

Creative and physical adjunct activities for mental health benefits

Author:

Watt, Tavis

Publication Date:

2021

DOI:

<https://doi.org/10.26190/unsworks/3997>

License:

<https://creativecommons.org/licenses/by-nc-nd/3.0/au/>

Link to license to see what you are allowed to do with this resource.

Downloaded from <http://hdl.handle.net/1959.4/70906> in <https://unsworks.unsw.edu.au> on 2024-03-29



**Creative and Physical Adjunct Activities for Mental Health
Benefits**

Tavis Watt

**A thesis in fulfilment of the requirements for the degree of
Doctor of Philosophy**

School of Psychology

Faculty of Science

March 2021

Welcome to the Research Alumni Portal, Tavis Watt!

You will be able to download the finalised version of all thesis submissions that were processed in GRIS here.

Please ensure to include the **completed declaration** (from the Declarations tab), your **completed Inclusion of Publications Statement** (from the Inclusion of Publications Statement tab) in the final version of your thesis that you submit to the Library.

Information on how to submit the final copies of your thesis to the Library is available in the completion email sent to you by the GRS.

Thesis submission for the degree of Doctor of Philosophy

Thesis Title and Abstract**Declarations****Inclusion of Publications
Statement****Corrected Thesis and
Responses**

Thesis Title

Creative and Physical Adjunct Activities for Mental Health Benefits

Thesis Abstract

The aim of this dissertation was to determine the benefit and underlying mechanisms of artistic and physical activities when used as adjuncts to established clinical therapies. Using both categorical questions and standardised ratings, the mechanisms of behavioural activation, belonging, common factors, and flow states were measured in relation to perceived benefit and psychological distress. Six empirical studies used samples from the Australian Defence Force (ADF), a civilian art therapy program, and a population of university students. In the first three studies, participants from the ADF's Arts for Recovery, Resilience, Teamwork and Skills (ARRTS) Program reported on their experience in the program. The first study retrospectively surveyed former participants (N = 31) and found the perceived benefit and positive experience of mechanisms lasted up to 24 months. The second study (N = 92) surveyed participants during and after the program using standardised ratings. The ratings for all mechanisms plus reductions in psychological distress increased during the one-month program but thereafter largely disappeared within six months. The third study (N = 35) surveyed ADF respondents using categorical questions. Their responses confirmed the benefits and experience of the mechanisms. The fourth study (N = 20), using outpatients in an art therapy program, confirmed the benefit and experience of the mechanisms seen in the ADF studies. The fifth and sixth studies used a nonclinical sample of university students (N=394) to analyse the potential mediating role of the four mechanisms and their factor structure, respectively. In the fifth study, each mechanism individually mediated the relationship between higher levels of physical activity and lower levels of psychological distress. In an integrated model, the mechanisms of behavioural activation and belonging remained as significant mediators. In the sixth study, an exploratory factor analysis revealed that the four mechanisms were distinct. The results of the studies are discussed with respect to the role of the four mechanisms in delivering benefit to participants in adjunct activities.

Welcome to the Research Alumni Portal, Tavis Watt!

You will be able to download the finalised version of all thesis submissions that were processed in GRIS here.

Please ensure to include the **completed declaration** (from the Declarations tab), your **completed Inclusion of Publications Statement** (from the Inclusion of Publications Statement tab) in the final version of your thesis that you submit to the Library.

Information on how to submit the final copies of your thesis to the Library is available in the completion email sent to you by the GRS.

Thesis submission for the degree of Doctor of Philosophy

Thesis Title and Abstract

Declarations

Inclusion of Publications
Statement

Corrected Thesis and
Responses

ORIGINALITY STATEMENT

☒ I hereby declare that this submission is my own work and to the best of my knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been accepted for the award of any other degree or diploma at UNSW or any other educational institution, except where due acknowledgement is made in the thesis. Any contribution made to the research by others, with whom I have worked at UNSW or elsewhere, is explicitly acknowledged in the thesis. I also declare that the intellectual content of this thesis is the product of my own work, except to the extent that assistance from others in the project's design and conception or in style, presentation and linguistic expression is acknowledged.

COPYRIGHT STATEMENT

☒ I hereby grant the University of New South Wales or its agents a non-exclusive licence to archive and to make available (including to members of the public) my thesis or dissertation in whole or part in the University libraries in all forms of media, now or here after known. I acknowledge that I retain all intellectual property rights which subsist in my thesis or dissertation, such as copyright and patent rights, subject to applicable law. I also retain the right to use all or part of my thesis or dissertation in future works (such as articles or books).

For any substantial portions of copyright material used in this thesis, written permission for use has been obtained, or the copyright material is removed from the final public version of the thesis.

AUTHENTICITY STATEMENT

☒ I certify that the Library deposit digital copy is a direct equivalent of the final officially approved version of my thesis.



Welcome to the Research Alumni Portal, Tavis Watt!

You will be able to download the finalised version of all thesis submissions that were processed in GRIS here.

Please ensure to include the **completed declaration** (from the Declarations tab), your **completed Inclusion of Publications Statement** (from the Inclusion of Publications Statement tab) in the final version of your thesis that you submit to the Library.

Information on how to submit the final copies of your thesis to the Library is available in the completion email sent to you by the GRS.

Thesis submission for the degree of Doctor of Philosophy

Thesis Title and Abstract

Declarations

Inclusion of Publications
Statement

Corrected Thesis and
Responses

UNSW is supportive of candidates publishing their research results during their candidature as detailed in the UNSW Thesis Examination Procedure.

Publications can be used in the candidate's thesis in lieu of a Chapter provided:

- The candidate contributed **greater than 50%** of the content in the publication and are the "primary author", i.e. they were responsible primarily for the planning, execution and preparation of the work for publication.
- The candidate has obtained approval to include the publication in their thesis in lieu of a Chapter from their Supervisor and Postgraduate Coordinator.
- The publication is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in the thesis.

☒ The candidate has declared that **their thesis has publications - either published or submitted for publication - incorporated into it in lieu of a Chapter/s. Details of these publications are provided below..**

Publication Details #1

Full Title:	Adjunct activities for mental health improvement for veterans.
Authors:	Watt, T., & Kehoe, E.
Journal or Book Name:	Journal of Military and Veterans Health
Volume/Page Numbers:	28(2), 70-78.
Date Accepted/Published:	2020
Status:	published
The Candidate's Contribution to the Work:	Primary author
Location of the work in the thesis and/or how the work is incorporated in the thesis:	Chapters one and two are based on this review of the literature

Publication Details #2

Full Title:	Causes and duration of change resulting from art-based activities for members of the Australian Defence Force
Authors:	Watt, T., & Kehoe, E.
Journal or Book Name:	Journal of Military and Veterans Health
Volume/Page Numbers:	28(1), 7-15
Date Accepted/Published:	2020
Status:	published
The Candidate's Contribution to the Work:	First author
Location of the work in the thesis and/or how the work is incorporated in the thesis:	Chapter Three

Publication Details #3

Full Title:	Longitudinal change resulting from the ADF's Arts for Recovery, Resilience, Teamwork and Skills (ARRTS) Program.
Authors:	Watt, T., & Kehoe, E.
Journal or Book Name:	Journal of Military and Veterans Health

Volume/Page Numbers:**Date Accepted/Published:****Status:** accepted**The Candidate's Contribution to the Work:** First author**Location of the work in the thesis and/or how the work is incorporated in the thesis:** Chapter four

Publication Details #4

Full Title: General and specific benefits from the ADF ARRTS Program**Authors:** Watt, T., & Kehoe, E.**Journal or Book Name:** Journal of Military and Veterans Health**Volume/Page Numbers:****Date Accepted/Published:****Status:** accepted**The Candidate's Contribution to the Work:** First author**Location of the work in the thesis and/or how the work is incorporated in the thesis:** Chapter five

Publication Details #5

Full Title: Benefits observed in a psychiatric hospital outpatient art therapy group**Authors:** Watt, T., & Kehoe, E.**Journal or Book Name:** Australian and New Zealand Journal of Arts Therapy**Volume/Page Numbers:****Date Accepted/Published:****Status:** submitted**The Candidate's Contribution to the Work:** First author**Location of the work in the thesis and/or how the work is incorporated in the thesis:** Chapter six

Publication Details #6

Full Title: Toward a mediated model of sport in relation to psychological distress.**Authors:** Watt, T., & Kehoe, E.**Journal or Book Name:** Physical Activity Review**Volume/Page Numbers:****Date Accepted/Published:****Status:** accepted**The Candidate's Contribution to the Work:** First author**Location of the work in the thesis and/or how the work is incorporated in the thesis:** Chapter seven

Candidate's Declaration

I confirm that where I have used a publication in lieu of a chapter, the listed publication(s) above meet(s) the requirements to be included in the thesis. I also declare that I have complied with the Thesis Examination Procedure.

Abstract

The aim of this dissertation was to determine the benefit and underlying mechanisms of artistic and physical activities, when used as adjuncts to established clinical therapies. Using both categorical questions and standardised ratings, the mechanisms of behavioural activation, belonging, common factors, and flow states were measured in relation to perceived benefit and psychological distress. Six empirical studies used samples from the Australian Defence Force (ADF), a civilian art therapy program, and a population of university students. In the first three studies, participants from the ADF's Arts for Recovery, Resilience, Teamwork and Skills (ARRTS) Program reported on their experience in the program. The first study retrospectively surveyed former participants (N = 31) and found the perceived benefit and positive experience of mechanisms lasted up to 24 months. The second study (N = 92) surveyed participants during and after the program using standardised ratings. The ratings for all mechanisms plus reductions in psychological distress increased during the one-month program but thereafter largely disappeared within six months. The third study (N = 35) surveyed ADF respondents using categorical questions. Their responses confirmed the benefits and experience of the mechanisms. The fourth study (N = 20), using outpatients in an art therapy program, confirmed the benefit and experience of the mechanisms seen in the ADF studies. The fifth and sixth studies used a nonclinical sample of university students (N=394) to analyse the potential mediating role of the four mechanisms and their factor structure, respectively. In the fifth study, each mechanism individually mediated the relationship between higher levels of physical activity and lower levels of psychological distress. In an

integrated model, the mechanisms of behavioural activation and belonging remained as significant mediators. In the sixth study, an exploratory factor analysis revealed that the four mechanisms were distinct.

Studies one to three found reductions in anxiety and depressive symptoms, with all underlying mechanisms being experienced by respondents. Study four found the mechanisms were also experienced by art therapy participants. Study five determined that in the context of sport belonging and behavioural activation were the most prominent of the mechanisms. Study six developed a shorter preliminary questionnaire to measure the mechanisms potentially reducing participant burden. The results of the studies are discussed with respect to the role of the four mechanisms in delivering benefit to participants in adjunct activities.

Acknowledgements

I would like to gratefully acknowledge the various people, opportunities and organisations which have supported me over the past several years as I have worked on this thesis.

Firstly, I owe an enormous debt of enduring gratitude to my supervisor Professor Jim Kehoe, who has conjointly published this research. His generous mentoring, friendship and guidance through the research and writing processes has developed my research abilities over the past few years. Because of you Jim, I have been able to finish the thesis, learnt so much, and become a better person for it. I aspire to be as generous with my time as you have been.

Secondly, I sincerely thank my wife Bronwyn for her unwavering love and support, and Alannah and Archie who have lost their dad too many times to university studies. You have made this journey possible, and these words do not demonstrate what you have been through.

Thirdly, I wish to thank the University of New South Wales and the Australian Defence Force, especially those who have assisted with time and resources that enabled this work.

I especially wish to thank Brigadier Wayne Goodman, the head of the ADF ARRTS Program. His belief in creative approaches to recovery and rehabilitation has made this thesis possible. Last but not least, my heartfelt appreciation is extended to all the participants – especially those who undertook the ADF ARRTS Programs. Your willingness to respond to the questionnaires, especially during your own recovery is much appreciated.

Publications

The studies presented in this thesis have been submitted or appeared in the following publications:

Chapters 1 and 2 were informed by:

Watt, T., & Kehoe, E. (2020). Adjunct activities for mental health improvement for veterans. *Journal of Military and Veterans Health*, 28(2), 70-78.

Chapter 3

Watt, T. J., & Kehoe, E. J. (2020). Causes and duration of change resulting from art-based activities for members of the Australian Defence Force. *Journal of Military and Veterans Health*, 28(1), 7-15.

Chapter 4

Watt, T. J., & Kehoe, E. J. (in press). Longitudinal change resulting from the ADF's Arts for Recovery, Resilience, Teamwork and Skills (ARRTS) Program. *Journal of Military and Veterans Health*.

Chapter 5

Watt, T. J., & Kehoe, E. J. (in press). General and specific benefits from the ADF ARRTS Program. *Journal of Military and Veterans Health*.

Chapter 6

Watt, T. J., & Kehoe, E. J. (accepted subject to major change). Benefits observed in a psychiatric hospital outpatient art therapy group. *Australian and New Zealand Journal of Arts Therapy*.

Chapter 7

Watt, T. J., & Kehoe, E. J. (in press). Toward a mediated model of sport in relation to psychological distress. *Physical Activity Review*.

Table of Contents

Originality Statement	i
Copyright Statement	i
Authenticity Statement.....	ii
Abstract	iii
Acknowledgements	v
Publications	vi
Table of Contents	viii
Abbreviations	xvi
List of Tables	xviii
List of Figures	xix
Chapter 1 - Introduction.....	1
Adjunct Activities and their Rationale in a Therapeutic Context	2
Review of Empirical Effects of Adjunct Activities.....	5
Art-based Activities.....	7
Physical Activities.....	24
Animal Assisted Therapy	31
Limitations and Strengths of the Literature	35
Summary	36

Chapter 2 - Mechanisms Underlying Adjunct Activities	37
Behavioural Mechanism Effects on Mental Health	37
Defining Features	38
Empirical Evidence	39
Measuring Behavioural Activation	42
Belonginess Mechanism.....	43
Defining Features	44
Empirical Evidence	45
Measuring Belonging	49
Common Factors Mechanisms.....	51
Defining Features	51
Empirical Evidence	52
Measuring Common Factors	55
Flow State Mechanisms	55
Defining Features	56
Empirical Evidence	57
Measuring Flow	62
Summary of the Four Mechanisms	63
Evaluation Structure.....	63
K10 Outcome Measure	64
Research Aims: The Four Mechanisms.....	65
 Chapter 3 – Retrospective Perception of the Causes and Duration of	
Change Resulting from Art-Based Activities for Members of the Australian	
Defence Force	66

Introduction	66
Method	69
Materials.....	69
Procedure.....	70
Statistical Analyses	72
Results	72
Respondents	72
Positive, Negative and Null Effects	73
Duration of Positive Effects	75
Principal Components Analysis of Positive Effect Duration	77
Follow-up actions.....	77
Core Self-Evaluations	78
K10.....	78
Discussion	79
Limitations and future directions	81
Conclusion	83
 Chapter 4 - Longitudinal Change Resulting from the ADF's Arts for Recovery, Resilience, Teamwork and Skills (ARRTS) Program	 84
Introduction	84
Art and Mental Health.....	85
The Underlying Mechanisms	86
Research Questions	88
Method	89
Procedure.....	89

Measures	89
Statistical Analysis	92
Results	92
Respondents	92
Behavioural Activation for Depression (BADs)	94
Community Integration Measure (CIM)	94
Common Factors	95
Flow State	95
Core Self Evaluations (CSES)	96
Psychological Distress	96
Discussion	98
Main Findings	98
Relationship of Current Findings to Previous Research	98
Implications.....	100
Limitations and Future Directions	101
Conclusion	103
 Chapter 5 - General and Specific Benefits from the ADF ARRTS	
Program	104
Introduction	104
Method	105
Procedure and materials	105
Results	106
Respondents	106
Benefit of the program	107

Sustained benefit of program	108
Sustained engagement.....	108
Discussion	109
Benefit from ARRTS Program.....	109
Behavioural Change and Engagement	110
Conclusion	111
 Chapter 6 - Benefits Observed in a Psychiatric Outpatient Art	
Therapy Group.....	112
Introduction	112
Underlying Mechanisms	113
Behavioural Activation.....	114
Sense of Belonging	114
Flow States	115
Common Factors	115
Research Questions	116
Method	117
Program Design.....	117
Procedure and Questionnaire	119
Results	123
Overall Benefit.....	123
Mechanism Scores	124
Qualitative Themes	125
Discussion	126
Major Findings.....	126

Implications.....	127
Limitations and Future Directions	129
Conclusion	130
 Chapter 7 - Toward a Mediated Model of Physical Activity in Relation to Psychological Distress.....	 131
Introduction	131
Behavioural Activation.....	133
Belongingness	133
Common Factors	134
Flow States	134
Research Rationale and Research Questions	135
Method	137
Materials.....	138
Statistical analyses	140
Results	140
Respondents	140
Pairwise Correlations	141
Individual Variable Mediation Effects	141
Overall Mediation Model.....	143
Mediation Model for Depressive and Anxiety Symptoms.....	145
Discussion	145
Major Findings	145
Implications.....	147
Limitations and Future Directions	148

Conclusion	150
Chapter 8 – Factor Structure of Candidate Mechanisms	151
Introduction	151
Method	153
Procedure and materials	153
Statistical Analysis	155
Results	156
Respondents	156
Discussion	163
Major findings	163
Interpretation	164
Implications	166
Chapter 9 - Discussion	168
Relationship with Previous Findings	169
Arts-Based Activities	169
Physical Activity	170
Factor Structure	171
Limitations and Future Directions	172
Sample size and demographics	172
Measures of Mechanisms	174
Brief Measure for Adjunct Mechanisms	176
Mechanism and Outcome	176
Memory and recall	177

Ongoing Behavioural Change and Post Program Follow up	178
Conclusion	179
References	180

Abbreviations

AAT - Animal Assisted Therapy

ACHA - American College Health Association

ADF - Australian Defence Force

ADHD - Attention-Deficit/Hyperactivity Disorder

ADHREC - Australian Defence Human Research Ethics Committee

APA – American Psychological Association

ARRTS - Arts for Recovery, Resilience, Teamwork and Skills

BADS - Behavioural Activation for Depression Scale

BADS-SF - Behavioural Activation for Depression Scale – Short Form

CBT - Cognitive Behaviour Therapy

CBT-ART - Cognitive Behaviour Therapy and Art Therapy

CIM – Community Integration Measure

CPT - Cognitive Processing Therapy

CSES – Core Self-Evaluations Scale

CFQ – Common Factors Questionnaire

DBT - Dialectic Behavioural Therapy

DDVA-HREC - Departments of Defence and Veterans Affairs Human Research
Ethics Committee

DMT - Dance Movement Therapy

EEG - Electroencephalography

EMDR - Eye Movement Desensitisation and Reprocessing

fMRI - functional Magnetic Resonance Imaging

QoL - Quality of Life

K10 - Kessler Psychological Distress Scale

LLCI – Lower-Level Confidence Intervals

PTSD – Post Traumatic Stress Disorder

RCT - Randomised Control Trials

SDFS - Short Dispositional Flow Scale

SPSS - Statistical Package for the Social Sciences

TBI - Traumatic Brain Injury

TF-CBT - Trauma Focused Cognitive Behavioural Therapy

UK - United Kingdom

US – United States of America

List of Tables

Table 3.1. ARRTS Respondents by Cohort and Chapter

Table 3.2. Positive Effects of ARRTS Program

Table 3.3. Duration of Positive Effects

Table 4.1. Respondent Demographics

Table 5.1. Respondent Demographics

Table 5.2. Benefit, activity, and situational questions

Table 6.1. Mechanism Questionnaire

Table 6.2. Correlation Matrix

Table 7.1. Correlations between candidate variables in the Physical Activity Model

Table 7.2. Individual mediation effects of Behavioural Activation, Belonging, Flow, and Coach Relationship on the relationship between Physical Activity and Psychological Distress.

Table 8.1. Exploratory Factor Analyses, Eight Factor Solution (43 Items) and Six Factor Solution (21 Items)

Table 8.2. 43 Item Rotated Component Analysis

Table 8.3. 21 Item Rotated Component Analysis

Table 8.4. 21-Item and 43-Item Derived Score Correlations with the K10

List of Figures

Figure 3.1. Percentage of respondents who indicated which follow up activities they would have desired to be available after the ARRTS program was finished.

Figure 4.1. Total respondents at each measurement occasion

Figure 4.2. Longitudinal graphs of responses

Figure 5.1. The percentage of respondents who reported what kinds of sustained engagement they would desire after the conclusion of the program.

Figure 6.1. Individual themes

Figure 7.1. An integrated mediation model of sport participation on the K10.

Chapter 1 - Introduction

Many people who have suffered challenges to their mental health often feel their conventional psychological and psychiatric treatments are insufficient to address their multiple needs. There is growing evidence that a range of activities, such as artistic endeavours, physical activities and animal-based activities serve as worthwhile adjunct activities to established conventional therapies (Kamioka et al., 2014; Smith, 2016; White et al., 2017). In fact, artistic and physical activities are already widely recognised as being associated with health and wellbeing in everyday life (Beringer & Martin, 2003; Cristina & Aneta, 2012; Macpherson, Hart, & Heaver, 2016; Schuch et al., 2016). However, in the limited number of available RCTs, a lack of standardisation and intervention methods limit the ability to draw conclusions (Charry-Sánchez, Pradilla, & Talero-Gutiérrez, 2018a, 2018b; Chiang, Reid-Varley, & Fan, 2019), hence the importance of the current thesis to explore potential mechanisms of change.

As distinct from the specialised training required in established therapies, these adjunct activities are effectively undertaken every day by members of the general public, both with and without formal instruction, for their own skill development, personal expression, and enjoyment. Although potential benefits of such activities might be taken for granted by the public, the empirically demonstrable benefits and theoretical underpinnings of the activities as adjuncts to formal therapies are still being ascertained.

This thesis stems from the evaluation of an art-based program conducted by the Australian Defence Force (ADF) for wounded, injured, and ill veterans' who had undergone conventional treatment and been found to be medically suitable for

the program. Badged as Arts for Recovery, Resilience, Teamwork and Skills (ARRTS), the program was initiated in 2015 and, as of this writing, is ongoing. This evaluation has two main aims: first, test the benefits of adjunct activities, including the ARRTS program, on the wellbeing of participants, and second, test which theoretical mechanisms best explain any detected benefits.

To place these research questions in the larger scientific literature, this introductory chapter will be organised around: first, a review of common adjunct activities, their rationale in a therapeutic context and their empirically demonstrated benefits. As an immediate follow-on, a second introductory chapter will review the mechanisms that may underpin the benefits of such adjunct activities.

Adjunct Activities and their Rationale in a Therapeutic Context

Adjunct activities using art (Cristina & Aneta, 2012), physical activity (Weiss et al., 2017; Beringer & Martin, 2003), and also animals (Halm, 2008; Marcus, 2013) have been proposed as a means for enhancing positive mental health and general wellbeing. Of particular interest here, artistic activities have been safely and effectively incorporated into treatment for anxiety, depression, and other psychological challenges (C. Wilson, Bungay, Munn-Giddings, & Boyce, 2016).

The use of adjunct activities for fostering wellbeing appears to occur across a continuum. At one end of the continuum, artistic endeavours, physical activities, and animal-based activities frequently occur in an individual's daily life without deliberate therapeutic aim and no formal structure (Asztalos et al., 2009; Caddick, Smith, & Phoenix, 2015; Chekroud et al., 2018). Moving along the continuum, the same activities can be undertaken under supervision of instructors following a

syllabus. In some cases, instructed activities are undertaken to improve general mental health broadly defined but without the supervision of a qualified mental health professional (Graupensperger et al., 2019; McMackin, 2016). At the other end of the continuum, adjunct activities have been incorporated into formal therapeutic programs using mental health professionals, often in multi-disciplinary teams (Campbell, Decker, Kruk, & Deaver, 2016; Kates, 2008; Moss, Brady, & Kelly, 2017; Weiss, Dickstein, Hansel, Schumm, & Chard, 2017).

For remediating a wide range of mental health problems, there is a body of well-researched, gold standard interventions. Therapies for mental health underwent significant development in the latter half of the 20th century as the understanding of disorders and treatments increased. The first wave of these psychotherapies, namely, behaviour therapy (Wolpe, 1964) and cognitive therapy (Beck, 1970, 1979; Ellis, 1976) were merged to deliver the best of both approaches, creating Cognitive Behaviour Therapy (CBT) (Barlow, 1988; Clark, 1986; Rachman, 2009). Most notably, CBT has been repeatedly demonstrated as effective relative to alternative treatments for anxiety and depression (Baardseth et al., 2013; Cuijpers et al., 2013; Tolin, 2010; Watts, Turnell, Kladnitski, Newby, & Andrews, 2015). In further developments, Cognitive Processing Therapy (CPT) (Asmundson et al., 2019), Trauma Focused CBT (TF-CBT) has been successful for trauma-based disorders (Lenz & Hollenbaugh, 2015). Beyond forms of CBT, other evidence-based interventions such as Eye Movement Desensitisation and Reprocessing (EMDR), Schema Therapy, and Dialectic Behavioural Therapy (DBT) have been effective for many mental health problems, including trauma (Foa, 2008; F. Shapiro, 2002) and personality disorders (Budge et al., 2013).

Although the modern therapies have solid empirical support, they also have demonstrated limitations. Specifically, when follow-up studies have been conducted, the established therapies appear to degrade in their efficacy within six months post treatment and rarely last for more than four years (Ali et al., 2017; Steinert, Hofmann, Kruse, & Leichsenring, 2014). Nor are they are universally effective for all patients, and they can be even counterproductive for some (Barlow, 2010). In a recent meta-analysis, specific evidence-based therapies for anxiety and depression were effective up to four months post treatment when compared to non-specific interventions, yet treatment as usual and evidenced based therapies did not produce different results at the 12 to 18-month time frame (Flückiger, Heer, Del Re, Munder, & Wampold, 2014). Another meta-analysis revealed that the relative effectiveness of CBT for depression has declined over the last 35 years. Such a reduction was potentially attributed to a deviation of the earlier forms of CBT, a lack of standardised measures of the studies, and a reduction in common factors, specifically the placebo effect (Johnsen & Friborg, 2015).

