, Lusa, and Punakallio, (2013), conducted a three-wave 13-year follow up study to investigate the collaborative results of affective dispositions and their association to the well-being of firefighters. Results from this study concluded that those individuals who scored high in positive mood trajectories correlated with low levels of adverse mood trajectories and subsequently individual's reported higher levels on satisfaction with life and perceived work-related ability. These findings are comparable to literature cited previously in this review concerning Fredrickson and Branigan (2005) broad-and-build theory.

Rationale

In reflection of the literature reviewed for the current study it would appear reasonable to argue that little empirical research has been conducted to advance the theory of REBT in relation to the protective influences of the rational constructs associated with the REBT model. Acknowledging the criticism related to the overemployment of irrational beliefs as a means of elucidating psychopathology, the present study wish to signify the renaissance of REBT by exploring the rational structures of the theory and, thereby satisfying the current movement within the field of psychology towards affirmative outcomes of mental health.

In spite of this aforementioned move towards constructive therapies in the field of psychology, little is known about which psychological variables are responsible for attaining beneficial mental health. Therefore, findings produced by the present study wishes to offer a unique perspective on the exact elements of an individual’s personality that determine progressive mental health, while subsequently offering guidance to clinicians future theories regarding techniques to combat psychopathology.

Finally, the general population are reliant in their hour of most need upon unique populations (e.g. emergency response personnel) within our society. To date, research conducted utilising these distinctive populations have exclusively focused on the psychology of these individuals in reaction to extremely traumatic events, for example, the multiple studies associated to the terrorist attacks on New York City in 2001 and similar disturbing episodes. Therefore, the contention of this research is to influence the scientific literature to

actively investigate the general mental health of some of the most valued members of society and, to offer the appropriate authorities within these establishments a framework for selecting and supporting individuals who wish to pursue such self-sacrificing service.

The Current Study (Aims and Hypotheses)

The existing research comprises of three fundamental investigative objectives. The first research question under examination is to explore the impact that perceived stress, associated to the participant's current duties, influences their levels of satisfaction with life and their general negative mental health. It is hypothesized, that the indication of perceived stress will signify a negative correlation with satisfaction with life and subsequently, worsen an individual's general negative mental health.

The second objective of this study is to explore how rational and irrational beliefs, resilience and the number of years served within the current sample impact an individual's satisfaction with life. In regards to this research investigation, it is hypothesized that higher levels of rationality and resilience combined with low levels of irrational beliefs and greater number of years served will indicate greater scores in satisfaction with life.

The final aim of this study, is to inspect how rational and irrational beliefs, resilience and the number of years served effect the general mental health of an individual. The assumption of the concluding research question is that high levels of irrational beliefs and less years' service, combined with low levels of rationality and resilience will result in general mental health scores indicating mental distress within an individual.

Methodology

Participants

The sample for the current study consisted of *77 (male = 74, female = 3)* active members of the Dublin Fire Brigade. The participants ranged in age from *26 to 56* years, with an average age of *41.21 years (SD = 7.04).* The majority of firefighters who participated in this study were married *(83%, n= 64)* with the remaining participants either single or divorced *(17%, n = 13).* In relation to the number of years served within the current sample, job experience ranged from one years' service to 34 years and of the current sample, *15.40* years *(SD= 8.25)* represented the average service of those who participated. Perceived stress within the current sample was high, with those indicating their current occupation as stressful *(80.3%, n = 61)*, while the remaining *(19.7%, n = 15)* did not perceive their occupation as stressful.

Table 1

Frequencies for the current sample of Dublin Fire Brigade personnel on each demographic variable (N = 77).

Variable	Frequency	Valid Percentage
Gender		
Male	74	96.1
Female	3	3.9
Marital Status		
Single	13	16.9
Married	64	83.1
Perceived Stress		
Yes	61	80.3
No	15	19.7

Procedure

A research proposal was presented to the ethics review board of the National College of Ireland to approve commencement of the current study. Once the review board confirmed ethical approval, appropriate authorization was granted from the relevant officials within Dublin Fire Brigade to carry out the study and subsequently, individual senior officers associated with the chosen fire stations used for the current study granted permission. The researcher was authorized access to participants at an agreed upon designated and appropriate rest period during active duty. The current sample were made aware that research was being conducted as fulfilment of the requirements of an undergraduate thesis, however, careful instructions regarding the study were given so as not to bias responses. All 77 members of Dublin Fire Brigade approached to participate in the current study volunteered their participation (100 %). Participants were obliged to complete an anonymous self-report paper-and-pencil questionnaire booklet which included a consent document attached to the front of the booklet followed by, a brief instruction sheet before each scale being utilized, indicating the appropriate scoring. Participants were given full assurance regarding confidentiality and notified that their participation was voluntary. The majority of the completed questionnaires were handed by the participants to the researcher, while the remaining participants who completed the booklet at later dates returned them to their senior officer and these were subsequently returned in sealed envelopes to the researcher.

Measures/materials

Rational and Irrational beliefs were measured by means of the ***Attitudes and Beliefs scale 2: Abbreviated version*** (Hyland, Shevlin, Adamson, & Boduszek, 2013). This is a *24 item* self-report scale that assesses all four irrational belief processes (Demandingness, Catastrophizing, Low Frustration Tolerance, and Depreciation beliefs) and subsequently measures all four rational belief processes (Preferences, Non-Catastrophizing, High-Frustration Tolerance, and Acceptance beliefs). An example of a question related to the irrational beliefs would be *"Its unbearable being uncomfortable, tense or nervous and I can't stand it when I am"* and, the rational beliefs constructs contain questions like *"It is unfortunate when I am frustrated by hassles in my life, but I realize it's only disappointing and*

not awful to experience hassles" .Each of the 8 subscales are measured via 3 items each, along a 5-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). Scores for each of the subscales can therefore range from 3-15 with higher scores in each case indicating higher levels of each belief process. The scale displayed satisfactory internal consistency within the current sample with a reported a Cronbach's alpha value above .80 of rational beliefs and a Cronbach's alpha value of .85 for rational beliefs.

The Brief Resilience Scale (*BRS*: Smith, Dalen, Wiggins, Erin Tooley, Christopher, and Bernard, 2008) was designed to assess the personal characteristics that embody resilience. There are six items contained in the brief resilience scale (BRS) and an example of these items would be: "I tend to bounce back quickly after hard times" or "I tend to take a long time to get over set-backs in my life". Items 1, 3, and 5 are positively worded, and items 2, 4, and 6 are negatively worded. The BRS is scored by reverse coding items 2, 4, and 6 and finding the mean of the six items. The following instructions are used to administer the scale: "Please indicate the extent to which you agree with each of the following statements by using the following scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree." Internal consistency for the current sample was high with a Cronbach's Alpha score of .80.

