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“PSYCHOLOGICAL FALLOUT”: THE EFFECTS OF NUCLEAR RADIATION EXPOSURE

A thesis presented in partial fulfilment of the requirements for the degree of Doctor of Clinical Psychology at Massey University

REBEKAH LEIGH JOURDAIN

2009
NO ORDINARY SUN

Tree let your arms fall:
raise them not sharply in supplication
to the bright enbalmed cloud.
Let your arms lack toughness and
resilience for this is no mere axe
to blunt, nor fire to smother.

Your sap shall not rise again
to the moon’s pull.
No more incline a deferential head
to the wind’s talk, or stir
to the tickle of coursing rain.

Your former shagginess shall not be
wreathed with the delightful flight
of birds nor shield
nor cool the ardour of unheeding
lovers from the monstrous sun.

Tree let your naked arms fall
nor extend vain entreaties to the radiant ball.
This is no gallant monsoon’s flash,
no dashing trade wind’s blast.
The fading green of your magic
emanations shall not make pure again
these polluted skies . . . for this
is no ordinary sun.

O tree
in the shadowless mountains
the white plains and
the drab sea floor
your end at last is written.

- Hone Tuwhare (1964)
The present research includes two studies. Study I was based on the research finding that exposure to nuclear radiation and other toxic chemicals results in those who were exposed not only believing their health to be affected, but experiencing significant and chronic stress. It was hypothesised that ongoing stress for New Zealand’s nuclear test veterans resulting from the inability to adapt to their past nuclear exposure would result in them experiencing greater depressive symptomatology, poorer perceived health, and poorer perceived memory performance than a control group.

Psychological profiles of 50 nuclear test veterans and 50 age-matched Control participants were obtained through postal survey and face-to-face interview, using the Geriatric Depression Scale, Medical Outcomes Study Short Form-36, and the Memory Assessment Clinics Self-Rating Scale. As predicted, the nuclear veterans exhibited more depressive symptoms, and perceived their health and memory performance to be poorer than the Control group. A stress theory framework is applied to help conceptualise the experience of the nuclear veterans, and to provide an explanation for their lower scores and consequent poorer functioning.

Through the pathway of poor perceived health leading to anxiety, health anxiety was considered a form of chronic stress the nuclear veterans were experiencing. Consequently, Study II aimed to examine whether Acceptance and Commitment Therapy (ACT) could be usefully applied to relieve this anxiety. Most psychotherapeutic approaches have been developed for problems that have an "irrational" or "pathological" foundation. However, these approaches often fit poorly with psychological distress that stems from cognitions that are reality-based and may need to be accepted rather than changed, such as in the case of nuclear exposure-related health anxiety. ACT may be particularly useful in these situations in which cognitive change is not warranted.

Study II examined the use of ACT with 5 NZ nuclear test veterans (of either Māori or Pākehā descent) experiencing moderate to high levels of health anxiety. Results of self-report measures administered at baseline, during treatment, post-treatment, and at 6-week follow-up indicated varying results amongst these men. One participant showed clinically significant post-treatment reductions in health anxiety, experiential avoidance, and general psychological distress that were maintained at follow-up. Two participants showed clinically significant post-
treatment reductions in health anxiety, experiential avoidance, and distress, despite not engaging in therapy as they did not wish to make changes. For the same reason, a fourth participant chose not to engage in therapy, despite high baseline scores on all measures, and showed no improvement during or after therapy. The fifth participant had low baseline scores on all measures, maintaining these throughout therapy, and at follow-up. Results are explained in terms of cohort and gender effects, with suggestions for adapting ACT with NZ older adults, particularly males. Implications for the utility of ACT with toxic exposure populations, older adults, and various cultures are discussed.
ACKNOWLEDGEMENTS

There are many people I would like to gratefully acknowledge who contributed to the completion of this thesis.

Firstly, I express very grateful thanks to my primary supervisor, Associate Professor John Podd. I am so appreciative of all his excellent direction, support, and advocacy over the years, not to mention his prompt and thorough reading of my wordy drafts! John’s prioritising of student needs, and generosity with his time always impressed me. I consider myself very privileged to have had him as a supervisor, and know his other thesis students share this feeling.