The evolution of therapies has continued. Recently, the third wave of CBT therapies, which include Asian based mindfulness philosophies, have increased in usage (Cristea, Montgomery, Szamoskozi, & David, 2013). Some of these new therapies have produced benefits beyond established therapies, such as lower participant dropout rates (Kahl, Winter, & Schweiger, 2012), reduced stigma (Michaels, Buchholz, Corrigan, Abelson, & Kanodia, 2015; Orkibi, Bar, & Eliakim, 2014), and increased engagement (Hamilton & Hurford, 2007).

In addition to the development of specific therapies, multimodal and interdisciplinary approaches to treatment have emerged (Mennin, Ellard, Fresco,

& Gross, 2013). Along these lines, artistic endeavours (Cristina & Aneta, 2012), physical activity (Beringer & Martin, 2003; Weiss et al., 2017) and animal-based activities (Halm, 2008; Marcus, 2013) have been proposed as a means for enhancing the wellbeing of patients. As will be further described below, these activities can be safely and effectively integrated into established treatment and rehabilitation programs for anxiety, depression, and other mental health disorders (Lobban, 2016; Phung et al., 2017; Snipelisky & Burton, 2014; Weiss et al., 2017; C. Wilson et al., 2016; Zinzow et al., 2015).

Adjunct activities may be particularly beneficial for increasing the participation of patients who find it difficult to engage in established “talking therapies” (Corrigan, 2004; C. Wilson et al., 2016). The benefits of adjunct activities can include increased wellbeing, self-esteem, reduced feelings of self-stigma (Felsman, Gunawardena, & Seifert, 2020; Alan E. Kazdin, 2017; Krueger, Murphy, & Bink, 2019; Orkibi et al., 2014; Wiedenhofer, Hofinger, Wagner, & Koch, 2017), and better overall social engagement (Croom, 2015; Kahl, Winter, & Schweiger, 2012; Riley & White, 2016). Beyond the potential benefits for in-person therapy, adjunct activities may be a self-help route into the treatment of mental health disorders (Soucy-Chartier & Provencher, 2013) or as part of a stepped-care model focusing on harm reduction and positive behaviours (McDonald & Fenton, 2018).

Review of Empirical Effects of Adjunct Activities

This section will describe the available literature on the development and evaluation of adjunct activities, specifically the impact of activities including artistic endeavours, physical activity, and the use of animals in therapeutic settings. An initial search of the databases, PsycArticles, Medline, The Cochrane

library, CINAHL: cumulative index to nursing and allied health literature, ProQuest science & technology databases, PsycINFO, Scopus and SAGE research methods online guided more specific searches in the literature. Search terms focused on the words, art, visual art, expressive writing, and animal assisted therapy. The date ranges of the initial searches were post year 2000, with the scope broadening as earlier research was uncovered. Randomised control trials, systematic reviews and meta-analyses were prioritised, expanding to other research as required.

As yet, randomised control trials (RCTs) or non-blind, control studies have been infrequent (Charry-Sánchez et al., 2018a; Chiang et al., 2019; Kamioka et al., 2014; Rose, Aiken, & McColl, 2014). In the absence of controls, questions of confirmatory bias and lack of baseline comparability become acute (Charry-Sánchez et al., 2018b; Geist, 2011; Maber-Aleksandrowicz, Avent, & Hassiotis, 2016; Meekums, Karkou, & Nelson, 2015; Uttley, Stevenson, Scope, Rawdin, & Sutton, 2015a).

There is a substantial number of small-scale studies testing a large range of adjunct activities (Caddick & Smith, 2018; Decker, Deaver, Abbey, Campbell, & Turpin, 2018). Although the small-scale studies are limited in their statistical power (Abbing, de Sonnevile, & Swaab, 2018; Cristina & Aneta, 2012) and open to the questions noted in the previous paragraph, they are providing a base for developing their research methods, especially validated measures for theoretical mechanisms that may mediate the effects of the activities (Bat Or & Zilcha-Mano, 2018; Cristina & Aneta, 2012; Rose et al., 2014; Weiss et al., 2017).

Art-based Activities

Using a variety of validated measures and self-reports, the range of disorders where evidence exists for the benefit of art-based activities includes anxiety (Kapitan, 2012), depression (Blomdahl, Gunnarsson, Guregård, & Björklund, 2013), PTSD (Gantt & Tinnin, 2007; Smith, 2016), personality disorders (Springham & Camic, 2017), autism (Alter-Muri, 2017; Schweizer, Spreen, & Knorth, 2017), attention-deficit/hyperactivity disorder (ADHD) (Habib & Ali, 2015), and schizophrenia (Cho & Lee, 2018). Beyond remediation of mental health disorders, art-based activities have been associated with improved resilience, sense of belonging (Holtum, 2018; Macpherson et al., 2016), and quality of life (Abdulah & Abdulla, 2018), plus reductions in stress (Abbott, Shanahan, & Neufeld, 2013), distress, anger, physical complaints, and isolation (Sayer, 2015).

An obstacle to the evaluation of art-based activities is the broad spectrum of activities and application, ranging from recreation and leisure programs to therapeutic and supportive programs, and to formalised therapy and psychotherapy (Kalmanowitz & Potash, 2010; Potash, Mann, Martinez, Roach, & Wallace, 2016). This spectrum is crosscut by the variety of artistic activities that can be roughly categorised as being visual, written, music, or theatrical. This variety has made it difficult to standardise the use of the activities in a therapeutic context. Furthermore, distinctive theoretical orientations within the treatments challenges the ability to compare different applications of the same activities, for example Dance Music Therapy (Brauninger, 2012a, 2012b).

Within the studies themselves, randomised control trials (RCTs) or non-blind, control studies have been infrequent (Chiang et al., 2019; Kamioka et al., 2014;

Rose et al., 2014). In the absence of controls, questions of confirmatory bias and lack of baseline comparability become acute (Meekums et al., 2015; Uttley et al., 2015a; Uttley, Stevenson, Scope, Rawdin, & Sutton, 2015b). Where such controls exist, the samples are small, thus reducing the ability to generalise the findings (Sloan, Marx, Epstein, & Dobbs, 2008). With these variations in mind, the next section will detail the implementation and available evaluations of art-based activities in a therapeutic context.

Chiang et al. (2019) recently reviewed the effects of art-based activities on mental illness. They reported that, while pilot trials and case studies suggested improvements, larger RCTs produced inconclusive results. Chiang et al. (2019) concluded that standardisation of research and intervention methods is required in order to increase understanding of the mechanisms that might reduce mental illness as a result of artistic interventions.

With these limitations in mind, the remainder of this section will review the literature describing different types of artistic endeavours and their benefits within the therapeutic context.

Visual Art

In a review of the literature, Smith (2016) found several themes became apparent with veterans' who were undertaking art-based activities for PTSD. The themes concerned: (1) individual creation of symbolic expression that externalise an image, (2) creation of verbal meaning through interpretation of a nonverbal image, (3) the cross-hemispheric integration of the traumatic memory, (4) artistic pleasure and mastery, and (5) group processes, such as being in a safe place to explore emotions and in the presence of others who have had similar experiences.

Smith (2016) also uncovered a theme of containment, which is being able to regulate the emotions that come from the creation of artistic images, as a mechanism of recovery. According to Smith (2016), there are multiple processes of containment, in particular, that the created art visually contains the patient's trauma.

Drawing. Drawing has been investigated for purposes of reducing stress. In a study of 45 undergraduates, participants were randomly assigned to one of three drawing groups to express: happiness, stress, or the control who undertook tracing and line drawing (Smolarski, Leone, & Robbins, 2015). Mood statistically improved in all conditions (54%), yet the happiness group had the greatest improvement (340%). From these findings, positive emotional expression played a prominent role when drawing to improve mood. Similarly, drawing about personal positive experiences reduced stress, whereas focusing on negative experience increased stress (Curl, 2008).

In a laboratory setting, university students underwent a stress-inducing mental arithmetic task and a Stroop colour-word task. The students then engaged in either creative drawing or a non-artistic map-reading task. The drawing task produced medium-sized reductions in stress relative to the non-artistic task (Abbott et al., 2013).

US veterans' undergoing CPT for combat-associated PTSD were randomised into two groups. In addition to CPT sessions, the key experimental group received eight art therapy sessions specifically aimed at using drawing and collage in the processing of patient's visual trauma narrative and symptoms. A control group received CPT alone (Campbell et al., 2016; Decker et al., 2018). Patients in

the art therapy groups showed a large-effect reduction in symptoms measured by a PTSD checklist and Beck Depression Inventory relative to patients who received only CPT (Campbell et al., 2016; Decker et al., 2018).

A recent Israeli study investigated mental health professionals ($N = 51$) – predominately social workers – who, during the 2014 Gaza conflict, experienced rocket attacks alongside their patients (Segal-Engelchin, Achdut, Huss, & Sarid, 2020). The mental health professionals undertook artistic activities, specifically focusing on expressing their stressors in a three-stage process: First, they drew depictions of their stressful experiences. Second, they drew examples of personal and social coping skills they could use, and third, they integrated the two drawings into single depictions. At the end of the intervention, there was a significant pre-versus-post reduction in ratings of subjective distress. Unfortunately, in the absence of an untreated condition, e.g., wait list control, caution should be used when attributing the reduction uniquely to the drawing activities.

Colouring. Colouring tasks have improved mood. In a study of 85 undergraduates, participants were randomised into two groups, specifically, those allowed freedom to choose the colours versus those who were told which colours to use. In the group who had the opportunity to choose their colours, anxiety reduced and perseverance increased, relative to the comparison group (Eaton & Tieber, 2017). Moreover, colouring, when compared to undertaking logic puzzles, produced greater reductions in anxiety and depressive symptoms (Flett et al., 2017). These findings led the authors to conclude that daily colouring is an effective, inexpensive, self-help tool for non-clinical populations.

Clay. The manipulation of clay either by itself or to create ceramic art has been beneficial in assisting with the recognition and regulation of emotion in a community setting, including a large effect in the reduction of depressive symptoms (Nan & Ho, 2017). Clinically, it was found that depressive symptoms statistically reduced when undergoing clay art therapy. The authors suggested that the multisensory and psychological processes involved contributed to the improvement. In another trial using clay, greater mood enhancement occurred following clay handling compared to handling a soft stress ball (Kimport & Robbins, 2012). However, limitations from this study include homogeneity of the participants and the short-term follow-up of 3 weeks presented difficulties in demonstrating long-term effects.

Physiological changes due to visual art activities. Artistic endeavours can have an impact on a range of physiological markers (King, Kaimal, Konopka, Belkofer, & Strang, 2019; Lusebrink, 2004). These include cortisol levels and heart rate variability (HRV) as indices of stress. For example, a control trial examined the cortisol levels of health care workers who created artistic work using collage, creative journaling, drawing, and/or painting. As controls, other health care workers received no exposure to any artistic activity. At a 24-hour follow up, cortisol levels were reduced in the participants who had undertaken the artistic activities relative to the controls. Situational anxiety was also reduced, while trait anxiety did not significantly differ between the artistic participants versus control participants (Visnola, Sprudza, Arija, & Pike, 2010). Similarly, in a study of university students and staff, reduced cortisol levels were found immediately following artistic activities, alongside self-reported benefits in relaxation, enjoyment, learning, and flow states (Kaimal, Ray, & Muniz, 2016).

Beyond cortisol levels, HRV measures have revealed that sympathetic nervous system activity is modified using different painting materials. Specifically, greater sympathetic activity was aroused when using oil pastels than when using water-based gouache paint (Haiblum-Itskovitch, Czamanski-Cohen, & Galili, 2018).

Brain activation as reflected in functional magnetic resonance imaging (fMRI) and electroencephalography (EEG) has been influenced by engaging in artistic creation. EEG studies have also revealed a relationship between art making and overall brain activation as reflected in increased EEG power, compared with a control rote motor task (King et al., 2017). An fMRI study of 10 veterans' with traumatic brain injury (TBI) indicated that both resting state connectivity and dynamic connectivity were lower for participants who created trauma-themed art versus participants who created patriotic-themed art (Walker, Stamper, Nathan, & Riedy, 2018). Correspondingly, higher scores in a PTSD checklist appeared in the participants who created trauma-themed visual art relative to participants who created patriotic art, with both findings indicating poorer mental health.

Group Factors. Many programs involving art therapy rely on group processes, however it is unclear what these underlying processes may be (Gabel & Robb, 2017). There are suggestions that the group processes may take over, and the art therapist's role is to draw commonalities out between members of the group (Springham & Camic, 2017). To understand how a successful group develops, key contributors include viewing images that other people can relate to, sharing reflections about the art with others, and finding common ground with others' art experiences (Holtum, 2018). An increase in a sense of belonging for participants is also a contributor to more positive therapeutic outcomes (Macpherson et al., 2016).

Expressive Writing

Writing, including such things as diaries, poetry, letters, and blogs, is an everyday activity for people to express their thoughts and feelings. Accordingly, expressive writing appears to be an inexpensive, easily accessible option requiring minimal input from healthcare professionals (Mugerwa, 2012). As outlined below, expressive writing has now been subjected to extensive testing for its applicability in improving clinical symptoms and general wellbeing.

Improvements in mental health. Sloan et al. (2008) asked first-year university students, who had been randomly assigned to an experimental group (N=35), to write about the most stressful or traumatic experience in their lives over three 20-min sessions. A control group (N=34) was asked to write about their daily tasks without expressing emotion or opinion. The experimental group showed small reductions in maladaptive rumination styles associated with depressive symptoms, while the control group showed no discernible change. Such findings have been extended by describing improvements not only in depression, but also anxiety and life satisfaction (Dean, Potts, & Barker, 2016).

Research with those diagnosed with Major Depressive Disorder (DSM-IV) found that, over a 5-day period, writing about emotional events reduced depressive symptoms. This was measured by the Beck Depression Inventory and Patient Health Questionnaire-9 scores and compared to a control group who wrote about non-emotional daily events (Krupan, 2013). These reductions persisted over a four-week follow up, leading the authors to conclude that expressive writing could be a useful adjunct to existing interventions for depression.

An online RCT of 1292 American veterans' of the Afghanistan and Iraq conflicts assigned participants to one of three groups, being; expressive writing, factual writing, or no writing (Sayer, 2015). Expressive writing produced considerable improvements across a wide range of mental health disorders and challenges. Veterans' who were assigned to the writing groups received four sessions of writing that they could complete over a 10-day period. When compared to the group who did not write, the veterans' who wrote expressively had significant reductions in PTSD symptoms, distress, anger, and physical complaints, plus an increased ability to reintegrate within their social networks. At the three- and six-month follow up, the veterans' who wrote expressively continued to show significant reductions in physical complaints, anger, and distress, and felt increases in social support, compared to the control participants who wrote factually.

Expressive writing has been further researched in returned veterans' reporting reintegration difficulties. It was found those veterans' who had lower PTSD symptoms, less combat exposure, and higher social support experienced most positive effects from undertaking expressive writing (Frankfurt et al., 2019).

One meta-analysis revealed patients who undertake expressive writing, when compared to wait list controls, achieved significantly greater improvement in post-trauma and comorbid depressive symptoms (van Emmerik, Reijntjes, & Kamphuis, 2013). However, a more recent meta-analysis of brief, self-directed expressive writing revealed only a small effect on depressive symptoms at the conclusion of the therapy (Reinhold, Burkner, & Holling, 2018). Moreover, over an average six-month follow-up, the effect was no longer significant.

An even more recent meta-analysis explored the effect of expressive writing on post-traumatic stress, post-traumatic growth, and quality of life. In those studies that did not adequately define a PTSD diagnosis, the results indicated small effect sizes from writing on PTSD symptoms, and negligible to small effects for posttraumatic growth and quality of life. For studies that required a formal PTSD diagnosis, the effect sizes were medium to large (Pavlicic, Buchanan, Maxwell, Hopke, & Schulenberg, 2019). These outcomes have been attributed to the patients' development of a structured narrative which helped them to find meaning while processing their trauma (Pennebaker, 1997; Smyth, True, & Souto, 2001).

Usage of health care services. Expressive writing has also been examined for its non-clinical effects, in particular, whether it influences the usage of health care services. A meta-analysis of 29 studies has been conducted on the effects of expressive writing on health care usage across healthy individuals, those with pre-existing medical conditions, and those with psychological conditions (Harris, 2006). The analysis revealed that only healthy individuals had reduced health care usage following an expressive writing intervention.

Harrist (2007) conducted an RCT in which university students were randomly assigned. For one dimension, the students were assigned to a four-day course each containing a 20-minute session in which they were instructed to express their thoughts in either writing or oral presentation. For the other dimension, the students were asked to discuss either their life goals or their daily schedule. After completion of the course, the usage of the university health service by the participants was tracked for three months. A limitation of this study is that the definition of health centre visits and the reasons for the visits was not defined.

Over study, there was a significant reduction with a medium effect size in usage by the participants who discussed their life-goals topic versus those who did not. The mode of expression – written or oral – had no discernible effect on usage.

Cooper and Davis (2016) examined 40 patients with a variety of mental health diagnoses for their usage of national health services after completing six 90-min sessions of a manualised course on expressive writing, under the supervision of specially trained clinicians. Of the original 40 patients, 36 completed the course, and 18 undertook a six-month follow up. When comparing engagement with health services six months prior to the study versus six months following the course, the 18 follow-up participants reported a 67% lower engagement with health services. In addition, 89% of all participants reported receiving an overall benefit of the course and reported positive changes of perspective about the future as measured by a Hopelessness Scale and Quality of Life (QoL) Scale.

Theoretical mechanisms. There are many hypotheses concerning how expressive writing may achieve improvements with recognised disorders. An area of particular interest is the impact of expressive writing on cognitive processes. The linguistic processes underlying the development of coherent written expression from disorganised descriptions have been shown to predict positive mental health outcomes (Pennebaker, 1997). Linguistic usage that has been associated with positive mental health outcomes include higher levels of positive emotion words, moderate use of negative words, and increases in the use of insight or causal words (Pennebaker, Mayne, & Francis, 1997). Self-affirmation, when expressed through writing, has reduced stress and physical symptoms, and improved overall health of cancer survivors (Creswell, 2007). As

described above, expressive writing also reduces negative rumination (Sloan et al., 2008).

Another hypothesis is that of externalising a problem, that is, to separate the person from the problem. By creating separation, problems can be viewed from a variety of perspectives and contexts, thus removing unhelpful emotions and potentially increasing options for solving problems (Cooper & Davis, 2016; Keeling, 2006). To test the effect of externalising, over a period of 4 weeks Keeling (2006) examined a non-clinical population who used journaling and also sculpturing to express a personal problem. The findings indicated that these activities assisted participants in expressing emotions, increasing empowerment and self-awareness of personal abilities, and decreasing symptoms and negative behaviours.

Music

The benefits of music for psychological wellbeing and mental health have been examined in different modalities, including passively listening to music and/or actively making music, as part of either an informal adjunct to a conventional intervention or formalised music therapy (J. Lee & Thyer, 2013).

A study examining adults with mild to medium depression had participants either undertake psychotherapy or music therapy (Castillo-Perez, 2010). The group who undertook music therapy had fewer depressive symptoms than the group who undertook psychotherapy, leading the authors to conclude that music therapy could be a suitable intervention for those with mild to medium depressive symptoms. An examination of music therapy that was either conducted as a stand-alone treatment or as an adjunct to care found that music therapy was more

effective than no treatment, and more effective than standard treatment alone.

However, at three- and six-month follow-up periods, neither provided evidence of an enduring positive effect (J. Lee & Thyer, 2013).

Music as therapy for diagnosed disorders. In a review of minutes listening to music, it was found that music therapy improved cognitive functioning, behaviour, quality of life, and symptoms of schizophrenia, depression and anxiety (Chung & Woods-Giscombe, 2016). As an adjunct to pharmacological and CBT treatments of obsessive-compulsive disorder, music therapy resulted in significant reductions in obsessions. Furthermore, music provided benefits for comorbid anxiety and depression (Bidabadi & Mehryarb, 2015). In a pilot study of patients with diagnosed generalised anxiety disorder, music therapy resulted in improvements to anxiety and depressive symptoms (Gutiérrez & Camarena, 2015). In a small control trial, depressive symptoms in older adults reduced weekly over an eight-week period, suggesting a cumulative effect of music therapy (Chan, Wong, Onishi, & Thayala, 2012).

Everyday music for positive mental health. Croom (2015) undertook a review of general music practice and participation, finding that both contributed to positive outcomes in emotions, engagement, relationships, meaning, and accomplishment. In settings that are not defined by the presence of a music therapist, music listening can still provide mental health benefits. In a study of 55 healthy university students, music listening for the purpose of relaxation produced self-reported stress reductions. Beyond identifying music as a relaxing activity, a study on music students found that the degree to which the music was liked by a respondent was the strongest factor associated with stress reduction (Jiang, 2016). The time listening to music has been found to have a greater impact on

respondents than the type or format of the music (Chung & Woods-Giscombe, 2016).

Effectiveness across the age span. As described below, the effectiveness of music across the age span has been examined. In children, a standard treatment (behavioural intervention, psychodynamic psychotherapy, or group therapy) both with and without music therapy, found an equivalent improvement on anxiety symptoms. Yet four months post treatment, the adjunct music therapy state had reduced remission rates relative to the standard treatment without music therapy (Goldbeck, 2012). For adults, music therapy has been beneficial not only for anxiety disorders, but also depressive symptoms (Gutiérrez & Camarena, 2015). Research specifically into older adults has found self-reported benefits include increased happiness (Riggins & McLennon, 2020), and improved depressive symptoms (Chan et al., 2012).

Theoretical Mechanisms. With regard to how music therapy achieves positive mental health outcomes, Maratos, Crawford, and Procter (2011) suggested that physical movement and belonging to a group were mechanisms that partially explained improvements. Raglio (2011), based on multiple sources of evidence, concluded the relationship between the music therapist and the patient is a critical conduit required for the success of music. Together, these two papers point to the relational experiences of a person, with both their peers and therapists, as a key mechanism underlying the mental health benefit of music.

Physiological changes. As outlined previously, positive physiological changes are associated with participation in music therapy. Listening to music has been found to have positive associations with decreased activity in certain brain

regions such as the amygdala and hippocampus and increased activity in the ventral striatum (Chanda & Levitin, 2013). Beyond activity changes in specific brain regions, Chanda and Levitin (2013) also found biochemical changes in serotonin, dopamine, cortisol, and oxytocin to be associated with listening to music (Linnemann, Ditzen, Strahler, Doerra, & Natera, 2015). In a study of front-line nurses, listening to music provided immediate positive effects on self-reported perceived stress and healthy changes in mean arterial pressure and cortisol levels.

Dance-Based Activities

Mental health. Labelled Dance Movement Therapy (DMT), dance-based activities commonly consist of a series of dance lessons in addition to treatment as usual, e.g., for geriatric patients in a residential facility, patients in rehabilitation for physical injury, or for addressing stress management in university students. The earliest review of the available literature suggested that DMT produced benefits to quality of life and self-esteem, and in general, the use of dance-based activities has been showing increased promise as an adjunct to treatment as usual over the last decade (Mala, 2012). However, most of the original cited studies were small in scale, lacked double blinding and randomisation, and had minimal use of standardised measures (Strassel, 2011). In fact, Brauninger (2012a, 2012b) described how each of the 11 instructors used in one single study self-identified as having a distinctive theoretical orientation to the application of DMT. Furthermore, there is no manualised description of DMT practices and their boundaries to date.

In more recent studies, many of these methodological limitations have been addressed. For example, Brauninger (2012a, 2012b) conducted a study in which

162 participants suffering stress were randomly assigned to dance-based activities or a wait-list control. The short-term post treatment effects were measured using the World Health Organization Quality of Life Questionnaire 100 and the Munich Life Dimension List. These measurements showed improvements in the subscales for psychological, social relations/life, and physical health domains. At a six-month follow up, the psychological subscale scores remained significantly improved. Specific psychological changes, as measured by the Brief Symptom Inventory, included improved interpersonal sensitivity, depression, phobic anxiety, paranoid thinking, and psychoticism.

In a review of eight studies with adults Karkou, Aithal, Zubala, and Meekums (2019) indicated that dance-based activities had a positive outcome for depressive symptoms at treatment completion and at a three-month follow up. Concurrently, a meta-analysis of 41 dance studies categorised the interventions into two types; firstly, those that included counselling by DMT instructors focused on helping the participants understand the interrelationship among the physical, emotional, and cognitive domains through the lens of dance; secondly, those in which the dance activities were supervised by conventional dance instructors (Koch et al., 2019). The analysis revealed small, consistent effects demonstrating that the DMT-based instruction decreased depression and anxiety while increasing quality of life, interpersonal skills, and cognitive skills. These effects were still apparent at 22 weeks post treatment. Conversely, the effect of dance instruction alone improved only motor skills.

Physiological changes. One of the physiological mechanisms that may explain positive outcomes in DMT is the activity of mirror neurons (Berrol, 2006). Corresponding sets of neurons in two individuals, such an observer and an

actor, can be activated in the action or the expression of some emotion or behaviour (Ferrari, Gallese, Rizzolatti, & Fogassi, 2003). Such mimicking between participants in DMT and their instructor thus allows participants to increase self-awareness and, when dancing with partners, adjust psychosocial processes such as empathy (Corradini, 2013)

Another physiological mechanism relates to the role of neurotransmitters. In a study of 40 adolescents with mild depression who participated in a 12-week DMT program, plasma serotonin concentration increased and dopamine concentration decreased compared to a control group who did not receive DMT (Jeong et al., 2006). These findings indicate that DMT may stabilise the sympathetic nervous system. This stabilisation was associated with concomitant decreases in self-reported psychological distress.