The General Health Questionnaire (GHQ-12: Goldberg & Williams, 1988) is a scale that is used to measure the risk an individual has of developing psychiatric disorders (e.g. depression, anxiety etc.). The original GHQ has 60 items but the current scale being utilised is an abbreviated version containing 12 items that enquire about a person's mental health over the last couple of weeks. An example of the questions contained within the GHQ-12 is *"Have you recently felt constantly under strain?"* or *"Have you recently been feeling happy, all things considered?"* The responses range from *''Not at all''* to *''Much more than usual''* and it gives a total score of 36 or 12 based on the selected scoring methods. The score was used to generate a total score ranging from 0 to 36. A high score indicates mental illness and lower scores indicate a healthy state of mind. According to Lopez and Dresch (2008), the GHQ-12 proves a reliable measure with a Cronbach's Alpha of .78. Internal consistency for the current sample was high with a Cronbach's Alpha score of .88.

The Satisfaction with Life Scale (*SWLS*: Diener, Emmons, Larsen and Griffin, 1985) is a short 5-item instrument designed to measure global cognitive judgments of satisfaction with one's life. Examples of the questions utilised in the SWLS range from, *"In most ways my life*

is close to my ideal" to *"If I could live my life over, I would change almost nothing"*. Responses to the SWLS were made using 7-point Likert-type scales (1=strongly disagree; 2=disagree, 3=slightly disagree; 4=neither agree nor disagree; 5=slightly agree; 6=agree; 7=strongly agree). According to Noonan and Chan (2013), the SWLS has displayed notable internal consistency with a Cronbach's Alpha score of .9, likewise, the scale provides excellent validity owing to a high correlation with similar scales. Internal consistency for the current sample was high with a Cronbach's Alpha score of .85.

Design

The present study is cross-sectional in nature, utilising a quantitative research design. The analyses for the existing research were conducted by means of the Statistical Package for Social Sciences version *21 (SPSS-21)*. Initial analyses were performed to assess for the existence of outliers and non-normality and consequently all variables in the study gratified the assumption of normality and no outliers were identified. Reliability analysis (Cronbach's Alpha) was carried out on all scales utilised to ascertain the internal reliability of each scale. Descriptive statistics were then conducted as a means to provide wide-ranging information on the sample of participants.

Data Analysis

In order to investigate the first hypothesis related to the impact of perceived stress on satisfaction with life and general mental health, two independent samples t-test were conducted with a Bonferroni correction method (0.05/2 = 0.025). Subsequent to this adjustment any difference between perceived stress and scores in satisfaction with life and general mental health were only considered statistically significant at $p = 0.025$. Correlation analyses was also conducted as a means of ensuring that the predictor variables selected for the current study were significantly correlated with the criterion variables and, in order to satisfy the assumption of multicollinearity, to confirm that the predictor variables were not greatly correlated with each other. Finally, two standard multiple regression analyses were carried out to explore the relationship that existed between, the predictor variables of rational and irrational beliefs, resilience and number of years served, impact upon both satisfaction with life and general mental health. Multiple regression would also serve as method of

investigating which predictor variable was making a distinct contribution to the criterion variables.

Results

Descriptive Statistics

Descriptive statistics including means, confidence intervals, standard error, median, standard deviations, and range for the variables concerning rational beliefs, irrational beliefs, resilience and the number of years served are presented in *Table 2*. Results suggest that the present sample of participants endorsed an above average set of rational beliefs with a mean score of 42.01 (*SD*= 8.57) while demonstrating moderate levels of irrational beliefs 28.68 (*SD*= 7.60). In terms of resilience 22.71 (*SD*= 4.81), the current sample indicate high levels of resiliency while overall displaying moderate levels of experience in relation to number of years served 15.40 (*SD*= 8.25). Inspection of the confidence intervals determine that at the *95% confidence level*, rational beliefs (40.00-44.03); irrational beliefs (26.93-30.43); resilience (21.60-23.81) and number of years served (13.53-17.28) represents the true mean possible range of the sample population.

Table 2

Descriptive statistics for the current sample`s Rational and Irrational Beliefs; Resilience and Number of Years Service.

	Mean (95% Confidence Intervals)	Std. Error Mean	Median	SD	Range
RB	42.01 (40.00-44.03)	1.01	43	8.57	14-60
IB	28.68 (26.93-30.43)	.87	29	7.60	12-50
Resilience	22.71 (21.60-23.81)	.55	23.50	4.81	8-30
NYS	15.40 (13.53-17.28)	.94	14	8.25	1-34

Note: RB (Rational Beliefs); IB (Irrational Beliefs); NYS (Number of Years Served).

Inferential Statistics

Group Differences

Two independent samples *t-test* were conducted for comparing how satisfaction with life and general negative mental health scores vary for participants who indicated that they perceive their current occupation as stressful and those who do not perceive their occupation as stressful.

The first independent samples *t-test* that was conducted compared satisfaction with life scores between those firefighters who indicated that they perceive their job as stressful and those who do not. There was no significant difference in scores between the two groups of firefighters, t (21.40) = .42, p = .68 *two-tailed*, with those perceiving their job as stressful (M = 25.60, SD = 5.70) scoring slightly higher than those who do not perceive their job as stressful (M = 24.90, SD = 5.81). The magnitude of the differences in the means (mean difference = .71, 95% *CI*: -2.76 to 4.18) was small (*eta squared* = .01).

The second independent samples *t-test* conducted compared general negative mental health scores between those firefighters who indicated that they perceive their job as stressful and those who do not. There was a significant difference in scores between the two groups of firefighters, t (56.64) = 3.16, p = .03 *two-tailed,* with those perceiving their job as stressful (M = 23.74, SD = 5.72) scoring higher than those who do not perceive their job as stressful (M = 20.73, SD = 2.34). The magnitude of the differences in the means (mean difference = 3.00, 95% *CI*: 1.10 to 4.91) was large (*eta squared* = .12).

Multiple Regression and Correlational Analyses

In advance of conducting multiple regression analyses, it was compulsory to inspect the assumption of multicollinearity by performing a Pearson product-moment correlation analysis, *Table 3.* Examination of the correlation analysis between the predictor variables in the model observed there were no correlations that implied the existence of multicollinearity (Tabachnick & Fidell, 2007). Of the four-predictor variables, only number of years served *(r = .01, $p > .05$)* was not statistically significant and only irrational beliefs (r = -.23, $p < .05$) had a negative relationship with satisfaction with life, while the remaining variables, rational

beliefs (r =.22, $p < .05$) and resilience (r = .44, $p < .001$) were both positively correlated and statistically significant.