Thanks also to my clinical supervisor, Assistant Professor and Senior Clinical Psychologist Patrick Dulin. I am so grateful for his input in the form of direction, clinical supervision, and feedback on my drafts, especially from across the other side of the world! I particularly appreciated his encouragement; his positive and constructive feedback was always timely, and helped me to keep believing I could do this, particularly in writing for publication. I hold him in high esteem as a senior colleague.

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Thank-you also to Dr Judy Blakey, who collected all of the data for Study I of this project as part of the “New Zealand Nuclear Test Veterans: A Pilot Study [Psychological Impact].” It was a privilege to work alongside her as a Research Assistant, and to learn from her knowledge and experience. I feel greatly indebted to her for her time, patience, generosity, and ideas.

I gratefully acknowledge the help of New Zealand Nuclear Test Veterans Association (NZNTVA) chairman Roy Sefton for his unwavering support of this research and patience with the time it
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Most importantly, I would like to thank the participants in this study who generously gave of their time and personal information to benefit others, particularly future generations. (Thank-you also to those who subsequently decided they no longer wished to be involved.) To Tane, Anaru, Fred, Kingi, and Ray - I learned so much from you all. Thank-you for sharing your personal experiences and reflections with me. It was a pleasure to meet you and be involved in your lives for a short time.

I would like to acknowledge the financial support of the Peace and Disarmament Education Trust (PADET) in the final year of this project. It is hoped this thesis will encourage the consideration of more peaceful approaches to conflict.

Finally, it is hard to express my gratitude to my wonderful family (especially my patient and generous parents), and friends for all their unending love, encouragement, and support throughout this process. Thank-you for your understanding when I have been periodically absent from your lives. I look forward to being more “present” in both mind and body! PJS – You have been amazing, thank-you for everything.
# TABLE OF CONTENTS

“No Ordinary Sun” – A poem by Hone Tuwhare ................................................................................ iii
Abstract .................................................................................................................................................. v
Acknowledgements .......................................................................................................................... vii
Table of Contents ............................................................................................................................... ix
List of Tables ......................................................................................................................................... xvii
List of Figures ......................................................................................................................................... xix

Preface ..................................................................................................................................................... xxi

**STUDY I:**

**THE CHRONIC STRESS EXPERIENCE RESULTING FROM NUCLEAR RADIATION EXPOSURE.** 1

**CHAPTER ONE: TOXIC EXPOSURE – NUCLEAR RADIATION** .......................................................... 3

Toxic Exposure ......................................................................................................................................... 3
  *Ionising (or Nuclear) Radiation* ......................................................................................................... 3

Nuclear Weapons Testing ......................................................................................................................... 5
  *United States Testing* .......................................................................................................................... 5
  *Australia and New Zealand’s Involvement (British Testing)* ............................................................. 6
  *Operation Grapple* ............................................................................................................................... 6
    *The operation* ..................................................................................................................................... 6
    *Health concerns* ................................................................................................................................. 7
    *New Zealand nuclear test veteran research* ...................................................................................... 8

**CHAPTER TWO: PSYCHOLOGICAL EFFECTS OF NUCLEAR RADIATION EXPOSURE** ............. 9

Nuclear Exposure – A Review of the Literature ..................................................................................... 9
  *Nuclear Weapons Testing* ................................................................................................................ 9
  *Nuclear Warfare* ............................................................................................................................... 10
  *Nuclear Accidents* ............................................................................................................................ 12

The Common Experience ....................................................................................................................... 18
  *Invisibility and Ambiguity* ................................................................................................................. 18
  *Uncertainty* ....................................................................................................................................... 19

**CHAPTER THREE: STRESS** ............................................................................................................. 21

Introduction to Stress ............................................................................................................................ 21
  *Defining Stress* ................................................................................................................................. 21
  *General Adaptation Syndrome* ........................................................................................................ 21
  *A Modern View of Stress – Psychoneuroimmunology* .................................................................. 22