Drama-based Activities

Drama therapy is the use of theatrical performance, including the use of improvisation, to achieve mental health and wellbeing goals. To develop an understanding of the core processes involved in drama therapy, an analysis of qualitative findings from 13 articles was undertaken (Cassidy, Turnbull, & Gumley, 2014). The researchers found individual processes, specifically, ‘working in the here and now,’ having ‘control and choice,’ and being ‘actively involved’ were used in drama therapy. In addition, group relational processes of ‘establishing safety’ and ‘working alongside others,’ also played a prominent role. The roles of both individual and relational processes in drama therapy were confirmed in a more recent systematic review of 12 studies of adults with a wide variety of mental health challenges. Bourne, Andersen-Warren, and Hackett (2018) found that drama therapy facilitated individual insight, confidence, self-

awareness, empowerment, and resilience. At the same time, the supportive group environment improved the social interactions and development of friendships among participants.

Mental health. Drama therapy has also been integrated successfully into other established therapies. For example, drama therapy as an experiential technique has appeared suitable for use within schema therapy for people with Cluster C personality disorders (i.e., anxious, introverted, and obsessive). Positive outcomes have been found for expressing emotions, reducing destructive coping, and increasing healthy modes to replace maladaptive coping styles (Doomen, 2018). In an anger management program for offenders, drama therapy was successfully integrated into the established CBT framework, demonstrating reduced anger symptoms in participants (Blacker, Watson, & Beech, 2008).

Independent of formalised therapy, drama-based activities can produce mental health benefits. Participation in improvisation exercises by socially-anxious adolescents (N=268) resulted in reduced anxiety and depression, whilst improving social skills, creativity, forgiveness, and hope (Felsman, Seifert, & Himle, 2019). Similarly, in psychiatric patients, improvisation exercises reduced symptoms of anxiety and depression, while improving self-esteem (Krueger et al., 2019). Furthermore, as little as 20 minutes of improvisation training has been shown to increase divergent thinking, positive affect, and tolerance of uncertainty (Felsman et al., 2020). Finally, improvisation training in a novice group provided improvements in creativity and psychological wellbeing (Schwenke, Dshemuchadse, Rasehorn, Klarhölter, & Scherbaum, 2020).

Veterans' and drama-based activities. For veterans' in the United States (US) and the United Kingdom (UK), theatre activities, supported by government and military departments, have been used over the past several years as an adjunct to standard therapies (The Royal British Legion, 2018). In particular, the language in the war-related plays of Shakespeare has provided veterans' an appropriate distance in which to engage in therapeutic theatre involving elements of mindfulness, camaraderie, and increased self-awareness (Howes, 2019). Australian military personnel and veterans' have also been part of several artistic endeavours using theatre as a medium for improvement. An adaptation of a Canadian theatre-based program was found to provide confidence and optimism to Australian veterans', through safely processing traumatic events from different perspectives (Balfour, Westwood, & Buchanan, 2014).

Physical Activities

Mental Health

With regard to mental health disorders, physical activity has been an effective adjunct for the clinical treatment of depressive symptoms (Kvam, Kleppe, Nordhus, & Hovland, 2016; Schuch, 2016; Velehorsch, Bleau, Vermani, Furtado, & Klassen, 2014). Physical activity is associated with reduced depressive symptoms in non-clinical populations across the entire age span (Cao et al., 2011; Doré, O'Loughlin, Beauchamp, Martineau, & Fournier, 2016; Kremer et al., 2014; Loprinzi, 2013; Perraton, Kumar, & Machotka, 2010; Pickett, Yardley, & Kendrick, 2012). More specifically, physical activity has reliable positive outcomes regardless of what may have caused the depressive symptoms, for example depressive symptoms related to cancer (Brown et al., 2012), cardiac disease (Papasavvas, Alhashemi, & Micklewright, 2015), childbirth (Daley et al.,

2015), and combat (Harvey, Climstein, Naughton, & Buhagiar, 2005) have all been shown to benefit from physical activity. Among veterans', physical activity is associated with a small but significant reductions in depression and adverse somatic symptoms such as back pain, headaches, sleep disturbance, and fatigue (Hoerster, Jakupcak, McFall, Unützer, & Nelson, 2012). Across patient populations, one meta-analysis of 25 control trials revealed physical activity had a large mean effect size in reducing depressive symptoms, specifically, 1.11 standard deviation units (Schuch et al., 2016).

While physical activity appears to reliably reduce depressive symptoms, the relationship between physical activity and anxiety is less consistent. Some studies show that physical activity is associated with reduced levels of anxiety (Bernstein, Curtiss, Wu, Barreira, & McNally, 2019; Conn, 2010a), but others show either increased anxiety or no effect (Bartley, Hay, & Bloch, 2013; Cao et al., 2011; Larun, Nordheim, Ekeland, Hagen, & Heian, 2006). Beyond depression and anxiety, there is also evidence to demonstrate that physical activity can assist with bi-polar disorder (Ng, Dodd, & Berk, 2006) and significantly improve the mental health of schizophrenic patients (Firth, Cotter, Elliott, French, & Yung, 2015).

General wellbeing

In addition to the apparent positive effects of physical activities on mental health disorders, characteristics of general wellbeing also have positive associations with physical activity. Regular physical activity has been demonstrated to improve self-esteem, quality of life, and sleep, while reducing hopelessness (Chang et al., 2016; Schuch et al., 2016; Yigiter, 2014). It has also been associated with improved social relationships; as expressed in the

complementary concepts of belonging and loneliness (Pels & Kleinert, 2016; Shvedko, Whittaker, Thompson, & Greig, 2018; Walseth, 2006).

In one meta-analysis, White et al. (2017) found that the context of physical activity is important for both general wellbeing and mental health disorders. Leisure time physical activity, transport physical activity (e.g., cycling to work), and school sport all had an overall positive association with mental health. Conversely, when work-related physical activity increased, mental health declined, with fewer positive feelings and more depressive symptoms. Finally, there was no discernible relationship between household physical activity and mental health.

Given the possible context-dependency between physical activity and mental health, the remainder of this section will review the results obtained in a range of different contexts. Caution should be used when grouping of different activities and different contexts as it is very coarse and only meant to point to future topics of research.

Jogging and cycling. One control trial found that emotion regulation improved when participants undertook an eight week jogging and mindfulness course (Y. Zhang, Fu, Sun, Gong, & Tang, 2019). Another study, with a focus on jogging, found higher levels of life satisfaction and lower stress in the group that undertook jogging as a leisure time activity as opposed to a more sedate lifestyle (Schnohr, Kristensen, Prescott, & Scharling, 2005). Beyond jogging, an eight-week outdoor cycling control trial found improvement in older adults' executive functioning and wellbeing, when compared to those who did not undertake cycling (Leyland, Spencer, Beale, Jones, & van Reekum, 2019).

Water sports. Surfing has been associated with improved wellbeing and reductions in PTSD symptoms among veterans' (Caddick & Smith, 2014; Caddick et al., 2015). Furthermore, surfing has also been shown to reduce depressive symptoms and PTSD in veterans' (Rogers, Mallinson, & Peppers, 2014). The United States Marine Corps in conjunction with the University of Southern California has, in a small study (N = 11), evaluated a surfing program (Rogers et al., 2014). Most participants completed more than three surfing sessions and reported a statistically significant improvement in depressive symptoms and PTSD symptoms, as measured by a PTSD checklist and the Major Depression Inventory (Rogers et al., 2014). Moreover, key aspects of surfing, such as patience, instantaneous thrill, demands of absorption and connection with an untamed environment, are similar to the military environment and are used in therapy to develop greater confidence and better coping skills for day-to-day challenges (Diehm & Armatas, 2004).

In control trials, swimming has had a mental health benefit in both elite and clinical populations. In a study of asthmatics, swimming did not have a positive benefit on asthma symptoms, but the participants reported significantly better mental wellbeing, including better lifestyle factors such as reduced smoking and alcohol consumption (Romberg, Tufvesson, & Bjermer, 2012). In another study, swimming training was found in ADHD populations to facilitate improvements in depression, stress, cognitive flexibility and selective attention (Silva et al., 2019).

Martial arts. Aikido, when delivered as an adjunct for a veterans' PTSD residential program, found improvement for both PTSD and associated depressive symptoms in female participants (Weiss et al., 2017).

Outdoor activities. In a Scottish study, physical activity in outdoor environments had a greater improvement on mental health, as measured by the General Health Questionnaire (GHQ), than non-natural environments such as indoor gyms (Mitchell, 2013). Specifically for veterans', a systematic review found that physical activities in outdoor environments provided reduced PTSD symptoms and increased wellbeing (Caddick & Smith, 2014).

Team sport. In a study comparing team athletes, individual athletes, and non-athletes, team athletes had better mental health than the other two groups (Patel & Chaudhari, 2014). Furthermore, team sports such as football, basketball, volleyball, soccer, hockey, softball, baseball, and rugby, when compared to individual sports such as swim, track, gymnastics, dance, cross-country ski, wrestling, and judo, were associated with lower levels of anxiety and depressive symptoms (Sabiston et al., 2016). Similarly, a comparison of team sports (e.g., soccer, football, hockey) and individual sports (e.g., gymnastics, running, diving) found that participants in team sports had lower anxiety and depressive scores, and were more motivated by fun than goals to participate in their sport (Pluhar et al., 2019). In a longitudinal study of adolescents, participants in team sports during their school years had lower depressive symptoms in the three years following school, when compared to those who undertook an individual sport (Sabiston et al., 2016). The impact of team involvement has been found to produce better mental health outcomes when compared to individual sport, even when controlling for the amount of physical activity (Doré et al., 2016).

Team sport is most easily seen as competitive physical activity entailing cooperative efforts among two or more individuals. However, more broadly being a member of a sporting group or competition, ranging from a local community-

based group to a national Olympic team, may have some of the same benefits as being part of a specific team. At the level of international sporting competition, participants in the Invictus Games for wounded military personnel have reported increased positive mood, more patience with family, and improvements in post-traumatic stress symptoms, including decreased anxiety and a diminished response to traumatic triggers (Shirazipour, 2019).

“Dose” Effects of Physical Activity

There are three variables associated with the amount of physical activity: (1) volume is the total time that a person undertakes physical activity in a given period such as a week or month; (2) frequency is the number of times someone may undertake physical activity in a given period; and (3) intensity is the vigour of the activity, which can be measured in breath rate, heart rate, lactic acid, or sweat volume for example. As will be described below, the amount of physical activity has been measured in large studies with sufficient precision to develop “dose-response” curves with respect to mental health:

Volume. Improvements in mental health and wellbeing to an extent, generally increases with the volume of physical activity (Chang et al., 2016; Loprinzi, 2013). For example, in a study of 1527 adults across several physical activities, a moderate volume of physical activity, irrespective of intensity, was associated with fewer symptoms of anxiety and depression, plus a greater sense of happiness, satisfaction, socialisation, and personal growth (Doré et al., 2016). However, other studies have indicated that there may be an optimum volume. A study on United States (US) adults (N = 7674) found physical activity in the range of 2.5 to 7.5 hours per week provides the most benefit, with durations both above and

below these ranges associated with increased psychological distress (Y. S. Kim et al., 2012).

Frequency. In a study of over one million US adults, physical activity, with a frequency of three to five sessions per week, each with a duration of at least 45 minutes, demonstrated a reduction of 43% in the number of days of self-reported poor mental health compared to people who reported no exercise (Chekroud et al., 2018). Yet physical activity above 5 sessions per week displayed a distinct downward trend that approached the no-exercise baseline.

Intensity. Young adults (N = 100) who undertook more intense physical activity as measured by Physical Activity Questionnaire (PAQ), when compared to their peers who undertook moderate or no physical activity, had lower levels of both anxiety and depressive symptoms (Tyson, 2010).

Beyond individual studies, there have also been attempts to define the balance between volume, frequency, and intensity of physical activity and mental health. Based on a systematic review, Perraton et al. (2010) recommended an exercise regime of three 30-minute sessions per week of aerobic exercise, at 60–80% of maximum heart rate, for at least 8 weeks, for optimally reducing depressive symptoms.

Physiological changes

Physical activity, in optimal amounts, can promote positive physiological outcomes via endorphin release post-activity. Endorphin release reduces pain activation, depression and promotes a positive feedback loop. Specifically, experience of positive outcomes, encourages further engagement in physical

activity, which further reduces depressive symptoms and improves overall health (Balchin, Linde, Blackhurst, Rauch, & Schönbächler, 2016; Kvam et al., 2016).

In particular, aerobic physical activity buffers the potentially harmful effects of stress on the encoding of memories. It has demonstrably been a protective factor for memory-based disorders, such as PTSD (Oppizzi & Umberger, 2018). Physical activity also improves memory encoding by fostering neurogenesis, which later aids recall from memory (Dery et al., 2013). In a control trial, augmenting exposure therapy for PTSD, with physical activity, led to reductions in PTSD symptomology (Powers et al., 2015). This activity-dependent reduction was attributed to an increase in synaptic plasticity, which underpins long term memory and learning (Powers et al., 2015).

Animal Assisted Therapy

Although arts-based activities and physical activities have been the main foci of research into adjunct activities – as they are in the present empirical studies – the use of animals has been associated with human psychological wellbeing dating back to ancient Greece (Willis, 1997). Following World War I, service dogs were used as aids for those with visual impairments and other sensory limitations. More recently, the use of animals to benefit humans has been broadened to include mental health challenges and is commonly referred to as Animal Assisted Therapy (AAT), pet therapy or animal-assisted intervention. In all cases, the animal is an integral part of any treatment plan for any given individual, and is used as an adjunct to more typical treatment plan components such as treatment goals, scheduled appointments, and documentation for each session (Amerine, 2016).

An early systematic review by Halm (2008) looked at studies which included research designs ranging from staff surveys and pre-post designs to control studies. The reviewers concluded that animal-based adjunct activities are acceptable and useful to participants, providing relaxation, increasing happiness, reducing anxiety, and increasing one-year survival following a cardiac event. In a more recent review of 11 control studies, Kamioka et al. (2014) described a range of animal interventions that included dogs, cats, dolphins, birds, cows, rabbits, ferrets, and guinea pigs. Disorders that benefited from the above animal interventions included depression, schizophrenia, and alcohol/drug addictions. Confirmation of these overall positive findings has been obtained in subsequent studies which further investigated the amount of interaction with animals (Charry-Sánchez et al., 2018a) and the affinity participants had for the particular type of animal (Kamioka et al., 2014). Individuals with an intellectual disability benefit from AAT in terms of psychosocial functioning, including benefits to behaviour, cognition, emotion, and socialisation (Maber-Aleksandrowicz et al., 2016). Similarly, a meta-analysis of AAT with both children and adults found evidence for benefits to symptoms of autism, depression, dementia, PTSD, and schizophrenia (Charry-Sánchez et al., 2018a, 2018b).

Physiological Change Attributed to AAT

When people with mental health concerns have been in contact with animals, evidence of positive effects have been gathered via changes in biomarkers such as cortisol, epinephrine, norepinephrine, and blood pressure (Marcus, 2013). Positive effects have also been hypothesised to occur via the underlying oxytocin system, leading to improvements in stress, anxiety, pain, and social interactions (Beetz, Uvnas-Moberg, Julius, & Kotrschal, 2012). Benefits of animal contact have also

been attributed to the action of mirror neurons whereby a patient involuntarily mimics the positive attitude of the animal in the therapeutic regime (Baird, Scheffer, & Wilson, 2011). Of particular note, animal-based activities produce positive increases in antibodies, which do not rely on an individual having an initial positive attitude towards the animal (Charnetski, Riggers, & Brennan, 2004).

Species-Dependent Effects

Although a wide variety of animals have been used in AAT, dogs and horses have been most commonly used to achieve mental health benefits. As described below, the use of canines and horses appear to rely on distinctive processes.

Dogs. Dogs, as a versatile adjunct, are being used in a variety of settings for people with mental health challenges. Settings include both inpatient (Snipelisky & Burton, 2014) and outpatient facilities (Binfet, Passmore, Cebry, Struik, & McKay, 2018) where the patients, including veterans', may be reluctant to engage with more conventional therapies. In a community hospital setting, patients who undertook canine-assisted activities, such as interacting with a dog and using the dogs' emotional responses to discuss emotions, psychologically outperformed those who undertook a more traditional stress management group (Nepps, Stewart, & Bruckno, 2014). Specific improvements, relative to a comparison group who were provided with a stress management program, included reduced depression, anxiety, pain, and a lower heart rate.

Veterans' with PTSD have been using dogs with increasing frequency as adjuncts to their treatment. The use of dogs has been associated with improvements in symptoms such as reduced hyper-vigilance and nightmares,

leading to improved sleep (Yarborough, Stumbo, Yarborough, Owen-Smith, & Green, 2018). Furthermore, the dogs themselves appeared to provide a distraction from intrusive trauma-related cognitions. Therapy with dogs was additionally related to improved socialisation and emotional connection, increased physical activity, reduced suicidality and medication use, and medium to large reductions in PTSD symptoms (O'Haire & Rodriguez, 2018). Beyond specific PTSD indications, lower depressive symptoms, increased socialisation, increased quality of life and work attendance were also reported (O'Haire & Rodriguez, 2018).

University students reported that a campus drop-in centre, which allowed interaction with dogs, provided a reduction in stress whilst in the presence of the dogs (Binfet et al., 2018). At the conclusion of a dog group program run for university students, participants reported reductions in perceived stress, homesickness and significant improvements in sense of school belonging, although such benefits had diminished at a two week follow up (Binfet, 2017).

Horses. The main benefit of using horses as an adjunct activity appears to be their sensitivity to human cues (Earles, Vernon, & Yetz, 2015). A horse can respond dramatically to behavioural cues thus providing an individual with immediate feedback on their own behaviour (Proops & McComb, 2010). By constantly testing and adjusting one's own behaviour, as a reaction to the horse's behaviour, individuals learn to cope with their mental health symptoms. Due to the imposing nature of horses, the responses they provide, such as backing off to aggressive behaviours or crowding when submissive behaviours are displayed, may prompt individuals to be more mindful of their own behaviour (Earles et al., 2015).

Therapy that relies on a horse's response to cues from an individual has been found to be beneficial for reducing anxiety and post-traumatic stress related disorders (Earles et al., 2015), as well as reducing biological indicators of stress such as cortisol levels (Yorke et al., 2012). For example, six, 2-hour sessions with horses produced medium to large reductions in posttraumatic stress symptoms, severe emotional responses to trauma, generalized anxiety, and symptoms of depression at the conclusion of the program (Earles et al., 2015). However physical health, proactive coping, self-efficacy, social support, and life satisfaction appeared to be unaffected. Additionally, one systematic review of 24 RCTs group studies, investigating the use of horses on youth with a broad range of mental health disorders, found positive effects on autistic conditions (Hoagwood, 2016).

Limitations and Strengths of the Literature

An obstacle to the evaluation of art-based activities is the broad spectrum of activities and application, ranging from recreation and leisure programs to therapeutic and supportive programs, and to formalised therapy and psychotherapy (Kalmanowitz & Potash, 2010; Potash et al., 2016). Furthermore, distinctive theoretical orientations within the treatments challenges the ability to compare different applications of the same activities, for example Dance Music Therapy (Brauninger, 2012a, 2012b).

Within the studies themselves, randomised control trials (RCTs) or non-blind, control studies have been infrequent (Charry-Sánchez et al., 2018a, 2018b; Chiang et al., 2019; Kamioka et al., 2014; Rose et al., 2014). In the absence of controls, questions of confirmatory bias and lack of baseline comparability become acute (Charry-Sánchez et al., 2018b; Geist, 2011; Maber-Aleksandrowicz et al., 2016; Meekums et al., 2015; Uttley et al., 2015a, 2015b). Where such controls exist, the

samples are small, thus reducing the ability to generalise the findings (Sloan et al., 2008).

However, such limitations need to be balanced with the strengths of a developing and relatively underfunded area of research. Research settings are typically real world, thus allowing greater applicability to specific populations (Segal-Engelchin et al., 2020).

Summary

As to be expected, with a relatively new area of research, there is a high proportion of qualitative data being collected which can be expected to inform future quantitative data collection (Doroud, Fossey, & Fortune, 2018). Discussion around research methods and lack of validated measures continues (Cristina & Aneta, 2012; Rose et al., 2014). The theoretical concepts whilst being tested in a variety of settings are largely observational and are yet to be researched using large, randomised control trials (Rose et al., 2014). Where they have recently been used, they are small-scale studies (Decker et al., 2018). Despite their increasing use, and even from proponents of adjunct activities, there is a wariness that the lack of data remains problematic, thus increasing the need for further research (Caddick & Smith, 2018).

Chapter 2 - Mechanisms Underlying Adjunct Activities

Just as there is a wide range of activities used as adjuncts to therapies, there is also a wide diversity of mechanisms through which the activities may achieve their beneficial outcomes (Abbing et al., 2018; Doré et al., 2020). Much of the research to date has focused on four types of mechanism that are applicable across adjunct activities. First, there are behavioural mechanisms, activation of which lead to improved functioning. Second, there are cognitive mechanisms that can also lead to improved function. Broadly, they include perceptions and thought patterns. Third, a sense of belongingness within groups of people has been proposed as a contributor to recovery of mental health and building general resilience (Bryan & Heron, 2015; Overup, McLean, Brunson, & Coffman, 2017). Fourth, established therapies have been identified as having underlying common factors beyond the specific method of each therapy (Duncan, Miller, Wampold, & Hubble, 2010). Among these common factors, a productive relationship between a patient and therapist is crucial (Ardito & Rabellino, 2011; Baldwin, Wampold, & Imel, 2007; Flückiger, Del Re, Wampold, Symonds, & Horvath, 2012).

The remainder of this section will describe the four mechanisms in more detail as they pertain to adjunct activities. Each description will be divided into subsections concerning, respectively, the mechanism's defining features, the mechanism's known empirical features, and the mechanism's operational measurement.

Behavioural Mechanism Effects on Mental Health

Behavioural approaches to therapy have long been advocated as an effective and enduring alternative to the historic psychodynamic approach (Grossberg, 1964; Wolpe, 1954, 1982; Wolpe & Lazarus, 1966). However, following the rise

of cognitive theories in psychology (Neisser, 1967), the focus on behaviour therapy waned, as the role of beliefs and other thought processes gained traction (Beck, 1970, 1979). Ultimately, merging the two approaches into CBT largely resolved the debate (Clark, 1986; Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012). However in the 1990s, behaviour therapy was reinvigorated through the lens of cognitive theory in the form of “behavioural activation,” which was originally aimed at the treatment of depressive symptoms (Hollon & Garber, 1990).

The point of difference from traditional behaviour therapy lays in the way behavioural mechanisms were used in therapy. Previously, behavioural interventions centered on the development and engagement of rewarding activities, which limited the role, if any, for cognitive insight (Lewinsohn & Graf, 1973). By including cognitive processes such as cognitive testing, behavioural activation methods were developed, and focused on the acquisition of behaviours considered healthy and anti-depressive in nature.

Defining Features

Dimidjian, Barrera, Martell, Muñoz, and Lewinsohn (2011) summarise behavioural activation as comprising three components: (a) increased engagement in adaptive activities, which are associated with the experience of pleasure or mastery; (b) decreased engagement in activities that maintain depression or increase the risk for depression; and (c) solving problems that increase access to reward or reduce aversive control.

The broad mechanism of behavioural activation can be broken down into an array of elements including activity monitoring, assessment of life goals and

values, activity scheduling, skills training, relaxation training, contingency management, procedures targeting verbal behaviour, and procedures targeting avoidance (Kanter et al., 2010). These elements can be largely characterised as training in skills that, among other things, provide a sense of purpose, enjoyment, self-esteem, personal control, and/or personal accomplishment, that all play a powerful role in reducing depressive symptoms (Kopytin & Lebedev, 2013; McEvoy, Law, Bates, Hylton, & Mansell, 2012; Soucy-Chartier & Provencher, 2013).

There have been limited attempts to develop manuals that guide a therapist in behavioural activation elements across settings and patients (Lejuez, Hopko, Acierno, Daughters, & Pagoto, 2011; Lejuez, Hopko, LePage, Hopko, & McNeil, 2001). By and large, however, behavioural activation methods have been implemented in a selective manner that fits with the flexible way in which adjunct activities can be used by health professionals and also with oneself and peers. By the same token, this flexibility in behavioural activation methods has scope for being used effectively by oneself or peers outside the immediate supervision of health professionals (Ekers et al., 2011; Gawrysiak, Nicholas, & Hopko, 2009; Richards et al., 2016).

Empirical Evidence

Since emerging from component analysis of cognitive therapy (Jacobson et al., 1996), research into behavioural activation over the past 30 years has developed an evidence base including systematic reviews and meta-analyses across the spectrum of mental health disorders and wellbeing constructs.

Mental Health

Behavioural activation methods have been subjected to empirical testing for their effectiveness in reducing depressive symptoms (Gawrysiak et al., 2009; Jacobson et al., 1996; Mazzucchelli, Kane, & Rees, 2009) across the life span (Alexopoulos et al., 2017; McCauley et al., 2016; Tindall et al., 2017) and across cultures (Bolinski et al., 2018; Kanter, 2010). These studies have been summarised in multiple meta-analyses. For example, a meta-analysis of 16 randomised effect studies investigating activity scheduling, a specific component of behavioural activation, revealed a large positive effect on depressive symptoms that endured for up to 12 months (Cuijpers, van Straten, & Warmerdam, 2007). In another meta-analysis that included 34 RCTs with 2,055 participants showing depressive symptoms, behavioural activation produced a large positive effect that lasted 1 to 3 months (Mazzucchelli et al., 2009). In a subsequent meta-analysis of 26 RCTs, behavioural activation was superior to control groups and medication treatment groups. The differences endured up 24 months (Ekers, Webster, Cuijpers, Richards, & Gilbody, 2014). Effective delivery of behavioural activation via electronic device (“telehealth”) has been demonstrated across multiple studies (Huguet et al., 2018). The effect of behavioural activation was equivalent to behavioural therapy and mindfulness, while being superior to physical activity alone and psychoeducation in post-treatment and follow-up.