In relation to general negative mental health both number of years served (r = .08) and rational beliefs (r =.05) were not statistically significant while, irrational beliefs (r =.33, p < .001) and resilience (r = -.33, p < .001) were both statistically significant. The weak (r = .01) to moderate (r = .44) relationship between variables allowed multiple regression analysis to be carried out.

Table 3

Correlations between all continuous variables

Variables	1	2	3	4	5	6
1. Satisfaction with Life	1					
2. General Health Questionnaire	-.14	1				
3. Rational Beliefs	.22*	.05	1			
4. Irrational Beliefs	-.23*	.33***	-.06	1		
5. Resilience	.44***	-.31***	.15	-.09	1	
6. No. Years Served	.01	.08	.07	-.10	-.11	1

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

Multiple Regression Analysis

Multiple regression was performed to investigate the ability of rational beliefs, irrational beliefs, resilience, and number of years served in predicting an individual's satisfaction with life, *Table 4*. 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 20% of variance for satisfaction with life ($F (4, 65) = 5.50$, $p < .001$). In the final model only resilience was statistically significant, recording a higher Beta value ($\beta = .40$, $p < .001$) than rational beliefs ($\beta = .15$, $p = .17$), irrational beliefs ($\beta = -.18$, $p = .10$) and number of years served ($\beta = .02$, $p = .90$).

Table 4

Multiple regression model predicting Satisfaction with Life.

	R^2	*Adjusted* R^2	*β*	*B*	*SE*	**CI 95% (B)**
Model	.25***	.20***				
Rational Beliefs			.15	.10	.07	-.04 / .24
Irrational Beliefs			-.18	-.14	.08	-.30 / .02
Resilience			.40***	.47	.13	.21 / .73
No. Years Served			.02	.01	.07	-.14 / .16

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

Multiple regression was performed to investigate the ability of rational beliefs, irrational beliefs, resilience, and number of years served in predicting an individual's general negative mental health, *Table 5*. 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 16% of variance in an individual's general mental health (F (4, 65) = 4.21, $p < .001$). In the final model, the predictor variables of irrational beliefs and resilience were statistically significant, with irrational beliefs recording a higher Beta value ($\beta = .31$, $p < .001$) than resilience ($\beta = -.29$, $p < .001$), rational beliefs ($\beta = .11$, $p = .34$) and number of years served ($\beta = .07$, $p = .51$).

Table 5

Multiple regression model predicting General Health.

	R^2	***Adjusted R^2***	***β***	***B***	***SE***	**CI 95% (B)**
Model	.20***	.16***				
Rational Beliefs			.11	.07	.07	-.07 / .20
Irrational Beliefs			.31***	.22	.08	.07 / .38
Resilience			-.29**	-.32	.13	-.57 / -.07
No. Years Served			.07	.05	.07	-.10 / .19

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

Discussion

The principal intention of the current study was to investigate the psychological constructs that are accountable for maintaining beneficial mental health and, to examine how well these variables safeguard against and avert an individual away from psychopathology, even in the presence of actual and perceived psychological stress. Considering that, research related to REBT is both extensive and revered within the field of psychotherapies, owing to its work at elucidating the impact of irrational beliefs in psychopathology; a key objective of the present study was to assess the largely disregarded constructs related to rationality and their potential to function as protective factors against negative mental health. In addition, whilst sourcing literature for this study, examination of the research indicates that the area relating to clinical psychology demands a movement towards progressive avenues of helping individuals overcome distressing life episodes. It is expected that the present study will contribute to this relatively contemporary domain, by examining the rationality and resiliency aspect within a unique sample (i.e. firefighters) of our society, as a means of clarifying its role in progressive mental health.

The first purpose of this research was to investigate the impact that, perceived work related stress had on satisfaction with life and general negative mental health. Although multiple studies support the negative impact of perceived stress on aspects of satisfaction with life and general mental health (Demerouti, Bakker, & Schaufeli, 2005; Harris, Cumming, & Campbell, 2006; Thompson & Prottas, 2006), other studies have found that no direct association exists (Aryee, Luk, Leung, & Lo, 1999; Fritz et al., 2010), therefore signifying that the relationship is not straightforward.

In relation to the current study, findings suggest that within the existing sample, perceived stress did not negatively influence satisfaction with life. A possible explanation of this finding is observable in research conducted by Virick, Lilly, and Casper (2007), whose findings propose that stress in relation to job demands and role overload may amplify positive attitudes of job security and therefore may make individuals experience a heightened sense of indispensability. It is worth nothing that, in order for perceived stress to induce either a positive or a negative impact on satisfaction with life, job fit (i.e. adaptability to occupation) and perceived control (i.e. belief to bring about an outcome), are two factors that will determine the respective outcome (Xie, 1996). In addition, interpretation of these findings is

comparable to the assertion of Erdogan, Bauer, Truxillo, and Mansfield, (2012) who contend that the outcomes of a stressful occupation are dependable upon personal resources and resilience.

Concerning perceived stress and its influence on general negative mental health, data produced from this study suggests that an indication of perceived work related stress did imply responses correlated with psychopathology. This finding appears contradictory in reflection of the aforementioned data indicating that perceived stress did not negatively impact upon satisfaction with life. However, a plausible rationalisation for how this discrepancy may occur is reflected in the research conducted by Panayiotou and Karekla (2013) who found that, social support has a positive direct influence on an individual's attitudes concerning satisfaction with life, however social support failed to moderate the effects of significant work related stress and its direct correlation to general negative mental health.

Considering that the majority of the current sample was married, data indicating no difference in satisfaction with life between the perceived stress groups appears consistent with the literature, however, the results of this study may offer a significant contribution to the existing literature concerning perceived work related stress and psychopathology. Findings yielded from this study indicate that an individual's external social support network may be incapable of regulating attitudes towards negative mental health and recommendations for future research may investigate the need for supplementary social networks within their work related environment.

The second intention of this study was to explore how rational and irrational beliefs, resilience, and the number of years served impact an individual’s satisfaction with life. Results from the correlation analysis offer strong support for the hypothesis of the current study, with both rational beliefs and resilience correlated and statistically significant in predicting the current samples positive levels of satisfaction with life. In addition, inspection of the multiple regression analysis suggests that although the model explained 20% of variance for satisfaction with life, only resilience was identified as significant in predicting satisfaction with life. These findings are consistent with a large body of literature uncovering a coexisting positive affiliation between resiliency and satisfaction with life (Liu, Wang, & Li, 2012; Mak, Ng, & Wong, 2011; Yu & Zhang, 2007). Furthermore, Wang et al., (2011) contend that resilience is the most significant predictor in satisfaction with life by arguing that

although rationality influences satisfaction with life, the rational belief constructs only perform a mediator role, thus satisfying the current studies finding that resilience is the most significant predictor of SWL.