The Psychobiology of Stress .................................................................................................................. 23
  The Hypothalamic-Pituitary-Adrenal (HPA) Axis Response .......................................................... 24
  Stress and the Immune System ........................................................................................................ 25

Chronic Stress and Mental Health ....................................................................................................... 26
  Post-traumatic Stress Disorder in the Nuclear Veterans ................................................................. 27

A Psychological Model of Stress – The Stress and Coping Paradigm ........................................... 29

The Present Study ................................................................................................................................ 31

CHAPTER FOUR: STUDY I METHOD .................................................................................................... 33

 Participants ........................................................................................................................................... 33
  Exposed group ................................................................................................................................. 33
  Control group .................................................................................................................................. 33
 Primary Measures ............................................................................................................................. 34
  Modified Mini-Mental State Examination ..................................................................................... 34
  Geriatric Depression Scale ............................................................................................................... 35
  SF-36 Health Survey .......................................................................................................................... 36
  Memory Assessment Clinics Self-Rating Scale ............................................................................... 36
 Covariate Measures .......................................................................................................................... 37
  Age .................................................................................................................................................... 37
  Education ......................................................................................................................................... 38
  Living situation ................................................................................................................................. 38
  Income ............................................................................................................................................. 38
  Alcohol consumption ........................................................................................................................ 39
  Smoking ........................................................................................................................................... 39
  Trauma ............................................................................................................................................ 40
 Procedure ........................................................................................................................................... 40
  Selection .......................................................................................................................................... 40
  Data collection ................................................................................................................................. 43
 Analysis ................................................................................................................................................ 44

CHAPTER FIVE: STUDY I RESULTS ....................................................................................................... 45

 Participant Demographic Information .............................................................................................. 45
 Preliminary Analysis ............................................................................................................................ 45
 Screening Tool ..................................................................................................................................... 46
  Modified Mini-Mental State Examination (3MS) ............................................................................ 46

 Dependent Measures .......................................................................................................................... 46
  Geriatric Depression Scale (GDS) ...................................................................................................... 46
  SF-36 Health Survey (SF-36) .............................................................................................................. 47
  Memory Assessment Clinics Self-Rating Scale (MAC-S) ................................................................. 49
### Preliminary Analysis of Covariates

- Living situation ................................................................. 52
- Age ..................................................................................... 52
- Education ........................................................................... 53
- Income ................................................................................ 54
- Alcohol consumption .......................................................... 54
- Smoking ............................................................................. 54
- Trauma ................................................................................ 54

### Analyses of Covariance

- GDS .................................................................................. 55
- SF-36 .................................................................................. 56
- MAC-S ................................................................................ 57

### CHAPTER SIX: STUDY I DISCUSSION AND CONCLUSIONS

- Depressive Symptoms ............................................................ 59
- Perceived Health ................................................................. 61
- Perceived Memory ............................................................... 62

#### Theoretical Interpretation

- Psychological Mechanisms .................................................... 63
  - Primary and secondary appraisal ........................................ 63
  - Adaptation and hypervigilance ........................................... 64
  - Radiation Response Syndrome ........................................... 65
- Other Aspects of Chronic Stress ............................................ 66

#### Limitations

- Procedural Issues .................................................................. 67
- Design Faults ........................................................................ 68

#### Implications

- Conclusions .......................................................................... 70