Whilst there has been long-standing research and meta-analysis on the effect of behavioural activation on depression, the positive evidence for anxiety disorders commenced more recently (Hopko, Robertson, & Lejuez, 2006). A recent meta-analysis of 28 studies revealed that behavioural activation produced reductions in both anxiety and depression, when compared to “inactive” control

conditions (e.g., waitlist, supportive counselling). Moreover, behavioural activation's effects for anxiety were similar in size to "active" control treatments (e.g., CBT, medication) (Stein, Carl, Cuijpers, Karyotaki, & Smits, 2020). At this stage, there appears to be some prospect for more widespread benefits of behavioural activation. In a review of seven studies using behavioural activation to treat PTSD, all reported significant reductions in PTSD symptoms, averaging 25% (Flint, Ferrell, & Engelman, 2020). In a meta-analysis of 20 studies, behavioural activation produced a medium-size improvement in measures of wellbeing (Hedges $g = .52$) (Mazzucchelli, Kane, & Rees, 2010).

Whilst evolving from individual therapy, behavioural activation has been shown to provide evidence of reduced depressive symptoms when delivered in group settings (Schneider et al., 2016). A more recent meta-analysis of 19 trials demonstrated moderate to large positive effects of behavioural activation on depressive symptoms superior to control groups and equivalent to other treatments for depression (Simmonds-Buckley, Kellett, & Waller, 2019). In a recent sample of 32 veterans', behavioural activation led to a reduction in depressive symptoms and increases in overall life satisfaction (Raines et al., 2020).

Behavioural activation now has an evidence base for assisting with a variety of mental health challenges. Furthermore, neurological changes whilst improving such conditions is being established. An fMRI study revealed concurrent changes in the prefrontal cortex (Dichter, Felder, & Smoski, 2010) and reversals of immunological alterations associated with depression (Euteneuer et al., 2017).

Measuring Behavioural Activation

The current measures of the effects of behavioural activation have their genesis in earlier measures of depression. In the 1960s, prominent measures of depressive symptoms included the Beck Depression Inventory and the Self-Rating Depression Scale (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Zung, 1965). Subsequently measures of depression have been expanded to include anxiety symptoms. The most widely used of these expanded measures is the Kessler Psychological Distress Scale (K10) (Kessler et al., 2002). As the understanding of behaviours that reduce depressive symptoms has advanced, measures of these behaviours, such as the Pleasant Events Schedule, have been developed alongside measures of depression (Macphillamy & Lewinsohn, 1982; Youngren & Lewinsohn, 1980).

As behavioural activation methods have developed (Jacobson et al. (1996), corresponding advances in measures have eventuated. In 2007, a 25-item scale, the Behavioural Activation for Depression Scale (BADs) appeared (Kanter, Mulick, Busch, Berlin, & Martell, 2007; Manos, Kanter, & Busch, 2010). For each item, the respondent is asked to read a statement and rate how often the statement was true during the past week, on a seven-point scale ranging from 0 (*not at all*) to 6 (*completely*). Its items asked respondents about their behaviours focused on four factors. These factors include: (1) Activation (e.g., “I did something that was hard to do but it was worth it”), (2) Avoidance/Rumination (e.g., “I did things to avoid feeling sadness or other painful emotions”), (3) Work/School Impairment (e.g., “I took time off of work/school simply because I was too tired or didn’t feel like going in”), and (4) Social Impairment (e.g., “I pushed people away with my negativity”).

More recently, Manos, Kanter, and Luo (2011) developed a nine-item short-form labelled Behavioural Activation for Depression Scale – Short Form (BADS - SF). The BADS-SF has two subscales, specifically “activation” and “avoidance”. In the short form, five items concern the frequency and quality of activated positive behaviours, (e.g., “I engaged in many different activities.”) Another four items, which are reverse scored, concern avoidance and rumination (e.g., “I engaged in activities that would distract me from feeling bad.”) The activation subscale has been negatively associated with depressive symptoms, with a higher score indicating lower depressive symptoms. The avoidance subscale has been directly associated with depressive symptoms, with higher scores being associated with increases in depressive symptoms (Shudo, Yamamoto, & Sakai, 2017).

Belonginess Mechanism

The need to belong to a group has existed for as long as humans have evolved and migrated throughout the world (Blainey, 2004; Dayton-Johnson, 2003; Fagerlid & Tisdell, 2020), however it wasn't proposed to be an important psychological construct until the early 20th century (Adler, 1927). Maslow (1954) ranked the role of belonging as sitting just above safety and just below self-esteem in his hierarchy of needs. Subsequently, belongingness has been studied in a sociological and psychological context. For example, in a sociological context, Anant (1967, 1969) examined the integration of immigrants into their new country, finding that a lack of belonging was associated with increased anxiety. In the psychological context, for example, increasing social support has been hypothesized to be a more effective approach to psychological therapy than trying to reduce exposure to stressors (Cassel, 1976).

Defining Features

In a recent synthesis of the literature concerning concept of “belonging,” Mahar, Cobigo, and Stuart (2013) defined a sense of belonging as a subjective feeling of value and respect derived from a reciprocal relationship with other people that is built on a foundation of shared experiences, beliefs, or personal characteristics (Hagerty, Lynch-Sauer, Patusky, Bouwsema, & Collier, 1992; Kestenberg & Kestenberg, 1988). These feelings of connectedness are grounded to the referent group to whom one chooses, wants, and feels permission to belong. The aspect of perceived fit has also been raised as an important factor to belonging (Hagerty & Patusky, 1995).

According to Mahar et al. (2013), a sense of belonging entails more than mere membership in a group. More importantly, an authentic sense of belonging depends on the individual having a choice over how they participate in the group and with whom they wish to develop reciprocal interactions. The desire and ability for developing a sense of belonging has been outlined as a factor that is a precursor to an individual belonging in a group (Hagerty & Patusky, 1995). Conversely, if a person’s ability to control one’s interactions is limited, a sense of belonging is not likely to be achieved (AhnAllen, Suyemoto, & Carter, 2006; Bettez, 2010; Chaitin, Awwad, & Andriani, 2009; T. Lee & Breen, 2007). In the therapeutic context, the importance of belonging is highlighted by the increased benefits, through increases in perceived belonging, from face-to-face treatment when compared to technology-based treatment for depression (Sacco & Ismail, 2014).

Empirical Evidence

Mental Health

Many disorders, such as PTSD, personality disorders, anxiety, and depression require the identification of social isolation, belonging, and interpersonal relationships as part of their diagnostic criteria (American Psychiatric Association, 2013). In a broad sense, belonging has been linked to effective social and psychological functioning with particular importance for females (Hagerty, Williams, Coyne, & Early, 1996). Belonging has been shown to protect individuals from developing depressive symptoms during periods of adjustment (Bryan & Heron, 2015). In addition to a person's individual or a familial history of psychiatric problems, a lower sense of belonging and greater loneliness have been associated with developing depression in young people (R. A. Williams, Hagerty, Yousha, Hoyle, & Oe, 2002). Furthermore, in schools, a lack of social relationships has a strong relationship to depressive symptoms (J. P. Allen et al., 2006)

Beyond depression, a lower sense of belonging has been associated with increases in anxiety (Anant, 1967, 1969; R. M. Lee & Robbins, 1998; Overup et al., 2017). Anxiety related to low levels of belonging exists in the context of social exclusion in schools (Søndergaard, 2012) and immigrant communities (McCoy, Kirova, & Knight, 2016).

Neurophysiological Change

Aside from its relation to mental state, belonging is also associated with a measurable neurological and physiological responses. The role of the neuropeptide oxytocin in facilitating group bonding has been demonstrated (Stallen, De Dreu, Shalvi, Smidts, & Sanfey, 2012). Furthermore, being socially

excluded can create a similar neural response to that caused by physical pain (Eisenberger, Lieberman, & Williams, 2003). Associations between a lack of meaningful social interaction, stress, negative physiological changes and ill health have also been established (Herbert, 1997). Inflamed biomarkers, high blood pressure, and diminished immune performance have been associated with reductions in quality social support (Uchino, 2006).

Physical Health

Belongingness has a demonstrated role in overall physical health (House, Landis, & Umberson, 1988). Even when aspects of personality (e.g., extroversion, agreeableness) are considered, the evidence that social connection is important to health remains significant (S. Cohen, 2004; Herbert, 1997). Beyond general health, cancer and cardiac disease outcomes are positively influenced by increased social connection (Case, Moss, Case, McDermott, & Eberly, 1992; Ertel, Glymour, & Berkman, 2009; Everson-Rose & Lewis, 2005). In a study on the social impact of cardiac disease, Krantz and McCeney (2002) demonstrated that increasing belonging often leads to improved physical recovery. Conversely, a lack of social support has led to delayed recovery from injury and cancer (Fernandes et al., 2014; Uchino, 2006).

Social Domains

Beyond recognised mental health disorders, belonging plays an appreciable role in a variety of social domains. As described below, these include employment, gender, age, education, family, and military experience.

Employment. Higher levels of belonging have been associated with increased professional recognition and positive emotions in the workplace (Tangvald-

Pedersen & Bongaardt, 2017). In professional disciplines where women are highly represented, there is a greater sense of belonging, yet in fields where women are underrepresented, such as engineering, a lack of belonging is associated with women leaving the discipline (Kissinger, Campbell, Lombrozo, & Wilson, 2009).

Belonging over the lifespan. Throughout life, social connections will evolve as circumstances change (Ertel et al., 2009; Hanifi, 2006). For example, work-related belonging and contact with friends declines following retirement, yet belonging with family increases during the same period (van Tilburg, 1998, 2003). In older age, subjective belonging is associated with increased life satisfaction (Steinkamp & Kelly, 1987).

Education. The sense of belonging among academically gifted adolescents increases through identifying with like-minded children (G. Hughes, 2010; Riley & White, 2016). This matching allows those children to engage in a constructive manner with their peers that is more difficult to achieve with other children. Extra-curricular activities also increase belonging, and belonging has a moderating role between life satisfaction and stressors such as lack of control, unpredictability, and overload (Civitci, 2015). Furthermore, belonging predicts the ability to persist academically, even when other predictors of persistence have been control for (Garza, Huerta, Garcia, & Lau, 2020; Hausmann, Schofield, & Woods, 2007).

Family and marriage. During marriage, there is evidence that social circles increase for men (Milardo, 1987) but become smaller for women (Kalmijn, 2003), and negative interactions in marriage can lead to stress, poor health, and

increased mortality (Robles & Kiecolt-Glaser, 2003). Furthermore, marriage breakdown increases the long-term risk of depression and poor health (M. E. Hughes & Waite, 2009; Z. Zhang & Hayward, 2006). After a divorce, difficulties in finance, housing, and employment have been linked to a reduced sense of belonging and fewer social connections (Cheung, Wang, & Chan, 2013), particularly for women (Kalmijn, 2005). Furthermore, divorce-related reductions in family networks tend to occur closer in time to a separation, rather than later (Terhell, Broese van Groenou, & van Tilburg, 2007).

Military. In the military, relationships among members are of paramount importance to the force's sustained effectiveness. Starting at recruitment training, building teamwork, cohesion, and belonging are a matter of constant emphasis (Gayton & Kehoe, 2015; Orme & Kehoe, 2019; Wessely, 2006). These relationships demonstrably play a key role throughout and beyond a member's military career. In US Navy recruits, depression and a failure to complete training has been associated with a lack of belongingness (Kruse, Hagerty, Byers, Gatién, & Williams, 2014; R. A. Williams et al., 2002). Among Israeli soldiers, suffering battle fatigue has been associated with a loss of belonging (Dasberg, 1977). Post deployment, a sense of belonging in veterans' protects against depressive symptoms (Bryan & Heron, 2015).

Military members face a special challenge because they often have a foot in both the military and civilian cultures. When military members perceive a dissonance between their military and civilian cultures, they may feel like they do not belong to family and friends, potentially losing their sense of identity and leading to feelings of distress (Demers, 2011). Conversely, when military members have better community integration, their use of mental health services

diminishes (Chinchilla, Gabrielian, Hellemann, Glasmeier, & Green, 2019).

Along similar lines, part-time military members, who are less well integrated with their military culture, can have reduced sense of belonging (Podlogar et al., 2017), leading to increased risk of mental health disorders such as PTSD and susceptibility to suicide (Joiner & Silva, 2012).

Group settings. As distinct from a sense of belonging, there are other group processes which may contribute to artistic therapeutic outcomes. Typically many programs involving art therapy rely on group processes, however it is unclear what these underlying processes may be (Gabel & Robb, 2017). There are suggestions that the group processes may take over, and the art therapist's role is to draw commonalities out between members of the group (Springham & Camic, 2017). To understand the group process further it has been proposed that similar to ancient rituals images that others can relate to, sharing reflections about the art with others, and finding common ground with others' experiences through the artwork, in a mutually supportive group (Holttum, 2018) contribute to successful outcomes. For those undertaking group programs, the impact of a sense of belonging for participants has been found to be a contributor to more positive therapeutic outcomes (Macpherson et al., 2016). Furthermore, in a meta-synthesis of 15 qualitative studies, the process of normalising symptoms in group settings was found to contribute to de-stigmatisation and contributed to ongoing engagement of therapy (Wyatt, Harper, & Weatherhead, 2014).

Measuring Belonging

Over the last 25 years, multiple questionnaires have been developed to measure social integration and belonging (Hagerty & Patusky, 1995; Ibrahim, Ertl, Catani, & Neuner, 2018; Malone, Pillow, & Osman, 2012; McColl, Davies,

Carlson, Johnston, & Minnes, 2001). The Community Integration Measure (CIM) is one such measure and was adopted for this research, because its length was consistent the questionnaires for the other mechanisms, and it has a solid theoretical foundation. Specifically, the CIM was theoretically derived from four concepts: general assimilation, support, occupation, and independent living (McColl et al., 2001; Millis, Meachen, Griffen, Hanks, & Rapport, 2014). Initial factor analysis revealed two main factors: belonging in the community and independent, meaningful participation in the community (McColl et al., 2001). Baumgartner and Burns (2014) emphasise the strength of this measure lay in its focus on an individual's community-based sense of belonging and acceptance.

Originally designed for individuals with a traumatic brain injury (Griffen, Hanks, & Meachen, 2010), the CIM has been validated by McColl et al. (2001) using both patient samples (Cronbach's $\alpha = .830$) and university samples (Cronbach's $\alpha = .780$). In the context of traumatic brain injury, the measure had a ceiling effect with higher levels of community integration, leading to the suggestion it is more appropriate for assessing those with lower levels of community integration (Millis et al., 2014). In the context of general mental health, the CIM has been further validated with patient samples from China and Japan (Shioda, Tadaka, & Okochi, 2017; Tai-Wa, Shamay, & Gabriel, 2014). Adaptations of the CIM have been analysed with some success in Australian psychiatric settings (Lloyd, Waghorn, Best, & Gemmell, 2008), (Lloyd, King, & Moore, 2010).

The CIM contains ten items (e.g., "I feel like part of this community," "I feel like I belong here," and "I feel that I am accepted in this community".) Each declarative statement is rated on a five-point Likert scale: 5 (*always agree*),

4(*sometimes agree*), 3 (*neutral*), 2(*sometimes disagree*), 1(*always disagree*). The scores are summed to produce a single summary score between 10 and 50.

Higher scores are interpreted as reflecting higher levels of community integration (McColl et al., 2001).

Common Factors Mechanisms

Since Rosenzweig (1936), different therapies have been thought to share underlying features that play a significant part in patient improvement, irrespective of the over-arching theoretical approach adopted by the therapist. These “common factors” are increasingly being recognised as having a significant influence on therapeutic outcomes (Asay & Lambert, 1999; Duncan et al., 2010; Wampold, 2015). Yet, it is not known if common factors are a factor in adjunct therapies.

Defining Features

Common factors fall broadly into four overlapping categories (Duncan et al., 2010). First, the most widely recognised category is the therapeutic alliance, which is a combination of the bond, trust, and shared vision between the therapist and patient (Baldwin et al., 2007; Stamoulos et al., 2016; Wampold & Bhati, 2004). Second, there are, patient factors, such as engagement, motivation, openness to change, and the patient’s expectations about the consequences of engaging in therapy (Bohart & Tallman, 1999; Holdsworth, Bowen, Brown, & Howat, 2014; Scheel, 2011; Wampold, 2015). Third, there are therapist factors, including skill, training, and ability to interact with the patient (Podell et al., 2013; Prout & DeBerard, 2017). Fourth, there are nonspecific elements, such as credibility, placebo effects, and therapy structure (Justman, 2011; Mohr, 1995;

Nelson & Neufeldt, 1996; Reiling, 2017; Wampold, Minami, Tierney, Baskin, & Bhati, 2005).

Empirical Evidence

Common Factors Development

Meta-analysis across a variety of treatment methods and disorders revealed that effects of treatment methods were outweighed by a combination of other factors (Drisko, 2018; D. A. Shapiro & Shapiro, 1982). The APA Evidence-Based Practice in Psychology Task Force (2006) raised the importance of common factors in the treatment of mental health disorders, while noting these factors had been excluded in previous reviews of evidence-based practice.

During the 1990s, over 89 common factors had been named, with most consensus around factors that involved the development of the therapeutic alliance, the opportunity to release suppressive symptoms, patient hope, new behaviour acquisition, and subsequent practice (Grencavage & Norcross, 1990). The concept of common factors was further developed through the 1990s as a set of factors that each contributed to a specific proportion of improvement in a patient. One estimate defined individual contributions as client factors – 40%, therapeutic relationship – 30%, expectancy/placebo – 15%, and techniques – 15% (Asay & Lambert, 1999; Lambert & Barley, 2001). The complexity of the category development led the above-cited authors to caution that common factors are most likely integrated. For example, as outlined below, removal of alliance from therapy would necessarily render the therapy ineffective (Duncan et al., 2010).

Therapeutic Alliance

When examining common factors as an umbrella concept, it appears the most prominent of all common factors is the working or therapist alliance (Baldwin et al., 2007; Stamoulos et al., 2016). Acknowledged by earlier psychoanalysts, the concept of a therapeutic alliance was encouraged into mainstream psychology by Bordin (1979) when he described the alliance as a key to change in a patient. The therapeutic alliance is considered a bundle of three components: the bond of mutual trust and connection, agreement about the goals of therapy, and collaboration about the tasks of therapy (Bordin, 1979; Hatcher & Barends, 2006; Hatcher & Gillaspy, 2006).

The therapeutic alliance is considered a key contributor to overall therapeutic outcomes, in conjunction with the specific features of therapeutic interventions (Ardito & Rabellino, 2011; Del Re, Flückiger, Horvath, Symonds, & Wampold, 2012; Wampold, 2015). Recently, therapists were asked to rank the importance of 16 nominated common factors (Stamoulos et al., 2016). The vast majority of therapists (95.24%) endorsed therapeutic alliance as being the most significant of all for patient outcomes.

Meta-analyses from the patients' perspective confirmed that therapeutic alliance is important to treatment outcomes (Horvath & Symonds, 1991) up to a medium sized effect (Wampold, 2015). This positive effect appears even when controlling for the type of outcome measure, the time of alliance assessment, and the type of treatment provided (Martin, Garske, & Davis, 2000), including CBT and Interpersonal Therapy (IPT) (Blatt, Zuroff, Quinlan, & Pilkonis, 1996; Zuroff & Blatt, 2006). However, in cognitive therapy for depression, symptom improvement was not reliant on therapeutic alliance (Strunk, Brotman, &

Derubeis, 2010). The benefits of alliance also occur irrespective of patient characteristics such as perfectionism (Blatt et al., 1996). Beyond psychotherapy, the effect of alliance positively influences the outcomes of anti-depressant medication (Klein et al., 2003). Research by Flückiger et al. (2012) demonstrated that the impact of alliance tends to grow over the time course of therapy.

Patient Factors

In therapy, a patient is an active participant who benefits from having autonomy and self-motivation (Scheel, 2011). One factor that has a small positive effect is the patient's expectations about the consequences of engaging in therapy (Constantino, Arnkoff, Glass, Ametrano, & Smith, 2011; Wampold, 2015). In a review of 74 studies, Holdsworth et al. (2014) found evidence for patient characteristics that were categorized into three patient factors. Firstly, those that positively influenced attendance, including perceived need for treatment, less avoidance, and capacity to undertake treatment. Secondly, participation during therapy was positively influenced by capacity to undertake treatment and perception of the therapist's qualities. Thirdly, practice outside of the therapeutic setting was positively influenced by dependent personalities and capacity to undertake therapy.

Therapist Factors

The therapist as an influential factor on treatment efficacy, can outweigh the differences among treatment methods within CBT for both anxiety (Huppert et al., 2001) and depressive disorders (D. M. Kim, Wampold, & Bolt, 2006). Beyond the control research environment, the importance of the therapist effect has been demonstrated in a wide variety of therapeutic settings with a diverse sample of therapists and patients (Bailey & Ogles, 2019; Lutz, Leon, Martinovich, Lyons, &

Stiles, 2007). In addition, the ability of a therapist to empathise with a patient has been experimentally demonstrated to improve outcomes (Kaptchuk et al., 2008). In one meta-analysis, empathy had a small positive effect on outcomes (Wampold, 2015). The influence of the therapist has also been shown to increase the efficacy of medication on therapy outcomes (Brown et al., 2012).

Measuring Common Factors

Questionnaires which measure therapeutic alliance rely heavily on the one-to-one-alliance that can occur in a clinical treatment setting (Culverwell, 1993; Falkenström, Hatcher, & Holmqvist, 2015; Hatcher & Gillaspay, 2006). However, adjunct therapies can occur in a variety of nonclinical settings, with those administering the adjunct activity having either a health or non-health background. Moreover, Hadjistavropoulos, Pugh, Hesser, and Andersson (2017) found the available measures lacked consistency and definition. However, a specific measure for art therapeutic alliance has appeared which looks at the acceptance of art as a task by the client, the experience of the client, and the therapists' acceptance of the work (Bat Or & Zilcha-Mano, 2018). As yet, there is no instrument for measuring the complete set of common factors as identified, for example, by Stamoulos et al. (2016).

Flow State Mechanisms

The concept of the “flow” originated in research focused on the creative process that student artists used when developing their works (Csikszentmihalyi & Getzels, 1971). This research focus was extended to include the creative aspect of problem solving and the playing of games like chess. In each of these cases, the observed absorption of the individual into the activity inspired an interest in what would later be defined as flow or flow states. Flow states have subsequently

been described as living in the present, including the ability to become fully immersed in an activity with a feeling of energised focus and enjoyment, potentially losing sense of space and time (Boyd-Wilson, Walkey, & McClure, 2002; Harmat, Ørsted Andersen, Ullén, Wright, & Sadlo, 2016).

Defining Features

As defined by Csikszentmihalyi (1975), the original concept of flow incorporated six overlapping aspects. These aspects were (1) focusing attention so tightly that other stimuli are not noticed, (2) loss of self-awareness, (3) strong sense of control over the activity, (4) perception of a clear pathway to the desired end state, (5) no external rewards are needed, and (6) the experience of the activity is motivation enough.

Later, the six aspects were expanded to nine (Csikszentmihalyi, 1990). Based on interviews with elite athletes, Jackson and Marsh (1996) found that their responses corresponded to nine dimensions of flow being: (1) equilibrium of challenge and skills, (2) clear goals, (3) immediate feedback, (4) focused concentration, (5) a merging of activity and awareness, (6) the control of the outcome by the individual, (7) distorted perception of time, (8) loss of self-awareness, and (9) undertaking the task itself as reward in itself, otherwise known as the autotelic experience. Experiencing one sense of the above dimensions is not in itself an experience of flow, but all nine dimensions do not need to be experienced for a flow state to occur.

Hamilton and Hurford (2007) proposed that the nine dimensions can be grouped into two higher order categories. The first five listed above were known as antecedents; that is, they foster the flow experience. The remaining four were

consequences that constitute the experience of flow. More recently, Hancock et al. (2019), in another revision, recommended that the first three dimensions are antecedent, the second three are experiential consequences - that is, a momentary experience of flow - and the final three are sustained consequences which yielded longer-term experience of flow. Whilst there are other conceptualisations of the dimensions of flow, a general level of agreement exists on a nine-dimension model. Still the model may require refinement to address inconsistencies identified in more recent research (Rheinberg, 2008; Swann, Piggott, Schweickle, & Vella, 2018).

Empirical Evidence

Absorption in activity resulting from an optimal challenge enhances satisfaction, belief in competence, and increases the enjoyment of activities (Abuhamdeh & Csikszentmihalyi, 2012; Reynolds & Prior, 2006). Flow also correlates with increased motivation (Jackson, Ford, Kimiecik, & Marsh, 1998), and higher flow activities increase levels of positive affect (Csikszentmihalyi, 1997; Rogatko, 2009). In demanding academic tasks, e.g., language learning and flow states predicted better performance (Engeser & Rheinberg, 2008). In addition to these positive effects, activities that produce flow may be connected to the relief of debilitating anxiety (Jackson et al., 1998; Kapitan, 2013).

Personality factors have been associated with the ability to experience flow states. Having a strong internal locus of control has been associated with greater experience of flow states, particularly when there is a fit of skill and task demand (Keller & Blomann, 2008). Other personality dimensions that have been associated with experiencing flow states include low impulsiveness, stable emotions and positive affect (de Manzano et al., 2013).

Flow has been researched in a variety of contexts. These include artistic and creative activities (Abbott et al., 2013; Chemi, 2016), sport and physical activities (Ley, Krammer, Lippert, & Rato Barrio, 2017; Morgan & Coutts, 2016; Pecinovsky & Greenleaf, 2015), the workplace (Happell, Gaskin, & Platania-Phung, 2014), and more recently, human-computer and gaming interactions (Barnes & Pressey, 2016; Kaye, 2016).