The final aim of this study was to discover how rational and irrational beliefs, resilience, and the number of years served effect an individual's general negative mental health. Assessment of the correlation analysis revealed that irrational beliefs were positively correlated and resilience was negatively correlated with general negative mental health, with both variables statistically significant. In other words, scoring high on irrational beliefs indicated symptoms of psychopathology while, the negative correlation in resiliency revealed indications of advantageous mental health. The findings of the current study clearly emphasise that, endorsement of irrational beliefs (*demandingness, catastrophizing, low frustration tolerance, global evaluations*), are definitive in the commencement and continuation of symptoms indicative of psychopathology and, data produced from this research is largely in harmony with previous literature regarding irrational beliefs, predicting negative mental health, outlined within the REBT theory (David, Lynn, & Ellis, 2010; Ellis, 1993 b; Ellis, 1994).

In addition, results within the current sample indicate that resiliency functions to avert individuals away from symptoms of psychopathology. Iacoviello and Charney (2014), offer a multifaceted clarification for this finding being dependant upon specific factors that may be considered highly applicable to the current sample. The psychosocial facets of resilience contends that an assortment of aspects, consisting of cognitive; behavioural and existential elements, create an environment ideal for resiliency to exist, even in the presence of distressing events (Iacoviello et al., (2014). Moreover, factor analysis items utilised on the extensively implemented instrument for measuring resilience, the Connor–Davidson Resilience Scale (Connor & Davidson, 2003), advocate this triad concept. The cognitive aspect of this theory, related to high levels in optimism is reflected in the current participant's comparatively high levels of rationality. Furthermore, the assumption that behavioural aspects suggest individuals actively request assistance and support is significant, when one considers that the Dublin Fire Brigade offer counselling support through their Critical Incident Stress Management (CISM). Finally, the existential component of this theory concerning social support networks is observable within the current sample, as the majority of participants indicated that they were currently married.

Concerning non-significant findings within the current study, results related to the variable of number of years' service maybe just as informative as the significant findings of this research. A growing body of research (Charles & Piazza, 2009; Cheng, 2004; Mather & Carstensen, 2005) contend that older adults and more years' experience is correlated with constructive mental health outcomes, however, the current research found no significant findings to suggest that the number of years' experience one obtained impacted upon satisfaction with life or general negative mental health. Pioneering findings contend that extensive individual variation in the serotonin transporter gene (5-HTTLPR) of older adults (Garrett, 2015) may explain this result. The 5-HTTLPR, facilitates in controlling serotonin quantities inside the synapse, with the short form (*s allele*) indicating symptoms associated with negative mental health when compared to the long form (*l allele*). Substantial disparity of the transporter gene (5-HTTLPR) within the older adult population may explain why number of years' service was not correlated or statically significant with either satisfaction with life or general negative mental health. In light of these finding, traditional views in today's society of advantageous mental health outcomes being a by-product of aging need to be challenged.

Implications

These results have a number of implications for the clinical psychology literature and the current domain devoted to progressive mental health outcomes. As highlighted previously, numerous findings (Charles & Piazza, 2009; Cheng, 2004; Mather & Carstensen, 2005) contend that older adults and more years' experience is correlated with constructive mental health outcomes, however, the current research found no significant findings to suggest that the number of years' experience one obtained impacted upon satisfaction with life or general negative mental health. Consequently, from a work related perspective, promotion within demanding professions (e.g. fire brigade), transpiring solely upon seniority and number of years' experience (Phelan, & Lin, 2001) may be in urgent need of review. Therefore, a revised system of promotion dependent upon cognitive adaptability as outlined in the rational concepts (*preference beliefs, non-catastrophizing beliefs, high frustration tolerance beliefs, and acceptance beliefs*) of REBT theory and resiliency could potentially, better reflect the demands of such a challenging positions.

Reviewing the literature obtained for this study, findings concluded a disquieting indication that prolonged exposure to traumatic events can imperil an individual to engage in cognitions of perceived or learned helplessness (Hammack, Cooper & Lezak, 2012: Maier, 2001). Considering that applicants, seeking employment in occupations (i.e. fire brigade, emergency responders etc.) are not required to engage in meticulous psychological assessment, whereby, daily traumatic exposure is considered customary, makes this discovery even more alarming. Findings from the current study, indicating that resilience is greatly significant in repelling symptoms of psychopathology, may well offer a unique perspective on future selection; recruitment methods and psychological assessment of current personnel, not only in fire fighters, but in various task demanding occupations.

In light of the substantial impact of resilience observable within the current sample concerning its influence on satisfaction with life and, its ability to avert individuals away from symptoms of negative mental health, possible future considerations could see the fire brigade implement work programs that educate firefighters on means to cultivate both individual and collective resilience capabilities.

Furthermore, the present study delivers proportionately, both opposing and supportive data, to the mental health literature that is relevant to the general population, while also providing pioneering data on indispensable members of our society (i.e. emergency response personal). Findings related to irrational beliefs, confirming the existence of negative mental health, offer further significant findings as to the constructs of cognition and personality that encourage an individual to validate and maintain negative perceptions about oneself. Although REBT theory received much criticism concerning its attention on irrational beliefs, these results offer further support to the REBT theory and offer clinicians a framework regarding the facets of cognition that influence psychopathology.

Findings from this study also highlighted a significant correlation in perceived stress and general negative mental health, irrespective of the majority of participants indicating social support through the martial status demographic of the questionnaire. Considering this outcome, recent literature (Huynh, Xanthopoulou, & Winefield, 2013) implies future deliberation should be given to implementing marriage enhancement courses created exclusively for the difficulties encountered by firefighters and their significant other. In addition, colleague mentor coaching programs would ensure that both the internal and

external social networks constructed would moderate the relationship between work-home conflict and psychopathology.

Limitations

A number of limitations of this study necessitate review in respect to future research. Firstly, the existing research is cross-sectional in design, consequently making it impossible to draw causal assumptions associated to the current findings. Therefore, future investigations utilizing prospective and longitudinal methods to establish the causal relationships between the variables under investigation are necessary. The uniqueness of the current sample (i.e. firefighters) necessitates that, generalisations regarding results of this study being inferred back to the general population, should be approach with caution. Furthermore, forthcoming research could ensure a more varied sample in relation to gender, as the current sample is predominantly populated with males. Before considering the implications of this research in relation to implementing changes within the current structure of the Dunlin Fire Brigade, future research would greatly benefit from a sample that consisted of a larger number of females and moreover, inferring data back to the general population would be more appropriate and reflective once an even gender distribution is achieved. In addition, protocol, attitudes, work environment, and support networks vary within firefighting establishments around the world, so results produced from this study may not be comparable to firefighters in diverse cultures around the globe.