#### STUDY II: ACCEPTANCE AND COMMITMENT THERAPY FOR NUCLEAR EXPOSURE-RELATED HEALTH ANXIETY

#### CHAPTER SEVEN: FROM CHRONIC STRESS TO HEALTH ANXIETY

- Introduction .......................................................................... 75
  - The Nature of the Stress in the Nuclear Exposure Literature 75
  - Chronic Stress Leading to Altered Perception: Poorer Perceived Health 76
  - Poor Perceived Health Leading to Anxiety .......................... 76
  - Anxiety and Health Preoccupation in Nuclear Exposure Populations 78
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Anxiety</td>
<td>79</td>
</tr>
<tr>
<td>Description</td>
<td>79</td>
</tr>
<tr>
<td>Classification</td>
<td>80</td>
</tr>
<tr>
<td>Health Anxiety in Older Adults</td>
<td>80</td>
</tr>
<tr>
<td>Health Anxiety in the Nuclear Test Veterans</td>
<td>81</td>
</tr>
<tr>
<td>Cognitive Behavioural Theory of Health Anxiety</td>
<td>82</td>
</tr>
<tr>
<td>The cognitive model of health anxiety</td>
<td>83</td>
</tr>
<tr>
<td>Treatment for Health Anxiety</td>
<td>85</td>
</tr>
<tr>
<td>Issues with a CBT Approach to Health Anxiety in the Nuclear Test Veterans</td>
<td>86</td>
</tr>
<tr>
<td>Changing “dysfunctional” beliefs</td>
<td>86</td>
</tr>
<tr>
<td>Perpetuating the “control agenda”</td>
<td>87</td>
</tr>
<tr>
<td>CHAPTER EIGHT: THE “ACT” APPROACH</td>
<td>89</td>
</tr>
<tr>
<td>The Theoretical Basis of Acceptance and Commitment Therapy</td>
<td>89</td>
</tr>
<tr>
<td>The “Third Wave”</td>
<td>89</td>
</tr>
<tr>
<td>A Contextual Approach</td>
<td>90</td>
</tr>
<tr>
<td>Language – A Cause of Human Suffering</td>
<td>90</td>
</tr>
<tr>
<td>Cognitive Fusion</td>
<td>92</td>
</tr>
<tr>
<td>Experiential Avoidance</td>
<td>93</td>
</tr>
<tr>
<td>Unclear Values and Unworkable Action</td>
<td>94</td>
</tr>
<tr>
<td>The ACT Conceptualisation of Anxiety Disorders</td>
<td>94</td>
</tr>
<tr>
<td>The ACT Approach to Psychotherapy</td>
<td>95</td>
</tr>
<tr>
<td>Cognitive Defusion</td>
<td>95</td>
</tr>
<tr>
<td>Acceptance</td>
<td>96</td>
</tr>
<tr>
<td>Mindfulness</td>
<td>97</td>
</tr>
<tr>
<td>Values and Committed Action</td>
<td>97</td>
</tr>
<tr>
<td>Summary – ACT in a Nutshell</td>
<td>98</td>
</tr>
<tr>
<td>ACT and the Nuclear Test Veterans</td>
<td>98</td>
</tr>
<tr>
<td>Why Use ACT?</td>
<td>98</td>
</tr>
<tr>
<td>ACT for Older Adults</td>
<td>99</td>
</tr>
<tr>
<td>ACT for Māori</td>
<td>101</td>
</tr>
<tr>
<td>An ACT Conceptualisation of Health Anxiety in the Nuclear Veterans</td>
<td>102</td>
</tr>
<tr>
<td>The ACT Approach to Health Anxiety in the Nuclear Veterans</td>
<td>103</td>
</tr>
<tr>
<td>CHAPTER NINE: ACT – EVALUATING THE LITERATURE</td>
<td>105</td>
</tr>
<tr>
<td>The General Efficacy of ACT</td>
<td>105</td>
</tr>
<tr>
<td>How Efficacious is ACT in the Treatment of Anxiety Disorders?</td>
<td>107</td>
</tr>
<tr>
<td>Comparing ACT with Other Treatments</td>
<td>107</td>
</tr>
<tr>
<td>No Comparison Group</td>
<td>112</td>
</tr>
<tr>
<td>Case Studies</td>
<td>114</td>
</tr>
</tbody>
</table>
General Summary .................................................................................................................. 117

The Present Study ................................................................................................................. 118

CHAPTER TEN: STUDY II METHOD .................................................................................. 121

Participants ........................................................................................................................... 121
Criteria .................................................................................................................................. 121
Measures ................................................................................................................................ 122