Flow in Creative Art

Early research into flow began as an exploration of the creative art process and the subsequent effect on its creators and performers (Csikszentmihalyi, 1975; Csikszentmihalyi & Getzels, 1971; Getzels & Csikszentmihalyi, 1968). The aesthetic experience of viewing art in itself can invoke elements of the flow experience. To capture this experience, the Aesthetic Experience Questionnaire (AEQ) has subsequently been developed (Csikszentmihalyi & Robinson, 1990; Wanzer, Finley, Zarian, & Cortez, 2020). The AEQ consists of four art-based dimensions and two flow dimensions.

Concentrated engagement in artistic activities has been proposed to foster a beneficial state of flow (DeLucia, 2016; Kapitan, 2013). In a broad study that included literature, poetry and scripts, dance and choreography, acting and theatre directing, music (jazz, pop-rock, opera, classical), filmmaking (motion pictures and documentary), visual art, digital art, design, and architecture, participants experienced dimensions of flow, including states of deep concentration, calm, and self-forgetting (Chemi, 2016). In addition to these everyday benefits, flow has been proposed to play a role in achieving positive outcomes in the therapeutic use of art (Chilton, 2013; Wilkinson & Chilton, 2013).

Among these outcomes, the achievement of a flow state may assist individuals to develop an alternative perspective to perceived challenges for their mental health (Warren, 2006). For example, in a qualitative study of immigrant children, the experience of optimal challenge as a contributor to flow in artistic activities, assisted with coping of everyday stressors (S. Y. Lee, 2013). Building on these findings, flow dimensions such as immediate feedback, the balance of challenge and skill, and autotelic experience increased as the art became more complex, and was achieved through creating new ideas, solving problems, and increasing competence. It also led to a desire for additional flow experiences in art. Such desire for complexity thus increased positivity and meaning for the participants (S. Y. Lee, 2015). Furthermore, Doyle (2016) concluded that creative activities, through effort of executive function, enhances positive mood.

Flow in Music

The demanding act of creating music has been proposed as an activity that produces the experience of optimal challenge through the learning process and performance of music (Custodero, 2002; A. Lamont, 2012). The demands of music to produce sound and timing, entail the development of communication, expression of emotion, movement, interpretation, and co-ordination with others (Davidson, 2012; Hart & Di Blasi, 2015; Robinson & Hatten, 2012; StGeorge, Holbrook, & Cantwell, 2012). Meeting these multiple challenges has led the concept of flow to be investigated in a variety of settings including, live performances (Wrigley & Emmerson, 2013), in groups of jazz musicians (Hart & Di Blasi, 2015), and individuals during rehearsal (Araújo & Hein, 2019).

Of the nine recognised dimensions of flow, evidence from surveys of skilled musicians can account for the experience of six of these dimensions during their

practice (Araújo & Hein, 2019). These six dimensions are challenge–skill balance, clear goals, unambiguous feedback, full concentration, transformation of time, and autotelic experience. In contrast, most respondents experienced minimal or no loss of self-consciousness, sense of control, or action–awareness merging. Self-regulation of cognitions may also be a contributor to the experience of flow when performing music activities (Araújo & Hein, 2016).

In the context of music, flow has been associated with wellbeing, including a stronger association with the emotional aspects of wellbeing rather than the cognitive elements (Fritz & Avsec, 2007). Beyond wellbeing, life meaningfulness is positively associated with flow states, and in equal amounts to the experience of wellbeing (Sedlár, 2014). In addition, the flow dimensions of clear goals and autotelic experience are major associates of wellbeing (Fritz & Avsec, 2007).

Flow in Physical Activity

As outlined above, the association of physical activity with better mental health has been well established (Conn, 2010a, 2010b; White et al., 2017). The impact of physical activity on flow states in the context of mental health has been examined in a limited number of studies (Spaaij et al., 2019). An abstract of one German-language paper describes an association between exercise-induced flow and reduction of depressive symptoms (Reinhardt et al., 2008). For individuals who have experienced torture or war, trauma-related intrusive thoughts have been reduced by engagement in physical activities and its consequent flow states (Ley et al., 2017).

In contrast, there has been considerable research into the relationship between flow and physical activity, specifically in the domain of competitive sport (Hodge,

Lonsdale, & Jackson, 2009; Jackson, Thomas, Marsh, & Smethurst, 2001). Positive self-regard as an athlete and the strategic use of psychological skills such as imagery, goal setting, self-talk, and emotional control, have been associated with the experience of flow during sport (Jackson et al., 2001). In a study of elite athletes, engagement and need satisfaction predicted flow states (Hodge et al., 2009). Furthermore, a self-reinforcing, autotelic feedback loop exists, in which the experience of flow and associated positive emotions during physical activity is a predictor of ongoing participation in physical activity (Godoy-Izquierdo, Molina, Velez, & Godoy, 2010a, 2010b; Morgan & Coutts, 2016).

Neurophysiological Change

Flow states as subjectively experienced and occur in conjunction with circulatory and respiratory change, along with activation in specific regions within the brain. Chávez-Eakle (2007) hypothesised the importance of the role of the cerebellum in creativity. Specifically, the intense concentration required to create music is proposed to wire the brain differently for musicians through the central nervous system during flow states (Altenmüller, Finger, & Boller, 2015; Altenmüller & Schneider, 2008).

The state of flow has been associated with physiological variables including decreased heart rate, increased use of the zygomaticus major muscle (used for smiling), greater respiratory depth, reduced breath rate, decreased heart rate variability, and reduced blood pressure (de Manzano, Theorell, Harmat, & Ullén, 2010; Sampaio Barros, Araújo-Moreira, Trevelin, & Radel, 2018). These findings led researchers to conclude that flow is a combination of positive affect and high attention, ultimately leading to effortless attention (de Manzano et al., 2010).

Individuals who are likely to experience flow are more likely to have the striatal D2-receptor releasing more dopamine (de Manzano et al., 2013). Further research has revealed that flow is associated with decreased activation of the amygdala, medial pre frontal cortex, and overall increases in neural activity (Ulrich, Keller, Hoenig, Waller, & Grön, 2014). Associations of activation in regions such as the inferior frontal gyrus has led researchers to conclude that flow is experienced through a sense of control (Ulrich, Keller, & Grön, 2016; Ulrich et al., 2014). Other flow dimensions, such as selection of optimal difficulty, have been associated with higher oxygenated haemoglobin and higher activation in the frontoparietal network (Sampaio Barros et al., 2018).

Measuring Flow

In the last 25 years, there have been several qualitative and theoretical attempts to measure flow (Hart & Di Blasi, 2015; Hoffman & Novak, 1997; Jackson, 1996; Novak, Hoffman, & Yung, 2000; Reynolds & Prior, 2006). In the early 2000s, German researchers developed a 13 point scale that combined 10 questions related to flow, and three focused on anxiety (Rheinberg, 2008). Further research in the context of physical activity led to the development of a 36-item Flow State Scale, which supported the nine-dimension conceptualisation of flow (Jackson & Eklund, 2002; Jackson & Marsh, 1996; Marsh & Jackson, 1999). Using Confirmatory Factor Analysis and cross-validation, Jackson, Martin, and Eklund (2008) developed two short versions of a flow state scale, each containing nine items. One of the short scales, labelled as the Short Dispositional Flow Scaled (SDFS-2) was aimed at the respondent's general tendency to experience flow states, for example "My attention is focused entirely on what I am doing." (Further detail regarding the scale is subject to copyright restrictions.) The other

short scale, labeled Short Flow State Scale (SFSS-2), was aimed at assessing the experience of flow during a specific event, for example “I found the experience extremely rewarding.”

Summary of the Four Mechanisms

The four mechanisms reviewed have all been associated with improvements in a variety of clinical and non-clinical mental health conditions. However, the literature outlining their presence when art-based activities are undertaken is limited. Gaps in the current literature indicate inconsistent definitions, a lack of randomised control trials and minimal use of standardised measures being used to assess each of the four mechanism. Furthermore, while the four mechanisms remain distinct in their development, there is no indication of how these individually contribute to overall improvements in mental health when combined.

Evaluation Structure

Although the current research originated in an evaluation of an art-based program for veterans’, the foregoing literature review reveals that the particular evaluation can be nested inside a larger set of questions. For purposes of this thesis, two questions are of particular interest:

First, in the ARRTS program, the instructors were qualified university-level art professionals. However, they were not psychological therapists; psychological support if needed was provided for the program participants through ongoing psychiatric treatment and/or an on-site military psychologist. This assistance differed from that provided by formally qualified art therapists. Although it was not possible to conduct a trial in which participants were randomly assigned to

either an art professional versus an art therapist, it was possible to conduct a study in which civilian patients received visual arts training as hospital inpatients.

Second, as described in the literature review, four mechanisms have been identified as potential mediators between the arts-based activities and improvements in the veteran's mental health, particularly reductions in anxiety and depression. These mechanisms are relatively new areas of research that have individually developed from separate, older theoretical constructs. The literature currently identifies their association with improvements in mental health, however, does not identify any commonality between the mechanisms. The studies conducted with the veterans' and civilians had sample sizes that were too small to conduct worthwhile multivariate analyses of responses to the four questionnaires. To provide a sufficient sample, university students (N = 396) were surveyed using the questionnaires. Their responses were analysed in two ways. One analysis aimed at testing relative contribution of each questionnaire score in mediating the relationship between leisure activities – artistic and physical activities – and a joint measure of depression and anxiety. The other analysis was aimed testing whether the individual items across all four questionnaires could be condensed to yield a single, succinct questionnaire for measuring the underlying mechanisms in relation to anxiety and depression.

K10 Outcome Measure

The present studies employed the Kessler 10 (K10) measure of psychological distress as the measure of mental health and wellbeing, specifically, of anxiety and depression (Andrews & Slade, 2001; Brooks, Beard, & Steel, 2006; Furukawa, Kessler, Slade, & Andrews, 2003; Kessler et al., 2002). The K10 consists of ten statements that focus on an individual's feelings over the past four

weeks with respect to nervousness, restlessness, tiredness, depressiveness, and worthlessness. In the context of evaluating the ARRTS program for ADF veterans, the K10 was particularly suitable as it is used as a screening instrument for personnel for routine surveillance, both in garrison and deployed settings (O'Donnell, 2014). Moreover, the K10 is used broadly in the civilian context (Kessler et al., 2002), thus providing a basis for comparison between military and civilian populations.

Research Aims: The Four Mechanisms

To investigate the effects of the identified mechanisms underlying the effectiveness of adjunct activities, the following empirical studies used three different designs. First, abridged versions of four identified mechanism questionnaires (4 items) were used in studies of the ARRTS program participants (Chapters 3 and 5) and civilian patients in an art therapy program (Chapter 6). The abridged versions of the questionnaires aimed to assess the impact of the mechanisms over time. Second, slightly longer questionnaires (9 – 15 items) for each mechanism were used in a longitudinal study of the ARRTS program participants (Chapter 4). The aim of using validated measures is to measure the presence of mechanism at particular time points in relation to the exposure to adjunct therapies. Third, the longer questionnaires were used across two large-samples of university students with which mediation analyses (Chapter 7) and factor analysis (Chapter 8) were employed. The aim of using the questionnaires in larger populations is twofold: to firstly use statistical analyses to understand the relative contribution by each mechanism and, secondly to commence development of a shorter questionnaire to reduce participant burden.

Chapter 3 – Retrospective Perception of the Causes and Duration of Change Resulting from Art-Based Activities for Members of the Australian Defence Force

Introduction

The ADF recognises mental illness forces skilled individuals out of the organisation, and is costly, causing a lost in productivity. Specifically, 57% of expected and incurred costs, and 56% of lost time to injury are attributable to psychological injury (Department of Defence, 2017). In response to recent conflicts in Iraq and Afghanistan, established therapeutic interventions have increasingly been applied to improve veterans' functioning (Foa, 2008; Lenz, Haktanir, & Callender, 2017; Sharpless & Barber, 2011). In the context of these established therapies, there is increasing interest in the possible added therapeutic benefit of pursuing art-based activities, including visual, written, musical, and theatrical creations, among both veterans' (Lobban, 2012, 2016; Smith, 2016), and therapists (Kaimal, Walker, Herres, French, & DeGraba, 2018; Walker, Kaimal, Gonzaga, Myers-Coffman, & Degraba, 2017).

Such art-based activities have demonstrably reduced PTSD, depressive symptoms, and anxiety symptoms (Abbott et al., 2013; Blomdahl et al., 2013; Blomdahl et al., 2016; Kapitan, 2013). Despite these demonstrations, little is known about the processes that may underlie the changes experienced by those undertaking art-based activities. As described below, proposed contributors have been theorised to include behavioural activation, belonging, flow, and common factors.

Behavioural activation involves an individual engaging in behaviours that reduce depressive symptoms by developing a sense of purpose, achievement, and enjoyment (Richards et al., 2016). Depressive symptoms have been found to be particularly prevalent amongst military populations (Hodson, McFarlane, Davies, & Van Hooff, 2011) and, hence, promoting behavioural activation from an art-based activity may be particularly helpful (Soucy-Chartier & Provencher, 2013).

A sense of belonging is encouraged in military training, as a means to develop cohesive teams (Bryan & Heron, 2015; Diehle, Williamson, & Greenberg, 2019; Griffith, 2010). Moreover, a sense of belonging is a protective factor for returned service personnel (Demers, 2011). Additionally, belonging may be a contributor to the effectiveness of art-based activities in improving an individual's functioning, especially if the activities involve group work or are conducted individually but in the presence of others (Bryan & Heron, 2015).

Flow entails being absorbed in a task, with the potential to lose one's sense of space and time (Harmat et al., 2016). It has been defined as living in the moment, providing a positive distraction and thus reducing anxieties and other concerns (Boyd-Wilson et al., 2002; Jackson & Marsh, 1996). The concept of flow has been particularly theorised to underpin the effectiveness of art-based interventions (Chilton, 2013; Kapitan, 2013).

Common factors, a concept beyond the specific therapeutic intervention being used include bond, trust, alliance and willingness to change as a result of engaging in therapy (Stamoulos et al., 2016). These factors have been shown to positively influence therapeutic outcomes (Del Re et al., 2012). Given such common factors

occur in most therapies and interventions, their influence in the effectiveness of art-based interventions using nonclinical, arts mentors' merits investigation.

Individual differences in response to art-based activities may include factors such as locus of control, neuroticism, self-esteem, and self-efficacy. A higher-order dispositional construct combining the above factors has been identified as core self-evaluations (Judge, Locke, Durham, & Kluger, 1998). These have been found to be predictors of individual success and satisfaction in the workplace (Erez & Judge, 2001; Judge et al., 1998; Srivastava, Locke, Judge, & Adams, 2010). Similarly, core self-evaluations may be associated in the success and satisfaction of engagement with art-based therapy.

As outlined above, military personnel are engaging in art-based activities to supplement established therapies, and these programs are beginning to yield improvement in the personnel undertaking them (Campbell et al., 2016; DeLucia, 2016; Lobban, 2012). The present research was conducted as part of the evaluation of a four-week art training program conducted by the Australian Defence Force (ADF). The program was conducted for military personnel in a non-rank environment at a university where non-clinical mentors assisted wounded, injured, or ill veterans' in visual, written, musical, or theatrical art. During the program, the participants continued to have access to their regular mental health professionals as well as a nearby military hospital.

Identifying which of the above-named mechanisms may be contributing to an enduring improvement in respondents' general mental wellbeing was the focus of the current research. Specifically, the present research addressed the following questions:

1. By participating in an art-based program, do respondents report experiencing benefits, in particular, an improved sense of behavioural activation, belonging, common factors, and/or flow with nonclinical art mentors?
2. If respondents experience benefits from the program, are they enduring, and for how long?
3. Given the time since participating, would the respondents have benefited from periodic booster activities following the program, and if so, what would this involve?
4. Do core self-evaluations positively correlate with better mental health outcomes during and following the program?
5. Since completion of the program, what has been the respondents' general wellbeing in relation to the perceived benefits of the program?

Method

Materials

The survey included the following five questionnaires: (1) demographic variables, including gender, age, duration of service, most recent service type (Navy, Army, or Air Force), and cohort of the ARRTS program; (2) the K10, a measure of current psychological distress including anxiety and depressive symptoms (Brooks et al., 2006; Kessler et al., 2002); (3) the Core Self-Evaluations Scale (CSES), a validated tool for measuring an individual's aggregate evaluation of their locus of control, neuroticism, self-esteem, and self-efficacy (Gardner & Pierce, 2010; Judge, Erez, Bono, & Thoresen, 2003); (4) a 16-item survey (see Table 1) which asked respondents to retrospectively evaluate

the positive effects of the ARRTS program in terms of their experience of behavioural activation, belonging, flow, and common factors; and (5) nine items investigating respondents' opinions about the length of the program, the possible benefit of a range of follow-up activities, the non-military environment and its instructors, the development of new relationships, the learning of new skills, and the perceived overall benefit of the program.

For each item in the positive effects survey (4), the respondents were given the options of indicating whether the item applied to them before, during, and/or after the ARRTS program. Multiple responses were allowed. For each question, the respondents were also asked, "How long following the program did the above effect last in months?" The given response options were: "at end of program", "3 months", "6 months", "9 months", "12 months", and "24 months or hasn't stopped yet."

To assess if the respondents would have benefitted from a follow up activity after the conclusion of the program, the following was asked 'If the opportunity presented itself for follow up beyond the program what potential follow up would you like to have been involved in:'. Participants were presented with eight choices, and they could select multiple items.

Procedure

The present research was conducted as part of the evaluation of a four-week art training program conducted by the Australian Defence Force (ADF). The program, known as the ARRTS Program was conducted for military personnel in a non-rank environment at a university where non-clinical mentors assisted wounded, injured, or ill veterans in visual, written, musical, or theatrical art.

During the program, the participants continued to have access to their regular mental health professionals as well as a nearby military hospital. Table 3.1 outlines the years the program was conducted, the number of respondents, and the corresponding chapters.

Table 3.1 ARRTS Respondents by Cohort and Chapter

<i>Year</i>	<i>Cohort</i>	<i>Number of Respondents</i>	<i>Corresponding Chapter</i>
2015	15.1	8	Chapter 3
	15.2	7	
2016	16.1	3	
	16.2	8	
2017	17.1	5	
	17.2	8	Chapter 4
2018	18.1	16	
	18.2	21	
2019	19.1	20	Chapters 4 & 5
	19.2	21	

Prior to being contacted for the survey, the respondents had undertaken a four-week, residential training program in either visual, written, musical, or theatrical art, culminating in an exhibition for family, friends, and senior military colleagues. The respondents' art mentors in the program were qualified instructors in each area. The respondents completed the survey on-line using the Qualtrics platform. The study was conducted under the Departments of Defence and Veterans' Affairs Human Research Ethics Committee approval, Protocol 853-17. Ethical requirements did not allow identification of respondents, nor were any data passed onto the researchers regarding those that chose not to participate in the research.

Statistical Analyses

For each of the four subscales (behavioural activation, belonging, flow, common factors), an average score for each respondent was computed. Planned statistical contrasts were conducted using O'Brien and Kaiser's (1985) multivariate analysis of variance (MANOVA) method. The textual description of the results will report the F statistic and its p value. For significant effects, the effect size (d) is also reported. The d statistic represents the median of the 95% confidence interval (CI) for the difference among the contrast-weighted means, expressed in standard deviation (SD) units (Bird, 2004). In line with Cohen's (1992) recommendations, effect sizes of 0.20, 0.50, and 0.80 SD units were designated as small, medium, and large, respectively. For correlational analyses, correlation coefficients (r) of 0.10, 0.30, and 0.50 were designated as small, medium, and large, respectively (Cohen, 1992). A Principal Components Analysis (PCA) using SPSS was conducted on the duration of the program's positive effects to determine if the four distinct factors converged.

Results

Respondents

The final sample consisted of 31 individuals from a pool of 119 serving members of the ADF who participated in five cohorts of the Arts for Recovery, Resilience and Team Skills (ARRTS) program conducted between 2015 and 2017. Attempts were made to contact all program participants by phone in late 2018 or early 2019. However, many had discharged from the ADF and were no longer contactable. Among the 119 individuals, 61 were successfully contacted, and ultimately 31 completed the survey. This final sample consisted of 23 males and 8 females, with 29% reporting having served in the Royal Australian Navy, 61% in

the Australian Army, and 10% in the Royal Australian Air Force. The ages of the respondents ranged from 20 to over 50+ years in age. The time between the end of the program for each individual and their completion of the survey varied from 18 to 42 months. Specifically, there were, respectively, 16%, 26%, 10%, 23%, and 26% of the respondents who reported completing the program 18, 24, 30, 36, and 42 months prior to the survey.

Positive, Negative and Null Effects

Overall, 29 of the 31 (93%) respondents reported that the program was beneficial. Table 3.2 shows the percentage of respondents who reported having experienced the positive effects described in each of the 16 items, before, during, and after participating in the ARRTS program. Examination of Table 3.2 reveals that, for every item recalled, the percentage of respondents reporting the positive effects increased during the program, declined after the program, yet remained higher than to begin with. The average percentage for all items, as shown in the bottom row, increased from 23% to 87%, and then declined from 87% to 61%. Examination of Table 3.2 reveals that, for every item recalled, the percentage of respondents reporting the positive effects increased during the program, declined after the program, yet remained higher than to begin with.

Table 3.2. Positive Effects of ARRTS Program

Percentage of participants who experienced:	Before ARRTS Program	During ARRTS Program	After ARRTS Program
Behavioural Activation			
I enjoyed the activities I was involved in	26%	94%	65%
I had a sense of achievement from the activities I undertook	23%	87%	71%
I had a sense of purpose by undertaking the activities	19%	87%	65%
I used the artistic activity to avoid unpleasant feelings	19%	84%	61%
Average Behavioural Activation	22%	88%	65%
Sense of Belonging			
I felt I was accepted by the community I was in	16%	94%	61%
I felt I had close supportive relationships with others	26%	90%	58%
I felt productive	23%	90%	61%
I felt independent	23%	87%	61%
Average Sense of Belonging	22%	90%	60%
Flow			
I felt I could be fully immersed in an activity	6%	87%	45%
I felt I had energised focus	3%	84%	65%
I could lose a sense of space and time when I was absorbed in activity	19%	81%	55%
I did things instinctively and automatically without having to think	32%	65%	42%
Average Flow	15%	79%	52%
Therapeutic Alliance			
I had a good working relationship with the ARRTS staff.	32%	94%	74%
The ARRTS staff empathised with me	42%	84%	65%
The ARRTS staff were genuine in relating to me	35%	90%	65%
I feel open to development and change	19%	94%	71%
Average Therapeutic Alliance	32%	90%	69%
Average All Items	23%	87%	61%

To analyse this pattern, three scores were computed for each respondent, specifically, (1) the proportion of the 16 positive effects that the respondent

reported experiencing before the program, (2) the proportion experienced during the program, and (3) the proportion experienced after the program. In a MANOVA comparing these three scores, there was a large and significant increase from the before scores ($M = 23\%$, $SD = 20\%$) to the during scores ($M = 84\%$, $SD = 26\%$) [$F(1,31) = 111.23$, $p < .01$, $d = 2.413$]. The respondents after scores were also significantly higher than their before scores ($M = 65\%$, $SD = 30\%$) [$F(1,31) = 13.31$, $p < .01$, $d = 0.773$]. As may be apparent, there was a significant reduction from the during scores to the after scores [$F(1,31) = 51.41$, $p < .01$, $d = 1.640$]. Subsidiary analyses on scores computed for behavioural activation, sense of belonging, flow, and common factors, yielded a virtually identical pattern of results with similar effect sizes.

Duration of Positive Effects

Parallel to Table 3.2, Table 3.3 outlines the reported duration of each of the positive effects. The positive effects appeared to reduce for some respondents in the 3 to 24 months period following the program. Nevertheless, for all items, the positive effect reported by the majority of respondents ($M = 61\%$) lasted for up to 24 months or longer. For each of the four subscales (behavioural activation, belonging, flow, common factors), an average score for each respondent was computed. Statistical tests on the distribution of frequencies for the averages revealed that the distributions on three of the four subscales were significantly different from a random distribution. For behavioural activation, belonging, and common factors, the $\chi^2(4)$ was, respectively, 30.45, 28.19, 24.97, $ps < .0001$. The distribution of flow scores, while still favouring a duration of 24 months or longer in duration, appeared statistically less pronounced, $\chi^2(4) = 10.77$, $p < .029$.