Conclusion

In conclusion, this study has delivered an innovative perspective on a unique sample of our society by refocusing attention on the general well-being of firefighters. Findings produced from this research propose an alternative to previous research, whereby focus on these individuals continuously transpired in the aftermath of traumatic events. This research exclusively established that both rationality and resilience are correlated with an individual's satisfaction with life; however, data provided indicated that resilience is the strongest predictor in relation to satisfaction with life. Furthermore, in determining the impact of irrational beliefs in the prediction of general negative mental health, these results contribute supplementary confirmation to the theory of REBT``s efficacy and effective, not just in the current sample but also as a means of inferring the current findings into the general

population. Perhaps the most essential element of this research relates to, the determination in elucidating avenues towards progressive and protective measures of mental health and, it is contended that results indicating the significance of resilience in averting psychopathology will promote this crucial and necessary field of psychology, for many years to come.

References

Agaibi, C. E., & Wilson, J. P. (2005). Trauma, PTSD, and resilience a review of the literature. *Trauma, Violence, & Abuse*, *6*(3), 195-216.

Airila, A., Hakanen, J. J., Luukkonen, R., Lusa, S., & Punakallio, A. (2013). Positive and negative mood trajectories and their relationship with work ability, self-rated health, and life satisfaction: a 13-year follow-up study. *Journal of Occupational and Environmental Medicine*, *55*(7), 779-785.

Alford, B. A., & Beck, A. T. (1998). *The integrative power of cognitive therapy*. Guilford Press.

Ard, N. A. (1993). *A glossary and bibliography of rational– emotive therapy concepts.* San Francisco: Austin & WinField.

Ayres, J., & Malouff, J. M. 2007. Problem-solving training to help workers increase positive affect, job satisfaction, and life satisfaction. *European Journal of Work and Organizational Psychology, 16:* 279-294.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression.* New York: Guilford Press.

Beck, J. S. (2011). *Cognitive behaviour therapy: Basics and beyond*. Guilford Press.

Block, J., & Kremen, A. M. (1996). IQ and ego-resiliency: conceptual and empirical connections and separateness. *Journal of personality and social psychology*, *70*(2), 349.

Browne, C. M., Dowd, E. T., & Freeman, A. (2009). Rational and irrational beliefs and psychopathology. *Rational and Irrational Beliefs*, 149.

Butler, A. C., Chapman, J. E., Forman, E. M., & Beck, A. T. (2006). The empirical status of cognitive-behavioural therapy: a review of meta-analyses. *Clinical psychology review*, *26*(1), 17-31.

Charles, S. T., & Piazza, J. R. (2009). Age Differences in Affective Well-Being: Context Matters. *Social and Personality Psychology Compass*, *3*(5), 711-724.

Cheng, S. T. (2004). Age and subjective well-being revisited: a discrepancy perspective. *Psychology and aging*, *19(*3), 409.

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, *18*, 76–82.

David, D., Lynn, S. J., & Ellis, A. (2010) *Rational and irrational beliefs: Research, theory, and clinical practice.* New York, NY: Oxford University Press.

David, D., Szentagotai, A., Eva, K., & Macavei, B. (2005). A synopsis of rational-emotive behaviour therapy (REBT); fundamental and applied research. *Journal of rational-emotive and cognitive-behaviour therapy*, *23*(3), 175-221.

Davis, C. G., Nolen-Hoeksema, S., & Larson, J. (1998). Making sense of loss and benefiting from the experience: two construal's of meaning. *Journal of personality and social psychology*, *75*(2), 561.

Demerouti, E., Bakker, A. B., & Schaufeli, W. B. 2005. Spill over and crossover of exhaustion and life satisfaction among dual-earner parents. Journal of Vocational Behaviour, 67: 266-289.

Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of personality assessment*, *49*(1), 71-75.

Dobson, K. S. (Ed.). (2009). *Handbook of cognitive-behavioural therapies*. Guilford Press.

Dryden, W. (2003). Reason to change: A rational emotive behaviour therapy (REBT) workbook. Routledge.

Dryden, W., & David, D. (2008). Rational emotive behaviour therapy: Current status. *Journal of Cognitive Psychotherapy*, *22*(3), 195-209.

Engles, G. I., Garnefsky, N., & Diekstra, F. W. (1993). Efficacy of rational emotive therapy: A quantitative analysis. *Journal of Consulting and Clinical Psychology, 6,* 1083–1090.

Ellis, A. (1962). *Reason and emotion in psychotherapy*. New York: Lyle Steward/ Birch Lane Press.

Ellis, A. (1993a). Changing rational-emotive therapy (RET) to rational emotive behaviour therapy (REBT). *Behaviour Therapist, 16,* 257–258.

Ellis, A. (1993b). *Fundamentals of rational– emotive therapy for the 1990s*. In W. Dryden & L. K. Hill (Eds.), Innovations in rational– emotive therapy. New York: Sage.

Ellis, A. (1994). *Reason and emotion in psychotherapy*. New York: Birch Lane.

Ellis, A., & Dryden, W. (1987). *The practice of rational– emotive therapy*. New York: Springer.

Erdogan, B., Bauer, T. N., Truxillo, D. M., & Mansfield, L. R. (2012). Whistle while you work a review of the life satisfaction literature. *Journal of Management*, *38*(4), 1038-1083.

Foa, E. B., Stein, D. J., & McFarlane, A. C. (2006). Symptomatology and psychopathology of mental health problems after disaster. *Journal of Clinical Psychiatry*, *67*(Suppl 2), 15-25.

Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American psychologist*, *55*(6), 647.

Fredrickson, B. L. (1998). What good are positive emotions? *Review of general psychology*, *2*(3), 300.

Fredrickson, B. L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention & Treatment*, *3*(1), 1a.

Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition & emotion*, *19*(3), 313-332.

Fritz, C., Yankelevich, M., Zarubin, A., & Barger, P. 2010. Happy, healthy, and productive: The role of detachment from work during non-work time. *Journal of Applied Psychology, 95*: 977-983.

Garmezy, N., & Streitman, S. (1974). Children at risk: The search for the antecedents of schizophrenia: I. Conceptual models and research methods. *Schizophrenia Bulletin*, *1*(8), 14.

Garrett, A., Gupta, S., Reiss, A. L., Waring, J., Sudheimer, K., Anker, L., Sosa, N., Hallmayer, J. F., & O'Hara, R. (2015). Impact of 5-HTTLPR on hippocampal sub regional activation in older adults. *Translational psychiatry*, *5*(9), e 639.

Gilbar, O., Plivazky, N., & Gil, S. (2010). Counterfactual thinking, coping strategies, and coping resources as predictors of PTSD diagnosed in physically injured victims of terror attacks. *Journal of Loss and Trauma*, *15*(4), 304-324.