The Health Anxiety Questionnaire ...................................................................................... 122
The Acceptance and Action Questionnaire, Second Edition .............................................. 122
The Depression Anxiety Stress Scales .................................................................................. 123
The Positive and Negative Affect Schedule ......................................................................... 125
The Liverpool Stoicism Scale ............................................................................................... 126
Research Design .................................................................................................................... 126
Therapist ................................................................................................................................ 127
Setting ................................................................................................................................... 127
Procedure ............................................................................................................................... 128
Assessment Process .............................................................................................................. 128
Treatment .............................................................................................................................. 129
Ethical Considerations .......................................................................................................... 129

Working with Māori in psychological research and practise ............................................. 131
Potential harm to participants ............................................................................................. 133
Confidentiality ....................................................................................................................... 134

Data Analysis ......................................................................................................................... 134

CHAPTER ELEVEN: STUDY II RESULTS ......................................................................... 135

Participant Characteristics .................................................................................................... 135

Case 1: Tane – “Give It Space” ............................................................................................ 136

Case 2: Anaru – “Rise To The Challenge” ........................................................................... 144

Case 3: Fred – “Do Something About It” ............................................................................ 153

Case 4: Kingi – “I Face My Fears” ....................................................................................... 160

Case 5: Ray – “Don’t Dwell On It” ..................................................................................... 169

CHAPTER TWELVE: STUDY II DISCUSSION AND THEORETICAL INTERPRETATION ............... 175

Summary of Results .............................................................................................................. 175

Support for Hypotheses ........................................................................................................ 176
Initial Level of Health Anxiety ................................................................................. 176
Reduced Experiential Avoidance ........................................................................... 178
Reduced Health Anxiety ......................................................................................... 180
Reduced Psychological Distress ............................................................................. 181

Theoretical Interpretation .......................................................................................... 182
Motivation .................................................................................................................. 183
Experiential Control .................................................................................................... 184
Emotional Awareness .................................................................................................. 185
Transference ............................................................................................................... 187
Developmental Factors - Resignation versus General Acceptance ...................... 187
Conclusion .................................................................................................................. 188

CHAPTER THIRTEEN: THE FIT OF TRADITIONAL ACT WITH NZ OLDER MALES ............ 189

Applying the Contextual, Cohort-Based, Maturity, Specific-Challenge Model ............ 189
Simplifying Language .................................................................................................. 190
Using Familiar Concepts ............................................................................................ 191
Making Meaning Transparent ..................................................................................... 192
Using Cohort-Relevant Metaphors ............................................................................ 193
Conclusion .................................................................................................................. 194

CHAPTER FOURTEEN: STUDY II LIMITATIONS, IMPLICATIONS, FUTURE DIRECTIONS, & OVERALL CONCLUSIONS ......................................................................................... 197

Limitations .................................................................................................................. 197
Design Faults ................................................................................................................ 197
Procedural Issues ........................................................................................................ 201

Implications and Future Directions ........................................................................... 201
Toxic Exposure Populations ....................................................................................... 201
Useful Processes .......................................................................................................... 203
Older Adults ................................................................................................................ 203
Culture .......................................................................................................................... 204
Specific Client Variables ............................................................................................. 205
The Importance of Tailoring ACT Interventions ......................................................... 205

Conclusion .................................................................................................................. 206

General Conclusions ................................................................................................... 206

REFERENCES ............................................................................................................ 209
APPENDIX A: Study I Postal Survey
APPENDIX B: Study I Interview Measures
APPENDIX C: Items of Study I Measures with Subscales
APPENDIX D: Documents Used in Obtaining Research Participants for Study I
APPENDIX E: Documents Sent with Study I Postal Survey
APPENDIX F: Administrative Documents for Study II
APPENDIX G: Study II Measures
APPENDIX H: Operation Grapple Questions
APPENDIX I: Reliable Change Index Calculations
APPENDIX J: Study II Publication
LIST OF TABLES

CHAPTER TWO

Table 1: Nine Types of Uncertainty Nuclear Veterans Face ................................................... 20

CHAPTER FOUR

Table 2: Number and Mean Age of Exposed Volunteers, Potential Participants, and Selected Participants by Region ........................................................................................................ 41