Table 3.3. Duration of Positive Effects

Duration of the effect experienced by participants:	Lasted				Lasted
					24
	End of	3	6	12	Months
	Program	Months	Months	Months	or ongoing
Behavioural Activation					
I enjoyed the activities I was involved in	10%	17%	7%	7%	60%
I had a sense of achievement from the activities I undertook	10%	14%	7%	3%	66%
I had a sense of purpose by undertaking the activities	10%	21%	3%	3%	62%
I used the artistic activity to avoid unpleasant feelings	18%	7%	7%	11%	57%
Average Behavioural Activation	12%	15%	6%	6%	61%
Sense of Belonging					
I felt I was accepted by the community I was in	17%	7%	3%	10%	63%
I felt I had close supportive relationships with others	7%	3%	13%	3%	73%
I felt productive	10%	7%	7%	7%	70%
I felt independent	13%	7%	7%	7%	67%
Average Sense of Belonging	12%	6%	8%	7%	68%
Flow					
I felt I could be fully immersed in an activity	21%	10%	7%	7%	55%
I felt I had energised focus	14%	10%	3%	10%	62%
I could lose a sense of space and time when I was absorbed in activity	29%	7%	4%	7%	54%
I did things instinctively and automatically without having to think	23%	12%	0%	8%	58%
Average Flow	21%	10%	4%	8%	57%
Therapeutic Alliance					
I had a good working relationship with the ARRTS staff.	20%	3%	7%	10%	60%
The ARRTS staff empathised with me	21%	7%	4%	18%	50%
The ARRTS staff were genuine in relating to me	23%	10%	0%	17%	50%
I feel open to development and change	7%	14%	7%	3%	69%
Average Therapeutic Alliance	18%	9%	4%	12%	57%
Average All Factors	15%	10%	5%	8%	61%

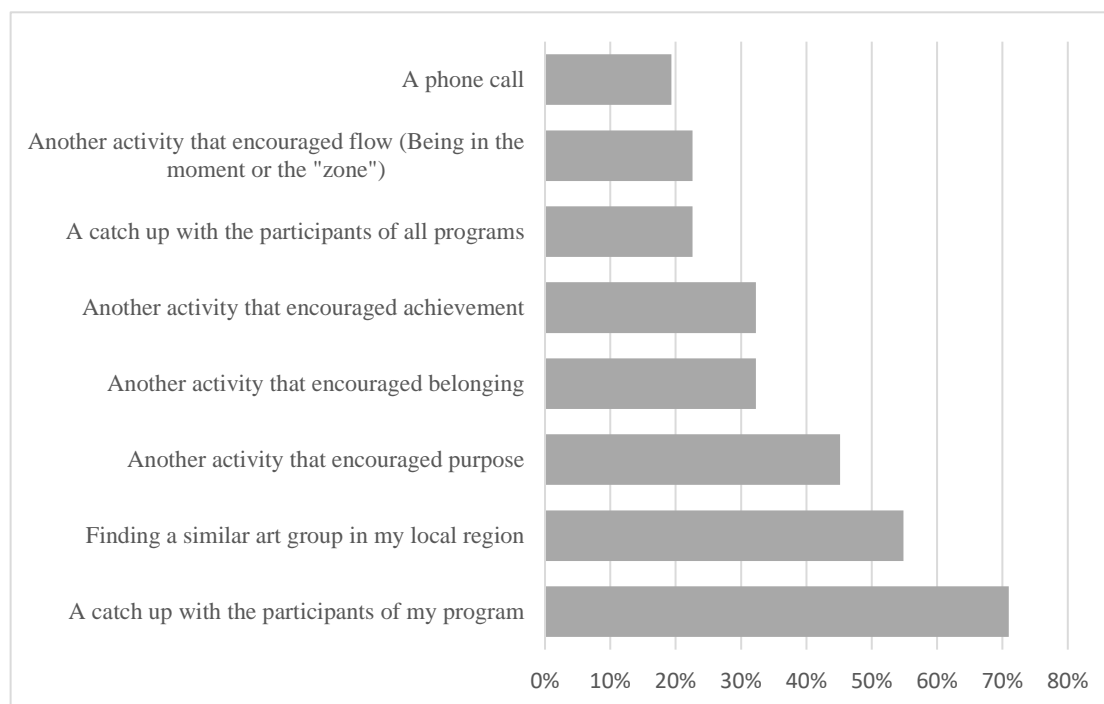
Principal Components Analysis of Positive Effect Duration

A Principal Components Analysis was conducted on the duration of the program's positive effects. Overall, the analysis indicated one factor accounted for 96% of the duration of effects experienced by the respondents. No other factor had an eigenvalue over one. The Kaiser-Meyer-Olkin measure of sampling adequacy was .64, which was above the commonly recommended value of .60, and Bartlett's test of sphericity was significant [$\chi^2(6) = 21.94, p < .001$].

Follow-up actions

Figure 3.1 shows the percentage of respondents who reported the types of preferred follow ups. The three most-frequently preferred options were the ability to reconnect with participants of their own program, the ability to remain connected to the benefits of art, and undertaking activities that encouraged a sense of purpose. In contrast, the three least preferred follow up activities were a catch up with respondents from all programs, an activity which encouraged flow, and a phone call from the staff on the program.

Figure 3.1. Percentage of respondents who indicated which follow up activities they would have desired to be available after the ARRTS program was finished.



Core Self-Evaluations

There was a positive medium correlation between CSES ($M = 37.6$ $SD = 9.7$) and the proportion of the 16 positive effects reported by respondents that occurred during the program ($M = 13.5$ $SD = 4.1$), $r = .32$, $p < .05$, $N = 31$. A medium correlation was also found for CSES and the proportion of positive effects experienced after the program ($M = 10.3$ $SD = 4.8$), $r = .34$, $p < .05$, $N = 31$.

K10

Responses for the K10 questions were partitioned into three bands, aligned with the bands used by the Joint Health Command of the ADF (Hodson et al., 2011). Among the 31 respondents, 12 (39%) were in the band considered likely to be well, with 9 (29%) considered likely to have a moderate disorder, and 10 (32%) considered likely to have a severe disorder. The corresponding percentages from the overall ADF population are 65%, 22%, and 13% (Hodson et al., 2011). Thus,

a majority of the respondents (61%) were significantly more likely to be experiencing some degree of continuing psychological distress as compared to 35% in the overall ADF population, $\chi^2(2) = 12.84, p < .002$. Given the retrospective nature of the survey, it was not possible to gather relevant K10 scores prior to commencing the program.

Discussion

The aim of the current study was to examine the self-reported impact of an art-based training program, on current serving veterans', with respect to six research questions:

Question 1 concerned the benefits respondents gained. The respondents reported having experienced multiple benefits, including gains in their sense of behavioural activation, belonging, flow, and common factors with their arts mentors. On an individual basis, the magnitude of the gains was highly correlated; principal components analysis revealed that the ratings for 16 experiences all loaded on to a single factor that explained 96% of the variance.

Question 2 concerned the duration of the self-reported benefits. A majority of respondents (61%) stated that the program's benefits endured at least 24 months or more, while only 15% reported that the benefits did not outlast the program.

Question 3 asked whether a follow-up would be desirable. The bulk of respondents (81%) reported that they would like to have had an opportunity for a follow up activity, especially an art activity or activity that involved elements of belonging and behavioural activation.

Question 4 concerned each respondent's core self-evaluations and its relation to their experience in the program. Respondents who had a higher CSES score reported more benefits from the program than those who did not.

Question 5 asked about the respondents' general psychological distress (K-10) in relation to the perceived benefits of the program. The respondents' current general psychological distress was significantly higher than the general ADF population; 61% were likely to have some degree of disorder in comparison to 35% in the general ADF population. A possible explanation of the difference could be related to the respondents' relatively poor psychological health in relation to the ADF as a whole.

In this research, respondents reported multiple, enduring benefits from their participation in the ARRTS. Given concerns raised about sustained effectiveness of established therapies (Flückiger, Heer, Del Re, Munder, & Wampold, 2014; Johnsen & Friberg, 2015), the long duration of change reported by respondents is encouraging for the participation of military personnel in art-based programs as adjuncts to traditional therapies. Although 61% of the respondents experienced enduring benefits from the arts program in addition to their previous treatment, the respondents' overall wellbeing was lower than the general ADF population. Given the lower level of wellbeing, the respondents' desire for follow-up art activities that promoted belonging and a sense of purpose is consistent with findings that sustaining retention in and maintenance of training is bolstered by brief refresher training (Ginzburg & Dar-El, 2000; Isaak, Vashdi, & Steiner-Lavi, 2018; Kluge & Frank, 2014).

The four distinct mechanisms loading onto one factor was not expected. Such a finding could be due to the small numbers of respondents and is discussed further in the limitations.

Limitations and future directions

The current research has framed the ARRTS program as an art-based activity adjunct to established forms of psychological therapy administered within the ADF, which is typically CBT based. Behavioural activation, belonging, flow, and common factors have been previously suggested as contributors to therapeutic change. The current research confirmed that all four elements were positive outcomes of the art-based program. What had not been expected was that all four elements appeared to cluster as one factor that contributes to the art-based effect. Yet, the underlying constructs have been separately developed and semantically appear to be at least partially distinct from each other. In particular, belonging and common factors concern interpersonal relationships, while behavioural activation and flow seem more related to the individual's personal positive experience with an activity. Further research with a greater number of participants to understand the commonality and/or divergence between these constructs would seem worthwhile. Increasing the sample size would potentially allow for the separation of the effects from each of the art-based activities used in the ARRTS Program.

The sample of respondents to the current research could be considered a limitation in the results. Out of a potential 119 participants, only 31 were respondents. It is not clear if the respondents are representative of the previous participants and apart from their contact details at time of participation, no further detail regarding the participants was available. As a result, there is no indication that a favourable experience in the ARRTS Program influenced responses rates,

potentially leading to bias. Due to the time that had elapsed between participation and survey, some details of former participants in the program were not current, thus meaning they could not be contacted.

The higher order construct of core self-evaluations has been proposed as being predictive of future positive engagement and satisfaction (Erez & Judge, 2001; Srivastava et al., 2010). The CSES scores were positively correlated with the benefits experienced by respondents both during and following the program. Further research into how core self-evaluations may mediate and/or moderate this outcome may also be worthwhile. In contrast, there was no discernible correlation of CSES scores with the respondents' reports of their before scores for behavioural activation, belonging, flow, and common factors. In this connection, the design of the current study involved significant recall from the respondents. The time between participation and response was up to 42 months, which could have influenced respondents' recall, thus influencing the data gathered. The recall of experiences in the ARRTS Program could be considered both emotional and fact based. Given the theorised differences in degradation of such memories (Winocur, 2011) it would be beneficial to understand how the program influences the encoding of those memories at the time of experience. An opportunity for further investigation that is less reliant on recall could clarify the present findings, for example, periodic face-to-face mental wellbeing assessments both before and following the program.

Art-based activities fall on a continuum of usage in society ranging from self-entertainment through to self-development and into their therapeutic usage (Potash et al., 2016). The framework of established, conventional therapy has been argued by some to be counterproductive for the free forms of expression that

art can offer. However integrated programs such as CBT-ART (Sarid, Cwikel, Czamanski-Cohen, & Huss, 2017) are currently being developed. Evaluation of art-based activities' contribution to human wellbeing must consider the full range of experiences and delivery methods such activities can provide.

Conclusion

The current study extended the existing knowledge of the contribution of art, potentially as an adjunct to their previous and ongoing clinical treatment. Based on the respondents' recall, the ARRTS Program provided aggregate benefits in several ways. The results indicated that the art-based program had a positive effect on apparently disparate mechanisms of the respondents' functioning. In fact, four seemingly unrelated mechanisms of behavioural activation, sense of belonging, flow, and common factors might be considered one overarching factor, at least in this context.

Chapter 4 - Longitudinal Change Resulting from the ADF's Arts for Recovery, Resilience, Teamwork and Skills (ARRTS) Program

Introduction

Military service exposes members to a variety of traumatic and non-traumatic stressors that create the potential for poor mental health (Hodson et al., 2011). As adjuncts to established therapeutic interventions, there is increasing interest among therapists and veterans' alike in the possible benefits of members' pursuing arts-based activities alongside their main treatment (Smith, 2016). Such arts-based activities include visual, written, musical, and theatrical modalities. In this context, the present paper describes a portion of the evaluation for a program of art-based activities aimed at supplementing the treatments of wounded, injured, and ill military personnel. This program badged as the Arts for Recovery, Resilience and Teamwork Skills (ARRTS) program was initiated by the Australian Defence Force (ADF) in 2015.

Prior to the present study, the evaluation comprised 31 of the 119 participants who were contacted 18 months or more after completing the four-week ARRTS program through 2015, 2016, and mid-2017 (Watt & Kehoe, 2020). These former participants responded on a retrospective basis to 16 statements concerning their experiences, for example, "I had a sense of achievement from the activities I undertook". The participants were asked to tick a box as to whether the statement applied to themselves before, during, and/or after the program. In addition, there was a question asking the duration of the effect following the program. The respondents also completed a measure of psychological distress (K10) and a Core Self Evaluations Scale (CSES), both which are described in greater detail in the method section. This retrospective survey revealed the participants experienced

ongoing benefit from the ARRTS program from 18 months up to 48 months later (Watt & Kehoe, 2020).

As may be apparent, the previous survey was limited to a small number of former participants surveyed at a time considerably after the program had ended. The present study aimed to fill the gap in knowledge regarding participants' experiences during the program and in an immediate follow-up period of six months. Whereas the retrospective study focused on categorical judgements concerning remembered experiences, the present study provided a more detailed longitudinal, quantitative assessment of the participants' experiences. In addition, the study was based on a more substantial sample (final $N = 92$) recruited from five cohorts who completed the ARRTS program between late 2017 and late 2019.

Art and Mental Health

Art-based activities have demonstrably assisted veterans' and civilians experiencing anxiety, depression, and PTSD (Smith, 2016). Beyond remediation of mental health disorders, art-based activities have been associated with improved resilience, sense of belonging, quality of life, and reductions in stress, anger, physical complaints, and social isolation (Macpherson et al., 2016). Specifically for veteran populations, art-based activities in the forms of visual, written expression, and theatre have demonstrated mental health benefit (Sayer, 2015).

Despite these promising results, art-based activities have not been well standardised. Among other things, the activities have been conducted not only by specialised art therapists, requiring tertiary level training in therapeutic techniques, but also by art educators that hold qualifications only in their

respective art specialty. The latter use of art educators was the case in the ARRTS program. To date, published literature on the use of art educators has been limited to children diagnosed with autism (Alter-Muri, 2017).

The Underlying Mechanisms

The present study was conducted to identify specific mechanisms through which the benefits of art-based activities are experienced by participants. In other types of psychological therapy, four mechanisms have been prominent contributors to therapeutic success. As will be detailed below, they are behavioural activation, belonging, common factors and flow states.

Behavioural activation

Undertaking activities that provide a sense of purpose, achievement, or enjoyment in a clinical context are broadly called “behavioural activation” (Mazzucchelli, Kanter, & Martell, 2016). Active recreational pursuits (e.g., artistic activities, hobby crafts, and sport) and even passive enjoyments (e.g., watching a movie, relaxing in a bath) may achieve behavioural activation. Multiple clinical studies have demonstrated that behavioural activation may be described as “a low-intensity guided self-help” treatment that improves depressive symptoms (Soucy-Chartier & Provencher, 2013). Behavioural activation may also reduce anxiety symptoms, but empirical support for this proposition has been the subject of debate (Dimaggio & Shahar, 2017).

Belongingness

A sense of belonging can improve mental health in a variety of settings. By the same token, a sense of belonging can lead people to become more resilient and less vulnerable to common mental health concerns (Macpherson et al., 2016).

Being part of a group, and the resulting processes, are mechanisms by which visual art-based activities have been shown to achieve positive outcomes for veterans' (Smith, 2016).

Common Factors

There are four recognised categories of factors that are common to patient-therapist relationships (Duncan et al., 2010). The largest category is the working or therapist alliance (Stamoulos et al., 2016), which is a combination of the bond, trust, and vision shared by the therapist and patient. The other three categories are: client-specific factors, such as the patient's engagement, motivation, openness to change, and expectations about engaging in therapy; therapist-specific factors, including skill, training, and ability to interact with the patient; and finally, therapy-specific models and techniques, such as credibility, placebo effects, therapy structure, and therapy focus (Duncan et al., 2010; Horvath, Del Re, Fluckiger, & Symonds, 2011; Wampold, 2015).

Flow states

Flow states are commonly described as living in the present, the ability to become fully immersed in an activity with energised focus and enjoyment, and potentially losing sense of space and time (Harmat et al., 2016). Activities during which flow states may be achieved are thought to be connected with relief from debilitating anxiety. Along similar lines, absorption in an activity can enhance the levels of satisfaction from an optimal challenge and can increase belief in competence, thus influencing the enjoyment of activities.

Core self-evaluations

A higher-order personality trait comprised of locus of control, neuroticism, self-efficacy, and self-esteem – otherwise known as an individual's core self-evaluations – has been proposed as influential for an individual's effectiveness in the work place (Judge et al., 1998). People who have high core self-evaluations will think positively of themselves and be confident in their own abilities. Conversely, people with low core self-evaluations will have a negative appraisal of themselves and will lack confidence. A person's core self-evaluations have been found to be a predictor of job performance, job satisfaction, and more effective goal setting. Beyond the workplace, a person's core self-evaluations may contribute to their overall outlook and accordingly mental health.

Psychological distress

Psychological distress, a construct comprising of symptoms of anxiety and depression, is one of the frequently assessed mental health concerns within the ADF. The ADF prevalence in any 12 months for these disorders are 9.5% for depressive disorders and 14.8% for anxiety disorders (Hodson et al., 2011).

Research Questions

Based on the above considerations, the present study addressed the following questions concerning the participants' experience during the ARRTS program and within a six-month follow up period.

1. Do the participants experience changes in the underlying mechanisms of behavioural activation, belonging, common factors, and flow states?
2. Do participants experience changes in anxiety and depressive symptoms?

3. Do the participants experience changes, if any, in trait-based characteristics as assessed by the Core Self Evaluations Scale?

Method

Procedure

At the start of each program, the prospective respondents were provided with an information pack including research outline, respondent information statement, and consent form via email. For the program participants who consented, a link to the Qualtrics online platform was sent at each measurement occasion. On each occasion, the respondent could complete the survey via phone, tablet, or computer. For each respondent, there was a maximum of three measurement occasions during the program: (1) Days 3-5, (2) Days 12-14, (3) Day 28, plus three- and six-month follow up occasions. Data collection for common factors, core self-evaluations and psychological distress occurred at the start, end, three- and six-month measurement occasions, with behavioural activation, belonging and flow states occurring on all occasions, as shown in Figure 4.1. The study was approved by the Departments of Defence and Veterans Affairs Human Research Ethics Committee, Protocol 853-17.

Measures

Behavioural Activation for Depression Scale – Short Form (BADSF)

The BADSF was used to measure behavioural activation. It consists of nine items, which were developed using a university population (Manos et al., 2011). For each item, the participant was asked to read a statement and rate how often the statement was true during the past week on a seven-point scale ranging from 0 (*not at all*) to 6 (*completely*). Five items concerned the frequency and quality of recent activities, e.g., “I was an active person and accomplished the goals I set out

to do.” The other four items, which were reverse scored, concerned avoidance and rumination, e.g., “I engaged in activities that would distract me from feeling bad.” The BADS-SF is reported to have sound psychometric properties, e.g., Cronbach’s $\alpha = .819$ (Manos et al., 2011).

Community Integration Measure (CIM)

The CIM is a measure of belongingness, which rates perceived connections within a community with respect to general assimilation, support, occupation, and independent living (McColl et al., 2001). The CIM contains two subscales, identified as belonging and independent participation. Whilst originally designed for the those who have had a traumatic brain injury, the measure has been validated by McColl et al. (2001) using both patient samples (Cronbach’s $\alpha = .830$) and university samples (Cronbach’s $\alpha = .780$). The CIM contains ten declarative statements which are rated on a five-point Likert scale (always agree, sometimes agree, neutral, sometimes disagree, always disagree), where always agree was coded as 5, and always disagree was coded as 1. Higher scores are interpreted as reflecting higher levels of community integration.

Common Factors Questionnaire (CFQ)

The CFQ was developed for the purposes of this study from a list of fifteen factors (Stamoulos et al., 2016) including, among others, rapport, trust, shared goals, and empathy between a program participant and their instructor. The CFQ was designed to measure similar relationship factors deemed important in a variety of settings containing an artistic instructor. The questionnaire used a five-point Likert scale (strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, strongly agree). Higher scores indicate a closer relationship between the respondents and their instructor. The questionnaire

demonstrates appropriate reliability when tested with a university sample ($N=395$), (Cronbach's $\alpha = .822$). Factor analysis revealed three factors, being instructor alliance, goal orientation, and personal development.

Short Dispositional Flow Scale (SDFS)

The SDFS provides a brief assessment of a nine-dimensional conceptualisation of flow state as a cognitive construct (Jackson et al., 2008). The scale was developed using samples from the general Australian population (Cronbach's $\alpha = .810$). The scale contains nine statements concerning an activity nominated by each participant, for example, the artistic activity undertaken during the ARRTS program. The nominated activity was then rated according to the flow state experienced on a 5-point scale (never, rarely, sometimes, frequently, always) with higher scores indicating a greater sense of flow. For example, one statement is "My attention is focused entirely on what I am doing."

Core Self-Evaluations Scale (CSES)

The Core Self-Evaluations Scale (CSES) was developed out of a four-component model of Core Self Evaluations and has been validated for measuring an individual's aggregate evaluation for each factor (Judge et al., 2003). The scale consists of 12 items and uses a five-point Likert scale (i.e., strongly disagree, disagree, neutral, agree, strongly agree) to score responses. Examples of statements include, "I am confident I get the success I deserve in life," and "I am filled with doubts about my competence". The overall score has demonstrated a reliable Cronbach's α of 0.88.

Kessler 10 (K10)

The K10 is widely used as a measure of psychological distress based on anxiety and depressive symptoms (Kessler et al., 2002). The K10 has ten items that each ask, “about how often did you feel...”, for example, “nervous,” “hopeless,” “depressed,” and others. Four items address anxiety symptoms, and six items address depressive symptoms. The response scale consists of a five-point rating ranging from “none of the time – 1” to “all of the time - 5.” Thus, lower scores indicate less psychological distress. The K10 is reported to have sound psychometric properties, e.g., Cronbach’s $\alpha = .930$ for the general population (Kessler et al., 2002).

Statistical Analysis

Analysis was reported as quadratic trends, demonstrating effects in terms of change over time. Statistical testing was conducted using multivariate analysis of variance (MANOVA) for repeated-measure designs. For reporting MANOVA results, their textual description includes the F statistic and its p value (O'Brien & Kaiser, 1985). For significant effects, the effect size is also reported, using the d statistic, which represents the median of the 95% confidence interval for the difference among the contrast-weighted means expressed in standard deviation (SD) units. Using Cohen’s (1992) recommendations, effect sizes of 0.20, 0.50, and 0.80 SD units were considered small, medium, and large, respectively.

Results

Respondents

The respondents ($N = 92$) were recruited from five ARRTS programs conducted between late 2017 and late 2019. The respondents represented 86% of participants across the five programs. No data was collected on the 14% who

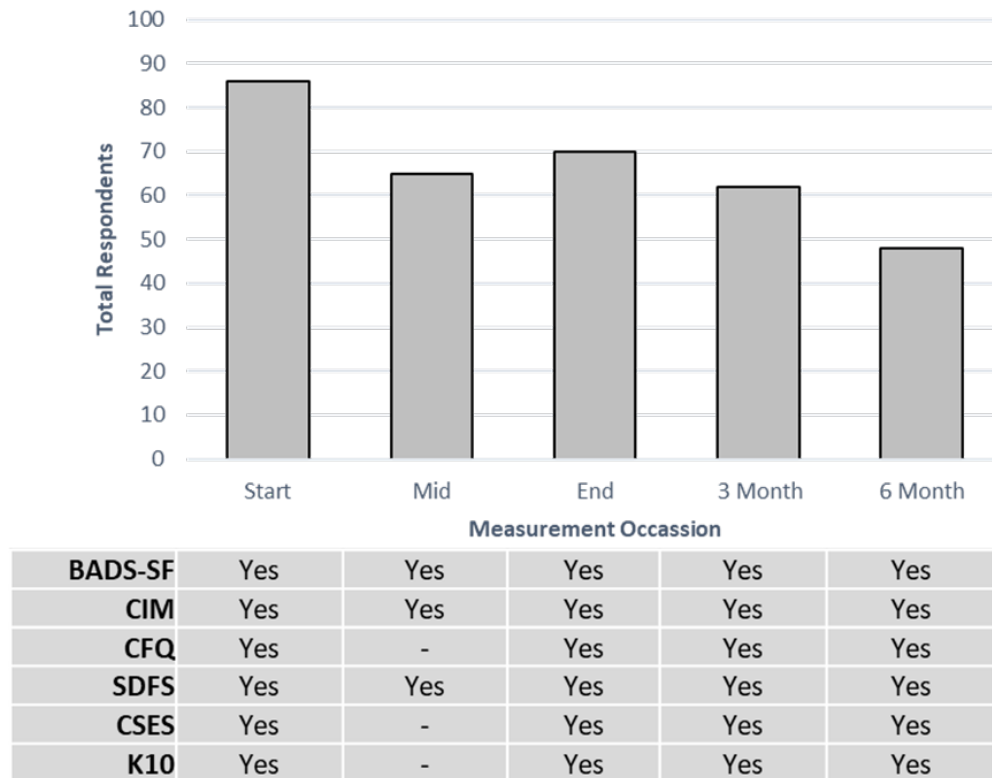
chose not to respond. The respondents were primarily current serving members of the ADF, with the inclusion of a few civilian first responders as outlined in Table

4.1. Figure 4.1 outlines response rates over time.

Table 4.1. Respondent Demographics

Respondents		
	%	N
<i>Gender</i>		
Male	65%	60
Female	35%	32
<i>Age</i>		
<30	29%	27
30-39	33%	30
40-49	23%	21
50-59	14%	13
>60	1%	1
<i>Rank</i>		
Officer	26%	24
Senior Non-Commissioned Officer	12%	11
Other Rank	55%	52
Civilian First Responder	8%	7
<i>Service</i>		
Navy	31%	29
Army	46%	42
Air Force	15%	14
Civilian First Responder	8%	7
<i>Creative Stream</i>		
Visual Arts	40%	37
Creative Writing	22%	20
Acting and Performance	10%	9
Music and Rhythm	28%	26

Figure 4.1. Total Respondents at Each Measurement Occasion



Behavioural Activation for Depression (BADs)

Figure 2, Panel A, plots the mean behavioural activation scores from the BADs across five measurement occasions. The mean scores rose from 39.5 at the start of the program to 44.2 at the end of the program. Thereafter, across the three- and six-month follow-up periods, the scores dropped to 35.8 and 36.6, respectively. Across all occasions, there was significant curvature as seen in a medium-sized, quadratic trend $F(1, 317) = 10.94, p < .01$, effect size = .393.

Community Integration Measure (CIM)

Figure 2, Panel B, shows the average mean score for the CIM plus separate mean scores for the factors of belonging and independence. The CIM contains two sub scales, identified as belonging and independent participation. The three mean scores showed a pronounced rise from the start of the program to its midpoint,

after which further rises were slight. After the program, the mean scores largely reverted to their starting point within the initial three-month follow-up period.