Glick, M., & Zigler, E. (1986). Premorbid social competence and psychiatric outcome in male and female nonschizophrenic patients. *Journal of consulting and clinical psychology*, *54*(3), 402.

Goldberg, D., & Williams, P. (1988). General health questionnaire (GHQ). *Swindon, Wiltshire, UK: nferNelson.*

Haaga, D. A. F., & Davidson, G. C. (1993). An appraisal of rational-emotive therapy. *Journal of Consulting and Clinical Psychology, 61*, 215–220.

Hammack, S. E., Cooper, M. A., & Lezak, K. R. (2012). Overlapping neurobiology of learned helplessness and conditioned defeat: implications for PTSD and mood disorders. *Neuropharmacology*, *62*(2), 565-575.

Harris, L. M., Cumming, S. R., & Campbell, A. J. 2006. Stress and psychological well-being among allied health professionals. *Journal of Allied Health, 35*: 198-207

Haskett, M. E., Nears, K., Sabourin Ward, C., & McPherson, A. V. (2006). Diversity in adjustment of maltreated children: Factors associated with resilient functioning. *Clinical Psychology Review, 26*, 796–812.

Hauffa, R., Rief, W., Brähler, E., Martin, A., Mewes, R., & Glaesmer, H. (2011). Lifetime traumatic experiences and posttraumatic stress disorder in the German population: Results of a representative population survey. *The Journal of nervous and mental disease*, *199*(12), 934-939.

Hoge, E. A., Austin, E. D., & Pollack, M. H. (2007). Resilience: research evidence and conceptual considerations for posttraumatic stress disorder. *Depression and anxiety*, *24*(2), 139-152.

Hu, T., Zhang, D., & Wang, J. (2015). A meta-analysis of the trait resilience and mental health. *Personality and Individual Differences*, *76*, 18-27.

Huynh, J. Y., Xanthopoulou, D., & Winefield, A. H. (2013). Social support moderates the impact of demands on burnout and organizational connectedness: A two-wave study of volunteer firefighters. *Journal of Occupational Health Psychology*, *18*(1), 9.

Hyland, P., Maguire, R., Shevlin, M., & Boduszek, D. (2014). Rational Beliefs as Cognitive Protective Factors Against Posttraumatic Stress Symptoms. *Journal of Rational-Emotive & Cognitive-Behaviour Therapy*, *32*(4), 297-312.

Hyland, P., Shevlin, M., Adamson, G., & Boduszek, D. (2014). The organization of irrational beliefs in posttraumatic stress symptomology: Testing the predictions of REBT theory using structural equation modelling. *Journal of Clinical Psychology*, *70*(1), 48-59.

Iacoviello, B. M., & Charney, D. S. (2014). Psychosocial facets of resilience: implications for preventing post trauma psychopathology, treating trauma survivors, and enhancing community resilience. *European journal of psychotraumatology*, *5*.

Jané-Llopis, E., & Barry, M. M. (2005). What makes mental health promotion effective? *Global Health Promotion*, 47.

Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of general psychiatry*, *52*(12), 1048-1060.

Keyes, C. L. M. (2007). Promoting and protecting mental health as flourishing. American Psychologist, *62 (2),* 1–14.

Kirby, P. (1993). RET counselling: Application in management and executive development. *Journal of Rational–Emotive & Cognitive Behaviour Therapy, 11,* 7–18.

Klohnen, E. C. (1996). Conceptual analysis and measurement of the construct of ego-resiliency. *Journal of personality and social psychology*, *70*(5), 1067.

Lee, J. S., Ahn, Y. S., Jeong, K. S., Chae, J. H., & Choi, K. S. (2014). Resilience buffers the impact of traumatic events on the development of PTSD symptoms in firefighters. *Journal of affective disorders*, *162*, 128-133.

Liu, Y., Wang, Z., & Li, Z. (2012). Affective mediators of the influence of neuroticism and resilience on life satisfaction. Personality and Individual Differences*, 52,* 833–838.

López, M. P. S., & Dresch, V. (2008). The 12-Item General Health Questionnaire (GHQ-12): reliability, external validity and factor structure in the Spanish population. *Psicothema*, *20(4),* 839-843.

Luthar, S. S., & Zigler, E. (1991). Vulnerability and competence: a review of research on resilience in childhood. *American journal of Orthopsychiatry*, *61*(1), 6.

Lyons, L. C., & Woods, P. J. (1991). The efficacy of rational-emotive therapy: A quantitative review of the outcome research. Clinical Psychology Review, *11*, 357–369.

MacLaren, C., Doyle, K. A., & Di Giuseppe, R. (2016). *Rational Emotive Behaviour Therapy (REBT) Theory and Practice.* New York: Sage Publications.

Maier, S. F. (2001). Exposure to the stressor environment prevents the temporal dissipation of behavioural depression/learned helplessness. *Biological psychiatry*, *49*(9), 763-773.

Mak, W. W. S., Ng, I. S. W., & Wong, C. C. Y. (2011). Resilience: Enhancing well-being through the positive cognitive triad. *Journal of Counselling Psychology, 58*, 610–617.

Mäkikangas, A., Hyvönen, K., Leskinen, E., Kinnunen, U., & Feldt, T. (2011). A person-centred approach to investigate the development trajectories of job-related affective well-being: A 10-year follow-up study. *Journal of Occupational and Organizational Psychology*, *84*(2), 327-346.

Mäkikangas, A., Feldt, T., Kinnunen, U., & Tolvanen, A. (2012). Do low burnout and high work engagement always go hand in hand? Investigation of the energy and

identification dimensions in longitudinal data. *Anxiety, Stress & Coping*, *25* (1), 93-116.

Masten, A. S., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and psychopathology*, *2*(04), 425-444.

Mather, M., & Carstensen, L. L. (2005). Aging and motivated cognition: The positivity effect in attention and memory. *Trends in cognitive sciences, 9(10),* 496-502.

New Freedom Commission on Mental Health (2003). Achieving the promise: transforming mental health care in America. http://www.mentalhealthcommission.gov/reports/FinalReport/FullReport.htm.

Neenan, M., & Dryden, W. (2000). *Essential rational emotive behaviour therapy*. London: Whurr.

Ng, R., Ang, R., & Ho, M. (2012). Coping with Anxiety, Depression, Anger and Aggression: The Mediational Role of Resilience in Adolescents. *Child & Youth Care Forum*, *41*(6), 529-546.

Noonan, V., & Chan, C. (2013, February 1). Satisfaction with Life Scale Psychometric Properties. Retrieved from http://www.scireproject.com/sites/default/files/clin_sum_swls.pdf

Padesky, C. A., & Beck. A. T. (2003). Science and philosophy: comparison of cognitive therapy and rational emotive behaviour therapy. *Journal of Cognitive Psychotherapy 17,* 211–224.