Table 3: Number and Mean Age of Control Volunteers, Potential Participants, and Selected Participants by Region ........................................................................................................ 42

Table 4: Regional Make-up of Participant Pool for Exposed and Control Groups .......... 43

CHAPTER FIVE

Table 5: Means (M) and Standard Deviations (SD) for the 3MS ........................................... 46

Table 6: Means (M), Standard Deviations (SD), t-test Statistics, and Cohen’s d for the GDS ................................................................................................................................. 46

Table 7: Means (M) and Standard Deviations (SD) for the SF-36 Subscales and the Reported Health Transition Item ........................................................................................................ 48

Table 8: t-test Statistics, Cohen’s d Values, and Confidence Limits for the SF-36 Subscales 48

Table 9: Means (M) and Standard Deviations (SD) for the Factors of the MAC-S .............. 49

Table 10: Means (M) and Standard Deviations (SD) for the Global Memory Items of the MAC-S ................................................................................................................................................. 50

Table 11: t-test Statistics and Cohen’s d Values for the Factors of the MAC-S .................... 51

Table 12: Living Situation of Participants by Group ................................................................. 53

Table 13: Educational Make-up of the Exposed and Control Groups ................................. 53

Table 14: Unadjusted and Adjusted Means and Standard Errors for the GDS ................. 55

Table 15: Unadjusted and Adjusted Results for the Physical Functioning Subscale of the SF-36 ................................................................................................................................................. 56
Table 16: Unadjusted and Adjusted Results for the Mental Health Subscale of the SF-36 .......................... 57
Table 17: Unadjusted and Adjusted Results for the MAC-S Ability Scale ..................................................... 58
Table 18: Unadjusted and Adjusted Results for the MAC-S Frequency of Occurrence Scale ...................... 58

CHAPTER TEN
Table 19: DASS Severity Ratings (Lovibond & Lovibond, 1995, p. 26) ......................................................... 124
Table 20: Structure of ACT Programme ....................................................................................................... 130

CHAPTER ELEVEN
Table 21: Participant Demographic Information ......................................................................................... 135
Table 22: Tane’s Baseline Results for Each Measure .................................................................................. 138
Table 23: Tane’s Post-Treatment and Follow-Up Results for Each Measure .............................................. 142
Table 24: Tane’s Reliable Change Indices for Each Measure ........................................................................ 144
Table 25: Anaru’s Baseline Results for Each Measure .................................................................................. 147
Table 26: Anaru’s Post-Treatment and Follow-Up Results for Each Measure ............................................ 151
Table 27: Anaru’s Reliable Change Indices for Each Measure ....................................................................... 153
Table 28: Fred’s Baseline Results for Each Measure .................................................................................... 155
Table 29: Fred’s Post-Treatment and Follow-Up Results for Each Measure ................................................ 158
Table 30: Fred’s Reliable Change Indices for Each Measure ......................................................................... 158
Table 31: Kingi’s Baseline Results for Each Measure ................................................................................... 163
Table 32: Kingi’s Post-Treatment and Follow-Up Results for Each Measure .............................................. 167
Table 33: Kingi’s Reliable Change Indices for Each Measure ......................................................................... 167
Table 34: Ray’s Baseline Results for Each Measure .................................................................................... 170
Table 35: Ray’s Post-Treatment and Follow-Up Results for Each Measure ................................................ 173
Table 36: Ray’s Reliable Change Indices for Each Measure ......................................................................... 173
LIST OF FIGURES

CHAPTER TWO

Figure 1: Psychosocial stress model of pathways linking Chernobyl stress to illness behaviour (van den Bout et al., 1995, p. 229) ................................................................. 14

CHAPTER THREE

Figure 2: Psychoneuroimmune pathways to disease (Cohen & Herbert, 1996, p. 118) .... 23

Figure 3: The HPA system, and feedback control of ACTH secretion (Green, 1987, p. 242) ................................................................. 25

CHAPTER SEVEN

Figure 4: The cognitive model of health anxiety (adapted by Wells, 1997, from Salkovksis, 1989, and Warwick & Salkovksis, 1990) ................................................................. 84