The quadratic trend for the belonging factor was small and significant $F(1, 316) = 7.05, p < .01$, effect size = .317, whilst the quadratic trend for the independence factor showed a medium significant effect $F(1, 316) = 18.70, p < .01$, effect size = .510. Overall, the CIM as a joint measure of belonging and independent participation in a community had a small significant quadratic trend, $F(1, 316) = 13.11, p < .01$, effect size = .433.

Common Factors

Figure 2, Panel C, shows the average mean scores of common factors including the three factors of therapeutic alliance, goals, and personal development. Overall, all groups showed an increase in the experience of common factors from the start to the end of the program with a gradual decline over the three- and six-month period following the program. Overall, common factors as a total measure had a small significant quadratic trend $F(1, 250) = 7.34, p < .01$, effect size = .348. Among the three factors, therapeutic alliance had a pronounced quadratic trend, $F(1, 250) = 14.00, p < .001$, effect size = .481. Goals had no significant quadratic trend ($p > .05$), however personal development had a small yet significant quadratic trend $F(1, 250) = 5.02, p < .05$, effect size = .288.

Flow State

Figure 2, Panel D, shows the mean scores for the Short Dispositional Flow Scale (SDFS). Experienced flow states increased from the start of the program, through the middle stage, until the end of the program. Following the end of the program, flow states decreased at the three-month mark, prior to an upward

excursion at the six-month mark. The planned statistical comparisons yielded a small yet significant quadratic trend $F(1, 291) = 4.33, p < .05$, effect size = .263. Regarding the apparent increase between three-month and six-month marks, a post-hoc test comparing them failed to reveal a significant difference, $F(1, 291) = 2.30, p > .05$, effect size = .320.

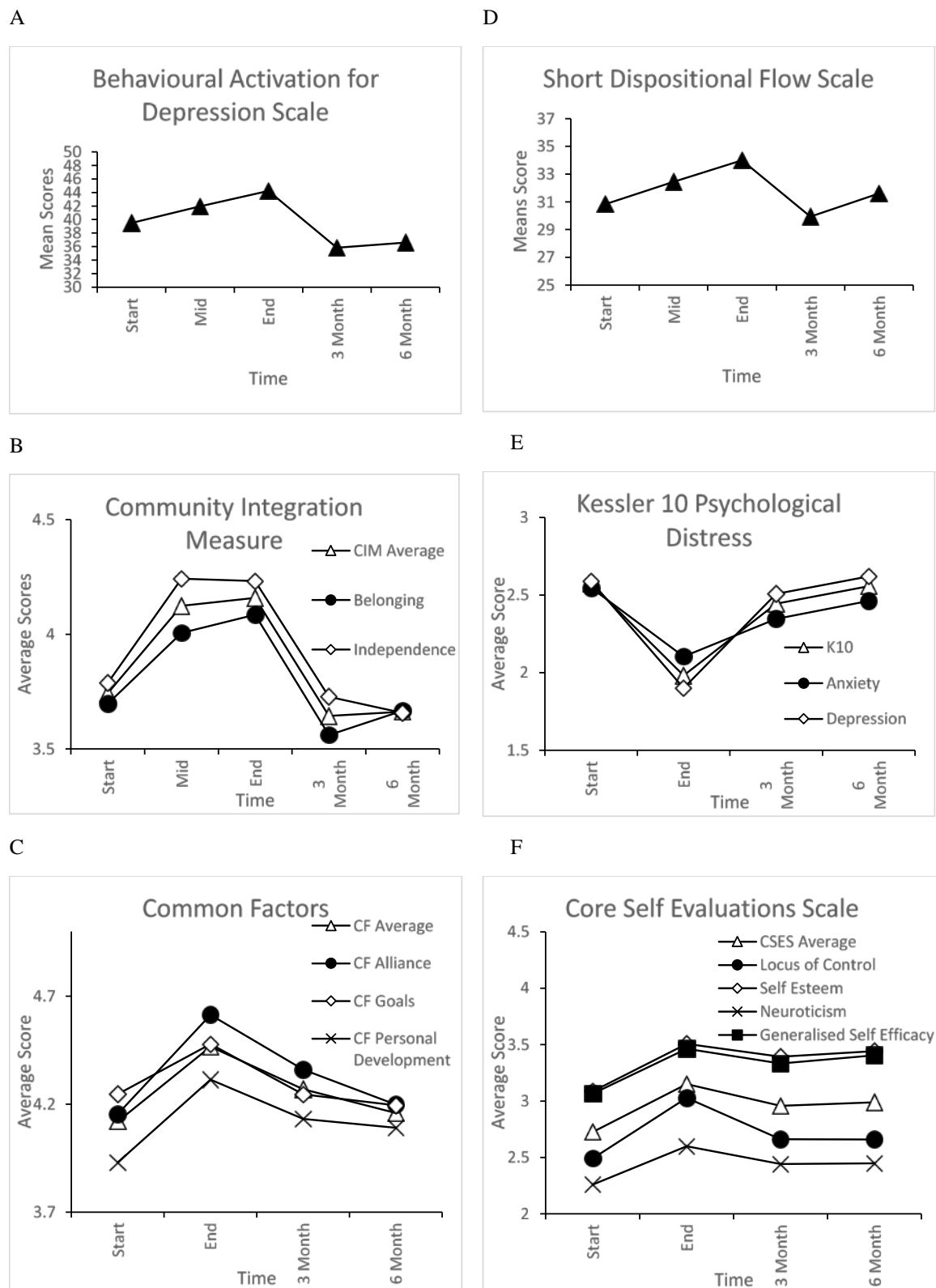
Core Self Evaluations (CSES)

Figure 2, Panel E, plots the mean CSES scores, which showed a small significant quadratic trend over measurement occasions, $F(1, 254) = 4.83, p < .05$, effect size = .280. Among the four subscales, only locus of control showed a significant quadratic trend, $F(1, 254) = 7.46, p < .01$, effect size = .348.

Psychological Distress

Figure 2, Panel F, shows the mean K10 scores, including the means for the anxiety and depression factors. Overall psychological distress reduced over the duration of the program, as did the means for anxiety and depression. Following the program, psychological distress increased in the first three months with a further gradual increase over the period between three and six months. Overall psychological distress had a significant quadratic trend, $F(1, 260) = 12.88, p < .01$, effect size = .452. Similarly, there were significant, small quadratic trends for the anxiety scores, $F(1, 260) = 6.98, p < .01$, effect size = .333, and depression scores $F(1, 260) = 13.21, p < .01$, effect size = .458.

Figure 4.2. Longitudinal Graphs of Responses



Discussion

Main Findings

With respect to the three research questions, the longitudinal pattern of the results consistently showed significant quadratic trends of small to medium size, with all effects reducing over time. The scores for the underlying mechanisms consistently grew throughout the program, but within the six-month follow-up period, returned to their initial states. Conversely, the K-10 scores for anxiety and depressive symptoms showed an improvement as evidenced by a decline during the program, followed by return to their previous state during the follow-up period. Finally, the scores for Core Self Evaluations showed a small rise followed by a return to baseline. Among the four subscales, only locus of control showed a significant quadratic trend.

Relationship of Current Findings to Previous Research

Longitudinal trends

The quadratic trends seen in the current results for the ARRTS program are consistent with the trends seen in the evaluation of established therapies, such as CBT, for anxiety and depressive symptoms. Meta analyses and systematic reviews of therapies for anxiety and depression have indicated, after an initial improvement during a therapeutic intervention, the duration of treatment effectiveness only extends across intervals of a few weeks to a few months (Cuijpers et al., 2014; Steinert et al., 2014). In one longitudinal study, there was a 50% relapse rate for anxiety and depressive symptoms; clients who had residual depressive symptoms at the end of therapy were twice as likely to relapse in a 12-month follow-up period (Ali et al., 2017).

Behavioural activation

The current findings established that art-based activities conducted by professional arts instructors can achieve reductions in both anxiety and depressive symptoms among respondents. These reductions are consistent with previous findings (Ekers et al., 2011) that behavioural activation can be promoted by art professionals without specific mental health training. Furthermore, the duration of the behavioural activation and reductions in anxiety and depression were short-lived, lasting no more than three months. This duration parallels the pattern revealed by a meta-analysis of the effects of behavioural activation interventions for 1-3 months post treatment (Mazzucchelli et al., 2009).

Common factors

It has long been established that common factors are an important component of established therapies (American Psychological Association Presidential Task Force on Evidence-Based Practice, 2006). The current research has, for the first time, demonstrated art-based activities delivered by art professionals can also engage the common factors. In particular, the common factors of therapeutic alliance and personal development were statistically significant, while apparent goal setting did not achieve significance.

Belonging

The current results add to previous evidence that people undertaking group art-based activities experience an enhanced sense of belonging alongside other positive therapeutic outcomes (Macpherson et al., 2016). This sense of belonging appears to temporarily fill the gap in belonging that the participants may experience when separated from their previous military unit. A sense of belonging

to a military unit has been found to protect against anxiety and depression (Bryan & Heron, 2015).

Flow states

The current research adds to the existing evidence that concentrated engagement in art-based activities fosters a beneficial state of flow (DeLucia, 2016; Kapitan, 2013). Previously, flow has been postulated to be an underlying product of art-based activities, and therefore flow has a significant place in achieving positive outcomes in art therapy (Wilkinson & Chilton, 2013).

Implications

To potentially prolong the beneficial effects of the ARRTS program and ones like it, a program of follow-up arts-based activities for participants may be worthwhile. In a previous paper in this series, Watt and Kehoe (In Press) found that respondents were interested in ongoing participation in arts-based groups (55%) and/or a catch-up with the respondents' program members. In addition, there is evidence that individual and group skills are maintained by refresher sessions at three- to six-month intervals (Ginzburg & Dar-El, 2000; Murphy, Kehoe, & Butcher, 2009; O'Hara, 1990; Sabol & Wisher, 2001).

The gold standard for assessment of clinical anxiety and depression is a standardised, structured patient interview that yields clinical diagnoses that conform with Diagnostic and Statistical Manual of Psychiatric Disorders, 5th edition (DSM-5) criteria. However, the current study, and the results reported in Chapter Four have relied on self-report and standardised questionnaires. Differences in symptom levels and diagnosis have been found in the prevalence rates between standardised questionnaire and interviews (Fisher et al., 2007) with

suggestions that generalised distress rather than specific aspects of disorders may be measured (Arbisi et al., 2012). Such differences could explain the differences between the results found in the retrospective study compared to the current study.

The design of the retrospective study involved significant recall from the respondents. The recall of experiences in the ARRTS Program could be degraded over time (Winocur, 2011). The current study had respondents' complete questionnaires with recall confined to specified time frame, for example the K10 is defined as the last 28 days. Recall of even highly salient events such as physical injury can change substantially over the time intervening between initial treatment and recovery (Gotlin et al., 2020). More generally, over retention intervals, the central aspects of an event including major emotional reactions can be readily retrieved while details are lost (Kaplan, Van Damme, Levine, & Loftus, 2015).

Limitations and Future Directions

Although the number of respondents was limited, and there was attrition over the measurement occasions, the impact of the ARRTS program was consistent across participants. Thus, the analysis had the power to detect small to medium effects. A larger sample with current ARRTS population, including the provision for a control group, would have been desirable. However, a proposal to create an untreated control group was rejected by the relevant ethics committee. A future way of increasing the power of analysis would extend the focus of arts-based activities beyond current members of the ADF to discharged veterans' and other first responders.

Following completion of the ARRTS program, the number of respondents reduced. Future research could identify specific factors that lead to participant dropout, and if the resulting reductions lead to a bias in the results.

The overall improvement in symptoms that participants experienced was largely lost within six months following completion of the program. Whilst the current research found improvement in underlying mechanisms and mental health symptoms, there could potential be other explanations for such an improvement. One such effect that could be further investigated in future research is the potential for the placebo effect to confound the improvements previously identified.

This research focused on mechanisms engaged by the ARRTS program. The picture of the candidate mechanisms could be further refined. For example, a measure of working alliance specifically for artistic activities could be used (Bat Or & Zilcha-Mano, 2018). The focus of the effects of the program on a well-validated measure of anxiety and depression (K10) could also be expanded to include more global validated measures of outcomes such as Quality of Life, along with the ongoing benefits from the ARRTS program experienced by previous participants up to 48 months later (Watt & Kehoe, 2020). Given the longer duration of the experienced categorical benefits compared to the shorter-lived changes in the quantitative mechanism scores and K10, it would be worthwhile to follow up future participants in any art-based activities using a suite of quantitative and categorical measures.

Conclusion

The positive impact of the ARRTS program for both present participants and those in the retrospective study (Watt & Kehoe, 2020) was, it should be remembered, added to the already rigorous, multi-disciplinary treatments of psychological and physical injury provided through the ADF. Although the effects of the arts-based activities returned to baseline within six months and were small to medium, they represent a cumulative contribution to the already substantial clinical treatment received by the ARRTS participants. Future research is required to further address the limitations of the current study while seeking to create a greater understanding of the effect of the ARRTS program. Thus, there is reason to investigate whether it be worthwhile for the Department of Veterans Affairs and other related organisations to introduce corresponding arts-based programs for discharged personnel, who are often a risk of mental health challenges (DeLucia, 2016).

Chapter 5 - General and Specific Benefits from the ADF ARRTS Program

Introduction

Art-based activities have been beneficial adjuncts in the remediation of disorders including anxiety, depression, and PTSD (Blomdahl et al., 2013; Kapitan, 2012; Smith, 2016). Art-based activities have also been associated with improved socialisation, resilience, sense of belonging, and quality of life (Abbott et al., 2013; Abdulah & Abdulla, 2018; Macpherson et al., 2016). To investigate the value of art-based activities (visual, written, and musical) for wounded, injured, and ill veterans', the Australian Defence Force (ADF) conducts Arts for Recovery, Resilience, Teamwork and Skills (ARRTS) Program for one month on a biennial basis. The present study was the third in a series of evaluations aimed at identifying any beneficial effects of the programs, as experienced by the participants.

In Chapters three and four, respondents reported a positive effect of the ARRTS Program. In both evaluations, respondents reported a positive effect of the ARRTS Program. However, the two evaluations yielded different estimates of the ongoing benefit, specifically 24 months or more in the first evaluation versus six months or less in the second evaluation. This difference in outcome may be attributable to differences in the measurement instruments, specifically, categorical measures of presence/absence of mechanisms versus multi-point ratings on standardised scales. To help resolve this apparent divergence, the present evaluation included presence/absence measures that were aligned with the content of the rating scales used in the second evaluation. Moreover, questions were added to obtain a behavioural indication of whether the activities in the

ARRTS program endured after its conclusion and whether the respondents wished to have further engagement with the program.

Method

Procedure and materials

For the participants who consented, a link to the Qualtrics online platform was sent at three months and six months following the program. There were 34 and 29 completed replies, respectively. The questions asked of the respondents are contained in Table 5.2. The questions asked of the respondents differ significantly from those asked in Chapter Four and are contained in Table 5.2. While the each of the responses on the questionnaire are brief to reduce respondent burden, they nevertheless require that the respondents have a suitable reading level. In this case, the reading level is at an undergraduate level. Specially, the Flesch-Kincaid Grade Level is 13.9. The current evaluation was approved by the Departments of Defence and Veterans Affairs Human Research Ethics Committee, Protocol 853-17.

Table 5.2. Benefit, activity, and situational questions

-
- 1 Upon reflection, was the program beneficial? (Yes/No)
 - 2 If beneficial, how did the art activity provide benefit? (Tick all that apply to you:)
 - o Flow (being in the moment, losing track of time)
 - o Purpose*
 - o Meaning*
 - o Achievement*
 - o Enjoyment*
 - 3 Did the program provide a: (Tick all that apply to you:)
 - o Sense of Belonging
 - o Positive interaction with staff
 - 4 Have you continued with an artistic endeavour? (Tick all that apply to you:)
 - o Writing
 - o Music
 - o Theatre
 - o Visual Art
 - o Other
 - 5 Have you found another activity since completing the program this is providing benefit?
e.g., sport, yoga, other: _____
 - 6 As a result of the program, is the positive effect of your participation ongoing?
(Strongly disagree Disagree Neutral Agree Strongly Agree)
 - 7 If follow up was provided would you have liked: (Tick all that apply to you:)
 - o A phone call
 - o A catch up with the participants of my program
 - o A catch up with the participants of all programs
 - o Another activity that encouraged belonging
 - o Another activity that encouraged purpose
 - o Another activity that encouraged achievement
 - o Another activity that encouraged flow (being in the moment or the "zone")
 - o Finding a similar art group in my local region
-

* Features of behavioural activation

Results

Respondents

The respondents ($N=37$) for the current research participated in the two cohorts of the 2019 ARRTS program and represented 85% of participants.

Respondent demographics are shown in Table 5.1.

Table 5.1. Respondent Demographics

<i>Gender</i>	<i>%</i>	<i>N</i>
Male	62	23
Female	28	14
<i>Age</i>		
<30	27	10
30-39	32	12
40-49	24	9
>50	17	6
<i>Rank</i>		
Officer	27	10
Senior Non-Commissioned Officer	13	5
Other Rank	49	18
Civilian First Responder	11	4
<i>Service</i>		
Navy	32	12
Army	40	15
Air Force	17	6
Civilian First Responder	11	4
<i>Creative Stream</i>		
Visual Arts	51	19
Creative Writing	19	7
Music and Rhythm	30	11

Benefit of the program

At three months, 94% of respondents considered participation to have been beneficial, as did 86% of respondents at the six-month period (Question 1). The apparent decline was not statistically significant; the 95% confidence interval for the difference between the two percentages crossed the zero-difference point.

While some respondents did not answer the question, no respondent indicated that the program was a negative experience. With regard to the possible contributing mechanisms (Questions 2 and 3), the majority of respondents at both the three- and six-month periods (with one exception) indicated the benefits of the program

included flow (62%, 66%), purpose (56%, 52%), meaning (56%, 55%), achievement (71%, 48%), enjoyment (79%, 76%), sense of belonging (88%, 93%), and positive interaction with staff (82%, 76%). Any apparent differences in specific benefits and/or changes over time were not statistically significant based on zero crossings of confidence intervals.

Sustained benefit of program

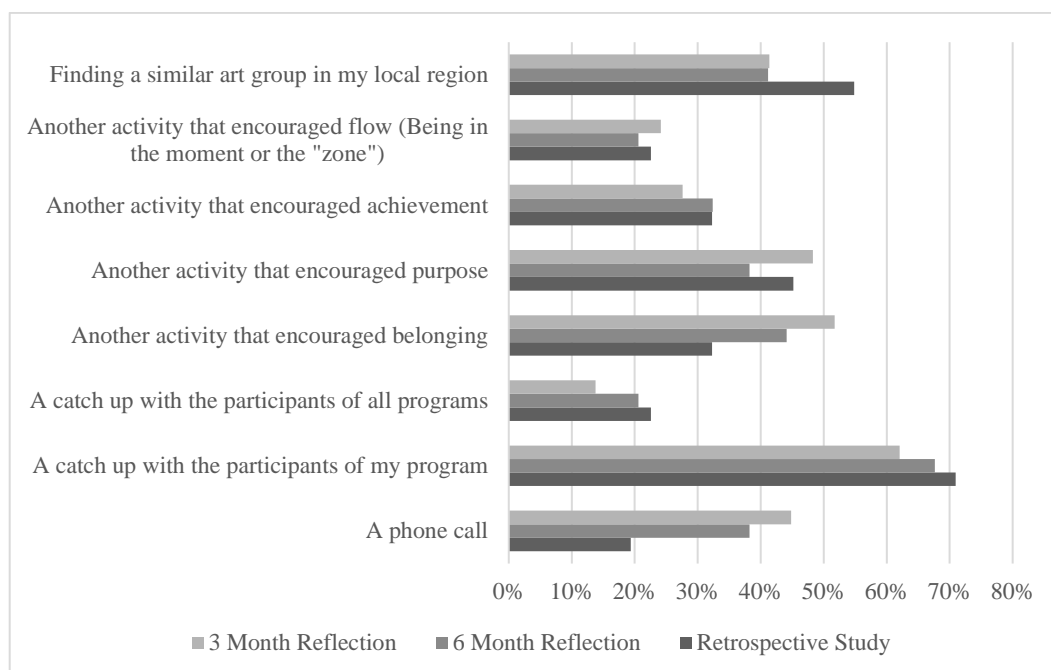
When asked whether the positive effect of participation was ongoing (Question 6), 85% of the respondents strongly agreed or agreed that the benefits continued over the three-month and six-month periods. In addition to the ongoing benefit, the preponderance of respondents had continued with art-based activities over both time periods (94%, 97%) (Question 4). Beyond the art-based activities the program provided, 59% of the respondents indicated taking up other art-based and/or physical activities in the three months following the program, which decreased, although not significantly, to 48% after six months (Question 5). The selected activities at both time points were variable, including among others, swimming, mountain biking, yoga, astronomy, woodworking, and knitting.

Sustained engagement.

Figure 5.1 shows the percentage of respondents who reported the kind of sustained engagement they would desire after the conclusion of the program at both the measurement points (Question 7). In addition, the corresponding percentages obtained from the previously described first evaluation are also depicted (Watt & Kehoe, 2020). Among the options, “A catch up with the participants of my program” was selected most frequently in both this and the first evaluation (62% or greater). In contrast, “A catch up with the participants of all programs.” was selected least often (23% or less). The difference in confidence

interval did not cross the zero point. The other listed activities were typically selected by less than half the respondents in either the present evaluation or first evaluation.

Figure 5.1. The percentage of respondents who reported what kinds of sustained engagement they would desire after the conclusion of the program.



Discussion

Benefit from ARRTS Program

When asked to reflect on their participation in the ARRTS program, the vast majority of respondents recalled a benefit from the program up to six months later. In particular, a majority typically recalled a benefit related to their flow states, purpose, meaning, achievement, enjoyment, sense of belonging and positive interaction with staff during the program. When asked whether the positive effects of the program were ongoing, 85% of respondents reported that positive effects were sustained across six months.

The present results largely confirm previous findings that respondents experienced benefits from the ARRTS program. In the present study, the respondents experienced both an overall benefit, plus specific benefits, based on their reflections on the four mechanisms, all of which continued over the six-month follow-up period. Similarly, the first evaluation found overall benefit and specific benefits related to the four mechanisms. In contrast, in the second evaluation, the standardised, multi-item questionnaires used more precisely defined measures of experienced benefits. In that case, the particularised benefits diminished substantially within six months.

The difference in the duration of the experienced benefits may be attributed to memory encoding mechanisms for emotional events. Recall of even highly salient events such as physical injury can change substantially over the time intervening between initial treatment and recovery (Gotlin et al., 2020). More generally, over retention intervals, the central aspects of an event including major emotional reactions can be readily retrieved while details are lost (Kaplan et al., 2015). In terms of the three evaluations, retrieval of the overall and specific mechanism-related benefits appeared to remain retrievable over several months and years, while the precisely defined measures are less retrievable.

Behavioural Change and Engagement

Beyond subjective benefits, respondents in the present study also reported objective behaviour change. The respondents indicated that nearly all (97%) continued with art-based activities offered during the program at the end of the six-month follow-up. In addition, at the end of the follow-up, nearly half (48%) of respondents had undertaken a wide variety of behaviour-based activities. In addition to self-initiated activities, many respondents (96%) indicated a desire to

both sustain connections with their cohort in the ARRTS program and develop connections with other relevant groups.

Limitations and Future Directions

The present study indicated that the substantial perceived benefits of the ARRTS program persisted at least six months. However, both this study and the similar persistence seen in the first evaluation (Watt & Kehoe, 2020) were based on modest sample sizes ($N < 38$). Thus, they had limited power for detecting any downward trend as was seen in the second evaluation, which had a larger sample size ($N = 92$). Future research with greater numbers would provide the power to detect trends over time in both categorical measures of benefit versus standardised scale ratings. Whilst the ARRTS Program content remained largely unchanged, the methodological differences in the three studies may have led the observed differences in the results.

Conclusion

The current study extended the existing knowledge of engaging military personnel with art-based activities as an adjunct to previous and ongoing clinical treatment. Based on respondents' recall, the ARRTS Program provided both overall and specific benefits. The results indicated participants continued with art-based activities, and desired follow up activities.

Chapter 6 - Benefits Observed in a Psychiatric Outpatient Art Therapy Group

Introduction

The creation of art, through activities incorporating painting, drawing, music, writing, dance, and dramatic performance, has long been recognised as a cost-effective intervention for people undergoing therapy and rehabilitation (Agell, 1980; Howarth, 2018; Uttley et al., 2015a, 2015b). In the context of art therapy, there is increasing interest among mental health professionals as to the possible added therapeutic benefit of pursuing arts in a variety of modalities (Kaimal et al., 2018; Walker et al., 2017). The mental health concerns that have been shown to benefit from art therapy include Post-traumatic Stress Disorder (PTSD) (Gantt & Tinnin, 2007; Smith, 2016; Uttley et al., 2015a), anxiety (Kapitan, 2013), stress (Abbott et al., 2013), depression (Blomdahl et al., 2013; Blomdahl et al., 2016), and personality disorders (Havsteen-Franklin, Haeyen, Grant, & Karkou, 2019; S. Lamont, Brunero, & Sutton, 2009)

In a systematic review of the impact of art therapy on adult cancer patients, Archer, Buxton, and Sheffield (2015) concluded that these activities benefit the patients with respect to anxiety and depression, quality of life, coping, stress, anger, and mood. A meta-analysis of the impact of art therapy on breast cancer patients yielded a more modest conclusion; that there was a reduction in anxiety, but no discernible change in depression, coping, mood, and functional assessment (Boehm, Cramer, Staroszynski, & Ostermann, 2014). In addition to these quantitative reviews, Hogan (2013, p.71) described qualitative research in which the provision of art materials assisted pregnant women and new mothers “to explore their changed sense of self-identity and sexuality”. Similarly,

Macpherson et al. (2016) conducted a series of weekly, 4-hour workshops in the creation of visual art with 16-25 year olds ($N=10$) who were facing a mixture of challenges from anxiety and depression, but also learning difficulties and autism. Participation in the workshops increased self-reported resilience, coping with difficult feelings, and a sense of belonging to a group. These conclusions were based on qualitative observations of the participants, plus their own entries in reflective diaries, their contribution to a focus group, and their responses to a semi-structured interview.