Panayiotou, G., & Karekla, M. (2013). Perceived social support helps, but does not buffer the negative impact of anxiety disorders on quality of life and perceived stress. *Social psychiatry and psychiatric epidemiology*, *48*(2), 283-294.

Phelan, S. E., & Lin, Z. (2001). Promotion systems and organizational performance: A contingency model. *Computational & Mathematical Organization Theory*, *7*(3), 207-232.

Pietrzak, R. H., Johnson, D. C., Goldstein, M. B., Malley, J. C., & Southwick, S. M. (2009). Psychological resilience and post deployment social support protect against traumatic stress and depressive symptoms in soldiers returning from Operations Enduring Freedom and Iraqi Freedom. *Depression and anxiety*, *26(8),* 745-751.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, *57,* 316–331.

Sattler, D. N., Boyd, B., & Kirsch, J. (2014). Trauma-exposed Firefighters: Relationships among Posttraumatic Growth, Posttraumatic Stress, Resource Availability, Coping and Critical Incident Stress Debriefing Experience. *Stress &*

Health: Journal of the International Society for the Investigation of Stress, *30*(5), 356-365.

Sattler, D. N., Assanangkornchai, S., Moller, A. M., Kesavatana-Dohrs, W., & Graham, J. M. (2014). Indian Ocean Tsunami: Relationships among posttraumatic stress, posttraumatic growth, resource loss, and coping at three and fifteen months. *Journal of Trauma and Dissociation, 15*, 219–239.

Secker, J. (1998). Current conceptualizations of mental health and mental health promotion. *Health Education Research*, *13(1),* 57-66.

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioural medicine*, *15*(3), 194-200.

Smith, M. L., & Glass, G. V. (1977). Meta-analysis of psychotherapy outcome studies. American Psychologist, *32*, 752–760.

Szentagotai, A., David, D., Lupu, V., & Cosman, D. (2008). Rational emotive behaviour therapy versus cognitive therapy versus pharmacotherapy in the treatment of major depressive disorder: Mechanisms of change analysis. *Psychotherapy: Theory, Research, Practice, Training*, 45(4), 523.

Tabachnick, B. G., & Fidell, L. S. (2007). *Experimental designs using ANOVA*. Thomson/Brooks/Cole.

Terjesen, M.D., Salhany, J., & Sciutto, M.J. (2009). A Psychometric Review of Measures of Irrational Beliefs: Implications for Psychotherapy. *Journal of Rational-Emotive Cognitive-Behaviour Therapy, 27,* 83–96.

Thompson, C. A., & Prottas, D. J. 2006. Relationships among organizational family support, job autonomy, perceived control, and employee well-being. *Journal of Occupational Health Psychology, 11*, 100-118.

Tugade, M. M., Fredrickson, B. L., & Feldman Barrett, L. (2004). Psychological resilience and positive emotional granularity: Examining the benefits of positive emotions on coping and health. Journal of personality, 72(6), 1161-1190.

Vieweg, W. V. R., Julius, D. A., Fernandez, A., Beatty-Brooks, M., Hettema, J. M., & Pandurangi, A. K. (2006). Posttraumatic stress disorder: clinical features, pathophysiology, and treatment. *The American Journal of Medicine*, *119*(5), 383-390.

Virick, M., Lilly, J. D., & Casper, W. J. 2007. Doing more with less: An analysis of work life balance among layoff survivors. *Career Development International, 12:* 463-480.

Wagner, D., Heinrichs, M., & Ehlert, U. (1999). Prevalence of symptoms of posttraumatic stress disorder in German professional firefighters. *Occupational Health and Industrial Medicine*, *2(40),* 66.

Wolin, S. J., & Wolin, S. (1993*). Bound and determined: Growing up resilient in a troubled family.* New York: Villard.

World Health Organization. (2001). *The World Health Report 2001: Mental health: new understanding, new hope*. World Health Organization.

World Health Organisation. (2003). *Mental Health in the WHO European Region. Fact Sheet EURO/03/03.* Geneva: World Health Organisation.

Xie, J. L. (1996). Karasek's model in the People's Republic of China: Effects of job demands, control, and individual differences. *Academy of Management Journal, 39:* 1594-1618.

Yu, X., & Zhang, J. (2007). Factor analysis and psychometric evaluation of the Connor–Davidson Resilience Scale (CD-RISC) in Chinese people. *Social Behaviour and Personality, 35,* 19–30.

Appendices

Appendix A: Information and Consent Form

Information sheet and Consent form for participation in an undergraduate psychology research study.

You are invited to partake in a research study that will form the basis for an undergraduate thesis. Please read the following information before deciding whether to participate.

What are the objectives of the study? Due to the necessity to ensure individuals are in no way biased in answering questions related to the present study, details related to objectives and hypotheses must be kept confidential**.** A complete debriefing will be offered after participation, where any questions will be answered.

Why have I been asked to participate? Due to the nature of the occupation of the participants involved in the study, it is the expectation of the current research that data collected during this study could benefit future recommendations relating to the mental health of emergency response personal on a global scale.

What does participation involve? Participation in the following study will require participants to complete various self-report questionnaires, which will then be utilised to assist the researcher in gaining valuable data related to the hypotheses outlined in the current study.

Right to withdraw Participants have the right to withdraw from the study at any stage without the need for explanation. Participants also hold the right to request at any time to have their data removed from record.

Benefits from participation? No direct advantage from involvement in studies like are applicable, however data collected will contribution to our understanding of improving mental health. As such, the findings from this study may be presented at national and international conferences and will be submitted for publication in peer-reviewed papers. Interim and final reports will be prepared. However, no individual participant will be identified in any publication or presentation and the pictures used will not be presented. Individuals will not be offered any monetary or other rewards for their participation.

Are there any risks involved in participation? The researcher has actively safeguarded against placing the participants in any unnecessary harm or risk. Briefing all participants of the nature and procedures of the study was implemented to eradicate the involvement of vulnerable groups.

Confidentiality The researcher has employed strict procedures to ensure data related to all participants will remain confidential and erased using appropriate standard techniques.
Firstly, all consent forms and self-report measurements will be packaged and posted in separate envelops to eradicate any public access to data. Secondly, all data collected will be coded so that all identifying information will be replaced by a combination of letters and numbers in the SPSS analysis program.

Contact Details
If you have any further questions about the research, you can contact the researcher: gartreacy7@yahoo.ie

Researcher: Gary Treacy
Supervisor: Philip Hyland

Consent Form

I have read and understood the attached Information leaflet regarding this study. I have had the opportunity to ask questions and discuss the study with the researcher and I have received satisfactory answers to all my questions.