CHAPTER EIGHT

Figure 5: How language allows us to derive bidirectional relationships (with derivations indicated by dashed arrows; adapted from Hayes et al., 1999, p. 38) ......................... 91

CHAPTER ELEVEN

Figure 6: Tane’s HAQ, AAQ-II, and DASS scores at baseline, post-treatment, and 6-week follow-up, and weekly PANAS scores ................................................................. 143

Figure 7: Anaru’s HAQ, AAQ-II, and DASS scores at baseline, post-treatment, and 6-week follow-up, and weekly PANAS scores ................................................................. 152

Figure 8: Fred’s HAQ, AAQ-II, and DASS scores at baseline, post-treatment, and 6-week follow-up, and weekly PANAS scores ................................................................. 159

Figure 9: Kingi’s HAQ, AAQ-II, and DASS scores at baseline, post-treatment, and 6-week follow-up, and weekly PANAS scores ................................................................. 168

Figure 10: Ray’s HAQ, AAQ-II, and DASS scores at baseline, post-treatment, and 6-week follow-up, and weekly PANAS scores ................................................................. 174
PREFACE

Rather than being clearly explicated from the start, this thesis “Psychological Fallout: The Effects of Nuclear Radiation Exposure” has evolved over time. Study I was originally part of a larger study investigating both the genetic and psychological impact on New Zealand naval veterans of exposure to nuclear tests in the Operation Grapple testing programme. Researchers from the Institute of Molecular BioSciences and the School of Psychology at Massey University were commissioned in 2001 by the New Zealand Nuclear Test Veterans Association (NZNTVA) to perform the “New Zealand Nuclear Test Veterans’ Study: A Pilot Project” (Podd, Blakey, Jourdain, & Rowland, 2005). I was employed by Massey as a research assistant on this project for a period of about two years between 2001 and 2004. While I did not collect the data (the survey development and interviews were completed by J. A. Blakey), I spent many hours assisting with participant selection, co-ordinating and organising data collection, and completed all of the postal survey and interview coding.

By the end of 2003 I had been accepted into Massey’s Clinical Programme and needed a research topic for a Masters thesis in 2004. With the rich data set collected in the project I had been assisting with, and no-one available to analyse and write it up, I decided to undertake this as my project. As I was nearing completion of Study I in early 2005, the Clinical Programme, after years of discussion, brought in the new degree of Doctor of Clinical Psychology, incorporating both research and practicum components. After many discussions with and help from staff (particularly Dr Kevin Ronan), as well as Massey’s Graduate Research School, I was able to “upgrade” to the new programme. However, my research component was required to be twice the size of a Masters thesis, and to have a clinical component. Study I had more of a health psychology focus, my previous interest before I realised clinical psychology was my passion. Again the nuclear veteran research provided useful information, access to participants, and the opportunity to provide therapy for some of the men.

My own hypotheses regarding health anxiety in the nuclear veterans developed based on information from the NZNTVA chairman (R. Sefton), personal information provided by the veterans, and anecdotal reports from the project Research Officer (J. A. Blakey) during the

---

1 The term “psychologic fallout” was originally coined by Stiehm (1992).
2 It should be noted that because this study focused on psychological status, it was beyond the scope of the project to explicate the genetic and oncogenic effects of radiation exposure.
3 At this time, it was not required that those in the Clinical Programme complete a clinical thesis, due to the shortage of clinical staff available for research supervision.
process of the Pilot Study. Additionally, discussions with Patrick Dulin and Ian Evans, who both proposed ACT as a useful approach to this “presenting problem,” developed the concept for Study II. With the assistance and support of Mr Sefton, access to participants for this study was obtained.

The explanation of this process may help with understanding the apparent separateness of the two studies comprising this thesis. Indeed, when Study I was being completed, there was no conception that there would be a Study II, thus, important variables such as health anxiety were not measured.

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4 Any interested reader wishing to know more about the current status of the NZ nuclear test veterans’ efforts for service recognition and compensation may contact Roy Sefton at roy_sefton@clear.net.nz.