I understand that I am free to withdraw from the study at any time without giving a reason and without this affecting my integrity.

By ticking the checkbox below, I acknowledge that I have read and agree to this Consent Form.

☐ (**please tick box**) I agree to take part in the study.

Appendix B: Demographics Questionnaire

1. **Age**: **_______**

2**. Gender**: Male**_______** Female**_______**

3. **Marital Status**: Single**_____** Married**______** Divorced**______** Widower**_____**

3. **Number of years working in Dublin Fire Brigade**: **_________**

4. **Would you say that you regularly experience difficult or stressful events as part of your duties within the fire brigade? :** Yes**_______** No**_______**

Appendix C: Satisfaction with Life Questionnaire

DIRECTIONS: Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number in the line preceding that item. Please be open and honest in your responding.

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

______1. In most ways, my life is close to my ideal.

______2. The conditions of my life are excellent.

______3. I am satisfied with life.

______4. So far, I have gotten the important things I want in life.

______5. If I could live my life over, I would change almost nothing.

Appendix D: Attitudes and Beliefs Questionnaire: Abbreviated Version

For each item, please indicate whether you;

A	B	C	D	E
STRONGLY DISAGREE	**SOMEWHAT DISAGREE**	**NEUTRAL**	**SOMEWHAT AGREE**	**STRONGLY AGREE**

1.	Its unbearable being uncomfortable, tense or nervous and I can't stand it when I am.	**A B C D E**
2.	If important people dislike me, it is because I am an unlikable bad person.	**A B C D E**
3.	It's unbearable to fail at important things, and I can't stand not succeeding at them.	**A B C D E**
4.	It is unfortunate when I am frustrated by hassles in my life, but I realize it's only disappointing and not awful to experience hassles.	**A B C D E**
5.	I must do well at important things, and I will not accept it if I do not do well.	**A B C D E**
6.	I do not like to be uncomfortable, tense or nervous, but I can tolerate being tense.	**A B C D E**
7.	When life is hard and I feel uncomfortable, I realize it is not awful to feel uncomfortable or tense, only unfortunate and I can keep going.	**A B C D E**
8.	I can't stand being tense or nervous and I think tension is unbearable.	**A B C D E**
9.	If I do not perform well at tasks that are very important to me, it is because I am a worthless bad person.	**A B C D E**
10.	I do not want to fail at important tasks but I realize that I do not have to perform well just because I want to.	**A B C D E**
11.	It's awful to be disliked by people who are important to me, and it is a catastrophe if they don't like me.	**A B C D E**

12.	It's essential to do well at important jobs; so I must do well at these things.	**A**	**B**	**C**	**D**	**E**
13.	Sometimes I think the hassles and frustrations of everyday life are awful and the worst part of my life.	**A**	**B**	**C**	**D**	**E**
14.	I want to perform well at some things, but I do not have to do well just because I want to.	**A**	**B**	**C**	**D**	**E**
15.	It's bad to be disliked by certain people, but I realize it is only unfortunate to be disliked by them.	**A**	**B**	**C**	**D**	**E**
16.	I get distressed if I'm not doing well at important tasks, but I can stand the distress of failing at important tasks.	**A**	**B**	**C**	**D**	**E**
17.	I want to do well at important tasks, but I realize that I don't have to do well at these important tasks just because I want to.	**A**	**B**	**C**	**D**	**E**
18.	It's only frustrating not doing well at some tasks, but I know I can stand the frustration of performing less than well.	**A**	**B**	**C**	**D**	**E**
19.	When people I like reject me or dislike me, it is because I am a bad or worthless person.	**A**	**B**	**C**	**D**	**E**
20.	When people whom I want to like me disapprove of me, I know I am still a worthwhile person.	**A**	**B**	**C**	**D**	**E**
21.	Even when my life is tough and difficult, I realize that I am a person who is just as good as anyone else even though I have hassles.	**A**	**B**	**C**	**D**	**E**
22.	I must be successful at things that I believe are important, and I will not accept anything less than success.	**A**	**B**	**C**	**D**	**E**
23.	If loved ones or friends reject me, it is not only bad, but the worst possible thing that could happen to me.	**A**	**B**	**C**	**D**	**E**
24.	When my life becomes uncomfortable, I realize that I am still a good person even though I am uncomfortable.	**A**	**B**	**C**	**D**	**E**

Appendix E: General Health Questionnaire

Please read the questions below and each of the four possible answers. Circle the response that best applies to you. Thank you for answering all the questions.

Have you recently:

1. been able to concentrate on what you're doing?

better than usual	same as usual	less than usual	much less than usual
(0)	(1)	(2)	(3)

2. lost much sleep over worry?

Not at all	no more than usual	rather more than usual	much more than usual
(0)	(1)	(2)	(3)

3. felt that you are playing a useful part in things?

more so than usual	same as usual	less so than usual	much less than usual
(0)	(1)	(2)	(3)

4. felt capable of making decisions about things?

more so than usual	same as usual	less than usual	much less than usual
(0)	(1)	(2)	(3)

5. felt constantly under strain?

Not at all	no more than usual	rather more than usual	much more than usual
(0)	(1)	(2)	(3)

6. felt you couldn't overcome your difficulties?

Not at all	no more than usual	rather more than usual	much more than usual
(0)	(1)	(2)	(3)

7. been able to enjoy your normal day to day activities?

more so than usual	same as usual	less so than usual	much less than usual
(0)	(1)	(2)	(3)

8. been able to face up to your problems?

more so than usual	same as usual	less than usual	much less than usual
(0)	(1)	(2)	(3)

9. been feeling unhappy or depressed?

not at all	no more than usual	rather more than usual	much more than usual
(0)	(1)	(2)	(3)

10. been losing confidence in yourself?

not at all	no more than usual	rather more than usual	much more than usual
(0)	(1)	(2)	(3)

11. been thinking of yourself as a worthless person?

not at all	no more than usual	rather more than usual	much more than usual
(0)	(1)	(2)	(3)

12. been feeling reasonably happy, all things considered?

more so than usual	same as usual	less so than usual	much less than usual
(0)	(1)	(2)	(3)

Appendix F: Brief Resilience Questionnaire

Please indicate the extent to which you agree with each of the following statements by using the following scale:

1= strongly disagree

2= disagree

3= neutral

4=agree

5= strongly agree

____________1. I tend to bounce back quickly after hard times.

____________2. I have a hard time making it through stressful events

____________3. It does not take me long to recover from a stressful event

____________4. It is hard for me to snap back when something bad happens

____________5. I usually come through difficult times with little trouble

____________6. I tend to take a long time to get over set-backs in my life