Although the previous results are promising, there remain doubts about the efficacy of art therapy and the variable quality of its evaluative research (Archer et al., 2015; Cristina & Aneta, 2012; Everson-Rose & Lewis, 2005; Phillips, 2019; Rose et al., 2014; Uttley et al., 2015a, 2015b). Some of these doubts revolve around the relative merits of different methods for measuring the effects of art therapy, most prominently quantitative versus qualitative approaches (Edwards, 2016; Gerge & Pedersen, 2017; Pounsett, Parker, Hawtin, & Collins, 2006). Other unknowns include the psychological mechanisms that may or may not be engaged during art therapy (Havsteen-Franklin et al., 2019). In this respect, art therapy sits alongside many other therapeutic interventions in their lacking evidence-based identification of the mechanisms that mediate change in individuals (A. E. Kazdin, 2009).

Underlying Mechanisms

The present study was conducted to investigate the mechanisms that may underpin the benefits of art therapy, as perceived by participants. In other types of psychological therapy, four mechanisms are prominent contributors to therapeutic

success. As will be detailed below, these four mechanisms are behavioural activation, belonging, common factors, and flow states (Watt & Kehoe, 2020).

Behavioural Activation

Behavioural activation entails the enhancement of an individual's sense of purpose, enjoyment, meaning, personal accomplishment, and mastery (Kopytin & Lebedev, 2013; Soucy-Chartier & Provencher, 2013). The development of behavioural activation has been used as the main mechanism of a therapy of the same name for successfully treating depression (Mazzucchelli et al., 2009; Mazzucchelli et al., 2016) and possibly anxiety (Boswell, Iles, Gallagher, & Farchione, 2017; Dimaggio & Shahar, 2017; Hopko et al., 2006). Scheduling meaningful activities and skills training into art therapy may be an effective way of engaging the same mechanisms as in the behavioural activation therapy (Richards et al., 2016).

Sense of Belonging

As defined by the American Psychiatric Association (2013), conditions such as PTSD, personality disorders, depression, and anxiety imply elements of social isolation and difficulties with interpersonal relationships as part of their diagnostic criteria. Belonging protects individuals from developing depressive symptoms during periods of adjustment (Bryan & Heron, 2015) and conversely lower sense of belonging has been associated with developing depression in young people (R. A. Williams et al., 2002).

The links between belonging and anxiety have been demonstrated in a variety of contexts (Herbert, 1997; R. M. Lee & Robbins, 1998). Among other things, anxiety resulting from social exclusion has been identified in students being

bullied in schools (Søndergaard, 2012). Lack of belongingness has been associated with increases in both attachment anxiety and depression (Overup et al., 2017). Moreover, belonging to a group can contribute substantially to individual effectiveness and resilience (Wessely, 2006). In the context of group-based art therapy, Holtum (2018) proposes that the meaning of an individual's art to the group's participants may provide the means of expressing difficulty, joy, and achievement.

Flow States

Flow states are commonly described as living in the present, including the ability to become fully immersed in an activity with a feeling of energised focus and enjoyment, and potentially losing sense of space and time (Harmat et al., 2016). Although the concept of flow is subject to continual development (Swann et al., 2018), flow states have been theorised to be an underlying contributor to the positive outcomes associated with art therapy (Chilton, 2013). Activities associated with this state of flow may also provide relief from debilitating anxiety (Kapitan, 2013). Along similar lines, absorption in an activity can enhance the levels of satisfaction from an optimal challenge and can increase belief in competence, thus influencing the enjoyment of activities (Abuhamdeh & Csikszentmihalyi, 2012).

Common Factors

Beyond the specific features of therapeutic interventions, the common factors related to the patient and therapist may contribute to therapeutic success (Wampold, 2015). The most widely studied common factor is the alliance between the patient and therapist (Del Re et al., 2012; Stamoulos et al., 2016). This alliance is a bundle of three components: the bond of mutual trust and

connection, agreement about the goals of therapy, and agreement about the tasks of therapy. Meta-analysis has revealed that the components of alliance collectively have a medium-sized positive effect on therapeutic outcomes (Horvath et al., 2011; Wampold, 2015). Additional important facets of common factors have been the therapist's empathy and the patient's readiness and positive expectations of success (Constantino et al., 2011; Elliott, Bohart, Watson, & Murphy, 2018; Wampold, 2015).

Research Questions

The present study aims to test, for the first time, the relative contribution of each of the four identified mechanisms to the perceived benefits of art therapy. To do so, this study used a mixture of quantitative and qualitative methods to address the following research questions:

1. Do participants in an out-patient art therapy program experience benefits, including a positive mood and worthwhile insights for their functioning?
2. To what extent do the participants experience the identified mechanisms of behavioural activation, belonging, common factors, and flow states?
3. Do ratings of behavioural activation, belonging, common factors, and flow states correlate with an overall wellness measure, and to what extent do they correlate with each other?
4. When given the opportunity to respond qualitatively, what themes do participants identify as a result of the art therapy?

Method

Program Design

The art therapy program conducted at a private hospital in Australia (Geelong, Victoria) was designed for individuals who were referred by their treating psychiatrist and agreed to participate in creative arts as part of their therapeutic process. The program was conducted by a qualified art therapist and incorporated elements originating in CBT (Wenzel, 2016) and Acceptance Commitment Therapy (ACT) (S. C. Hayes, 2006). The chief element borrowed from CBT concerned understanding the influence of thoughts on emotions and how to adjust one's thoughts along more positive lines. The elements from ACT were "being present"; which involves mindfulness skills to focus on the "here and now"; "acceptance", which involves the willingness to experience difficult thoughts; "defusion", which involves observing one's own thoughts without being control by them; "values", which focuses on discovering what is truly important to oneself; "commitment", the willingness to take action to pursue the important things in one's life; and "self-as-context", the consciousness to see the "observing self" or "present self" as unchanged by time and experience.

Participants in the program (19 females, 2 males; median age = 57 years) had been referred by their treating psychiatrist as suitable for the program. The sample size of 21 had statistical power to detect a large effect size of .60 *SD* or greater (Faul, Erdfelder, Buchner, & Lang, 2009; Faul, Erdfelder, Lang, & Buchner, 2007). Among the participants, 8 reported having been diagnosed with anxiety and depression, while another 8 participants had one or more comorbidities with anxiety/depression, including PTSD ($n = 3$), bipolar disorder ($n = 4$) borderline personality disorder ($n = 1$), social phobia ($n = 1$), and addictive behaviours ($n =$

2). Another 6 participants refrained from reporting their diagnosis. The participants were outpatients under psychiatric care, but, in each case, the psychiatrist attested that the participants were stable and able to benefit from the program. All participants lived on their own in the general community and transported themselves to the program.

After meeting the art therapist and being inducted into the program, participants could attend the program on one of two days available per week. Each week, they could freely choose the day that best fit with their schedule. The program was originally designed to run on a 12-week cycle but allowed for intermittent attendance as desired by the participants. When attending, the daily routine for each participant included:

9:30 am, Check in – this time at the beginning of the day was designed to acquaint/reacquaint the group with one another. It gave time for personal sharing of mood, experience, and stories in a safe way so that the group could work together. Group rules were established or revisited. Furthermore, defusion activities, such as breathing and grounding exercises, were also incorporated to allow individual participants to separate themselves from daily unhelpful cognitions and emotions, thus encouraging a focus on gaining the most from the therapeutic session.

A warm-up – participants were asked to create a visual representation (e.g., a drawing) with the aim of releasing residual tension following the defusion activities.

Morning tea – time to break, rest, and reflect.

A focused art theme – the core part of the day was focused on personal exploration and the development of meaning. Building on the defusion activities, the participants were provided a themed task aimed at increasing their psychological flexibility for the creation of helpful meaning. As the art was developed, the further purpose was to provide personal clarity to memories and future goals.

Lunch – physical movement, socialisation, rest, and for those with social anxiety, an opportunity to practice skills learnt.

Individual directed creative time – participants were encouraged to socialise through a facilitated discussion. Relaxation following potential distressing themes was encouraged, with changes in understanding and future goal setting also encouraged.

Conclusion of day – 2:30 pm

Excluding the two-half hour breaks, the day contained four hours of art therapy time, within the overall five-hour period. Fatigue and stress management were undertaken by the art therapist throughout the day by verbally checking in with each participant. Finally, the day was constructed to provide a predictable sense of beginning, middle, and closure.

Procedure and Questionnaire

Respondents were recruited to the art therapy program over a ten-month period, based on referral and clearance from their treating psychiatrist. Ethical approval for recruiting the respondents was obtained from Healthscope's Human Research Ethics Committee (Project 318). Respondents were given a written

participant information statement. After reading it, the respondents provided signed consent prior to responding to the surveys.

After gaining informed consent, the respondents were surveyed at the end of each weekly session they attended. Among the 21 respondents, data from one participant had too many gaps to be useable in the quantitative or qualitative analyses. For the final sample of 20 individuals, attendance ranged from 1 – 27 weeks. In particular, nine individuals attended 1 – 5 weeks, seven attended 6 – 20 weeks, and four attended more than 20 weeks (median number of attendances = 11).

A self-report questionnaire was developed by the authors covering the mechanisms of behavioural activation, belonging, flow states, and common factors. Specifically, Table 6.1 lists the 16 items in the questionnaire. There were four items for each mechanism, derived from existing questionnaires for, respectively, behavioural activation (Manos et al., 2011), belonging as measured by integration into a community (McColl et al., 2001), common factors found in most therapies (Stamoulos et al., 2016), and flow states (Jackson, Eklund, & Martin, 2009). The first column shows the item number as presented, and the second column shows the item's wording. The response scale consisted of five points: "None of the time" (1), "A little of the time" (2), "Some of the time" (3), "Most of the time" (4), and "All of the time" (5). The total score across the four items for each mechanism ranged from 4 to 20. Preliminary validation of the 16 items using 395 first-year university students revealed a Cronbach's Alpha of 0.803 indicating good internal consistency and reliability (Watt & Kehoe, 2019).

Table 6.1. Mechanism Questionnaire Administered to Respondents

The following questions relate to your specific interactions with the Art Therapy program, not The Geelong Clinic overall.	None of the time	A little of the time	Some of the time	Most of the time	All of the time
<i>Behavioural Activation</i>					
I enjoyed the activities I was involved in					
I had a sense of achievement from the activities I undertook					
I had a sense of purpose by undertaking the activities					
I used the artistic activity to avoid unpleasant feelings					
<i>Belonging</i>					
I felt I was accepted by the community I was in					
I felt I had close supportive relationships with others					
I felt productive					
I felt independent					
<i>Common Factors</i>					
I had a good working relationship with the staff.					
The staff empathised with me					
The staff were genuine in relating to me					
I feel open to development and change					
<i>Sense of Flow</i>					
I felt I could be fully immersed in an activity					
I felt I had energised focus					
I could lose a sense of space and time when I was absorbed in activity					
I did things instinctively and automatically without having to think					

Overall perceived benefit of each attendance was measured with a single item using the same five-point response scale as described above. Thus, benefit had a total range of 1 to 5. In addition to measuring overall benefit, three questions concerning the specific benefits of art therapy, as originated by Price and Pellmann (1989), were included in the survey. Specifically, the respondents were asked whether (a) their mood was influenced by attendance at an art therapy session (positively or negatively), (b) whether they gained insight to their

condition (yes or no), and (c) whether any insight improved their functioning (yes – today, yes - from a previous attendance, or no). As a supplementary question to determine engagement with art, the respondents were asked if they had chosen to undertake art in their own time (yes or no).

Finally, for qualitative analysis, the respondents had the option of freely writing any additional comments they considered important. The responses were examined by the researchers, with themes identified. Any discrepancies were resolved by consensus. The thematic analysis was a two-stage process, in which 20 thematic clusters were initially identified. In the second stage, these clusters were consolidated into 10 themes.

To monitor the psychological wellness of the respondents during the program, they were asked to complete the K10 (Brooks et al., 2006). This questionnaire consists of 10 questions, such as “How often did you feel nervous?”, “About how often did you feel depressed?” The same five-point response scale, as described above, was used. The raw scores range from 10 (*no distress*) to 50 (*high distress*). To create a positive scale with scores comparable to the 16-item questionnaire, the raw item scores were reversed, and the total score was multiplied by .4 to create a total score ranging from 4 to 20. Therefore, a low score indicated substantial distress, and a high score indicated a more positive state or, at least, an absence of psychological distress. For reporting purposes, the reversed scores were labelled as K10R.

Preliminary analysis revealed the K10R scores for each participant remained consistent throughout the program, indicating that the respondents remained in a stable state as attested in the initial referral from their psychiatrist. For example,

differences in scores between the first and last attendances did not show any significant rise or fall, (single sample t test, $p > 0.50$). For the purposes of further analysis, the K10R scores plus the scores from the 16-item questionnaire were averaged across all attendances.

Results

Overall Benefit

Aggregating across respondents and their weeks of attendance, there were 189 ratings of overall benefit, of which 65% (124) were strongly agree, 32% (60) were agree, and only 3% (5) were neutral. There were no strongly disagree or disagree responses. On an individual basis, 18 individuals showed an average rating of 4.0 (*agree*) or greater, and the remaining 2 individuals showed average ratings of, respectively, 3.0 (*neutral*) and 3.6 (between *neutral* and *agree*). The reported benefit thus appeared consistent across respondents. Between the first attendance and the last attendance, 14 individuals showed no change, three individuals showed an increase of one point in their ratings, and three showed a decrease of one point (single-sample t-test for any change was not statistically significant, $p > .05$).

Among the three questions for the specific benefits of art therapy (Price & Pellmann, 1989), the yes/no responses were consistently positive. Among the responses received, the respondents reported simultaneously experiencing a positive mood, positive insights, and improved functioning during 80% of attendances. A positive mood was reported after all attendances (100%), positive insights were reported for 97% of attendances, and improved functioning was reported for 81% of attendances. Finally, 72% of respondents reported

undertaking art-based activities in their own time following their attendances at the program.

Mechanism Scores

Table 6.2 shows the means, standard deviations, and pairwise correlations among the four mechanism scores, namely, behavioural activation, belonging, common factors, and flow states. In addition, the corresponding means and correlations are shown for the benefit rating. All the means were in the top half of their respective scale ranges. (The binary yes/no responses used for the Price and Pellmann (1989) specific benefit questions did not permit a useful computation of correlation coefficients.)

Pairwise comparisons among mechanism scores revealed that the mean common factors score was significantly greater than all the other mechanism scores. For all comparisons, $F_s(1, 19) \geq 11.88, p \leq .01$. According to Cohen's (1992) criteria, these differences are all statistically large ($d \geq .80$). All other differences among the mechanism scores were not statistically significant when adjusted to protect for multiple pairwise comparisons.

Despite the small number of respondents, the four mechanism scores all had statistically significant correlations with each other. More importantly, these correlations ranged between .527 and .844, all of which are large according to the conventions of Cohen (1992). Together, these correlations indicate that the four mechanisms had a consistent relationship across respondents. Finally, the mechanism scores all had positive correlations with the benefit score. All these correlations were consistently significant and large ($r > .597$).

Table 6.2. Correlation Matrix

	<i>Mean</i>	<i>SD</i>	<i>Activation</i>	<i>Belonging</i>	<i>Common Factors</i>	<i>Flow</i>	<i>Benefit</i>
<i>Activation</i>	14.31	3.01	1				
<i>Belonging</i>	15.67	3.50	0.844**	1			
<i>Common Factors</i>	17.87	1.77	0.527*	0.580*	1		
<i>Flow</i>	14.79	3.48	0.708**	0.807**	0.632**	1	
<i>Benefit</i>	4.52	0.553	0.597*	0.741**	0.819**	0.808**	1

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

Qualitative Themes

Figure 6.1 shows the percentage of the main themes identified when the respondents were given the opportunity to describe what was important to them following each attendance. Inspection of the table reveals that enjoyment of the program was the most common theme (30%), and a further 5% of statements expressed looking forward to each attendance at the program. The respondents also made more specific references corresponding to the four mechanisms under investigation here. Behavioural activation was expressed in statements about enjoyment of art (13%). Belonging, as expressed in terms of safety, acceptance, and integration in the program, appeared in 11% of the statements. Moreover, belonging may have also been reflected in statements about comfort and support in the program (9%). Common factors appeared in 5% of the statements, which expressed appreciation for the therapist. More speculatively, flow states may have been expressed in statements concerning mindfulness (5%) and being relaxed (7%). In addition to themes related to the four mechanisms, respondents also

described external stressors that reduced the enjoyment of the program on particular days (11%) and/or hindered settling into the program (5%).

Figure 6.1. Individual Themes



Discussion

Major Findings

With regard to Question 1 concerning the benefits of art therapy, over 90% of the individuals agreed or strongly agreed that the program was of benefit, and no one reported being dissatisfied with the program. Across 80% of attendances, the respondents simultaneously experienced a positive mood, positive insights, and improved functioning.

Among the qualitative themes (Question 4), 84% were positive, referring to appreciation of the program, its activities, the therapist, and the mindfulness training. In addition, the respondents reported feeling safe, accepted, supported, and relaxed. There were a few reports of difficulties settling in and/or fluctuation

in feelings related to external stressors. Moreover, apart from reports of positive feelings, a majority of the respondents (72%) reported undertaking art-based activities outside the therapeutic sessions.

With regard to Question 2 concerning experience of the four mechanisms, the scores for all four were in the top half of the response range, indicating that respondents did experience the mechanisms in a positive manner. When asked to expand qualitatively on their experience (Question 4), the respondents readily identified themes that related to the mechanisms of behavioural activation, sense of belonging, common factors, and flow states.

With regard to Question 3 concerning the correlations among the survey scores, the four mechanism scores had significant correlations with each other, all of which were large ($r > .50$) according to Cohen's (1992) conventions. Likewise, all four mechanisms had large correlations with the overall benefit score.

Implications

The benefits were those reported by participants, rather than measured benefits in the psychological functioning or as reported by their treating psychiatrist for instance. The current study provides evidence that art therapy has a demonstrable benefit as seen by people who are undergoing or have undergone psychiatric treatment (Abbott et al., 2013; Blomdahl et al., 2013; Blomdahl et al., 2016; Gantt & Tinnin, 2007; Kapitan, 2013; Smith, 2016; Uttley et al., 2015a). Beyond this confirmation of benefit, the current study provided the first demonstration that art therapy engages the mechanisms of behavioural activation, belonging, common factors, and flow states as contributors to the perceived benefit of participation. In addition, the present study compliments my recent findings that the same

mechanisms are engaged by artist-educators in a residential program with wounded, injured, and ill members of the Australian Defence Force as outlined in Chapter 3 to 5 (Watt & Kehoe, 2020; J. Williams, Bullock, Drayton, & Grey, 2019).

Previously, only belonging, flow states, and common factors resulting from art therapy have been associated with symptom reduction and wellbeing (Chilton, 2013; Holttum, 2018; S. Y. Lee, 2013; Schofield, 2019). The observed correlations of behavioural activation help illuminate the multiple ways in which art therapy has value for its respondents in conjunction with medical and psychiatric interventions. Specifically, the large correlation of common factors with benefit is consistent with previous research demonstrating that, when using other therapeutic interventions, common factors has an important impact on outcomes, including in group programs like the one used in the current study (Del Re et al., 2012; Heynen, Roest, Willemars, & van Hooren, 2017; Holttum, 2018; Wampold, 2015).

Although the therapeutic sessions were conducted in a group setting, each participant nevertheless engaged in drawing, painting, or sculpture on an individual basis. Interactions among the respondents were also of a social nature, e.g., sharing lunch and informal conversation about their activities. In this context, the high belonging scores and their strong association with perceived benefit was consistent with previous findings that belongingness can be achieved through group-based art therapy. For example, Macpherson et al. (2016), with a sample of 10 young respondents, found that an improved sense of belonging resulted from art therapy. Furthermore, Holttum (2018) in a review of recent

research speculated that the sense of belonging gained through sharing art insights was one of the mechanisms leading to positive outcomes.

Limitations and Future Directions

The sample in the current study, while small, did have the power to detect significant, large effects. Nevertheless, caution is required. Specifically, future research could expand on the current study's small number of respondents, who were primarily female and older in age. A bigger sample across a more demographically diverse representation could increase the applicability of results in the broader community. Furthermore, the inability to have access to a control group restricted the opportunity to compare art therapy with psychiatric treatment as usual.

There was evidence that common factors and sense of belonging were prominent as might be expected for group programs. Given that visual art, which is the primary medium used in the current study, is an individual activity, it remains to be determined how the observed high levels of belonging were achieved. There could be three, interacting contributors. Specifically, the therapist, the group, and the art activity may all create a platform for social identification and group cohesion (Walker et al., 2017).

Art includes music, drama, dance, and creative writing, not just visual expression. Investigation of programs that incorporate such types of art may be helpful for understanding the role of the identified mechanisms in the benefits of art therapy. Whilst there can be limitations in using self-report questionnaires, the recent development of the Art Therapy-Working Alliance Inventory could serve as a useful tool in measuring this concept in further detail (Bat Or & Zilcha-Mano,

2018). Whilst four candidate mechanisms were proposed, the list was by no means exhaustive. For example, the process of externalising a problem through art to allow greater self-understanding has been proposed as a means to improve functioning (Keeling, 2006; Smith, 2016).

The present results demonstrate that respondents reported benefits from the program and remained in a stable, functioning state consistent with their initial referral. At the same time, they did not report either a rise or a fall in their level of wellness as measured using the K10 instrument. The K10, however, is largely used as a brief screening device limited to depression and anxiety (Brooks et al., 2006). It may have lacked fidelity to detect further changes in patients who were generally stable at the start of the program. Furthermore, the K10 is also not suitable for detecting changes in comorbidities. Accordingly, for future identification of the benefits of art therapy, a more thorough psychiatric interview would be warranted.

Conclusion

The present findings demonstrate that, from the respondents' perspective, participation in the art therapy program had multiple benefits. Throughout their attendances, 90% the respondents reported a high level of benefit, and 80% simultaneously experienced an improved mood, greater insight, and improved functioning. With respect to the candidate mechanisms, the respondents generally experienced high levels of behavioural activation, belonging, common factors, and flow states. These high and correlated levels indicate that alongside the individual's behavioural activation and flow states, the relationships of the respondents with each other, and with the art therapist, play a prominent role in achieving the benefits of the program.

Chapter 7 - Toward a Mediated Model of Physical Activity in Relation to Psychological Distress

Introduction

The previous chapters have investigated the impact of art-based activities and art therapy on anxiety and depressive symptoms, while concurrently exploring the mechanisms through which such improvements are achieved. The samples have been small in nature (N=21 to N=92). Chapter one, with a sample of N=31 found that the four distinct mechanisms loaded onto one factor. The next two chapters expand on this finding with chapter seven exploring the moderating effects of the candidate mechanisms, and chapter eight exploring the individual and collective moderating contributions of each mechanism. To achieve this outcome, a larger sample is required. University students have been identified as a suitable population due to the acute stressors they face whilst at university, and their elevated anxiety and depressive symptoms when compared to their age matched Australian peers (Gall, Evans, & Bellerose, 2000; Leahy et al., 2010).

Leisure-time physical activity, including individual exercise and team sport, can be safely and effectively incorporated into clinical treatment and rehabilitation programs for depression (Kvam et al., 2016; Schuch, 2016; Velehorsch et al., 2014). Physical activity is also associated with reduced depressive symptoms in non-clinical populations across the entire age span (Cao et al., 2011; Doré et al., 2016; Kremer et al., 2014; Loprinzi, 2013; Perraton et al., 2010; Pickett et al., 2012). Regarding the relationship between physical activity and anxiety, the results are less consistent. Some studies show that sport is associated with reduced levels of anxiety (Bernstein et al., 2019; Conn, 2010a), but others show

either increased anxiety or no effect (Bartley et al., 2013; Cao et al., 2011; Larun et al., 2006).

Regular physical activity has been demonstrated to improve self-esteem, quality of life, and sleep, while reducing hopelessness in university students (Chang et al., 2016; Yigiter, 2014). Furthermore, students who undertake more sport than their peers have been found to have better mental health (Tyson, 2010). Physical activity and its potential benefits may be a worthwhile self-help route to addressing the mental health challenges commonly faced at university for example, Soucy-Chartier and Provencher (2013), where seeking treatment from health professionals is often stigmatized (Michaels et al., 2015).

As outlined above, there have been numerous studies demonstrating the benefit of physical activity for alleviating especially for depression and to a lesser extent anxiety, and other mental health concerns. However, the mechanisms that may mediate this relationship have not been extensively mapped. In fact, since data collection for the present study was completed, Doré et al. (2020) have published the first available model of the mediators between physical activity and general mental health, as measured by the Mental Health Continuum-Short Form. This form elicits ratings for emotional (3 items), social (5 items), and psychological (6 items) wellbeing. As candidate mediators, ratings of the individual's need for competence, autonomy, and relatedness were obtained from a sample of Canadian adolescents ($N = 424$). Autonomy, competence, and relatedness mediated, respectively, 71%, 27%, and 51% of the association between estimated years of participation in physical activity and the mental health score, after controlling for the frequency of moderate to vigorous physical activity.

Based on my extensive review of the literature in Chapter 2, the present study examined a set of four candidate mediators for the relationship of physical activity to psychological distress as follows:

Behavioural Activation

Undertaking activities that provide a sense of purpose, achievement, or enjoyment in a clinical context is broadly called behavioural activation (Lejuez et al., 2011; Mazzucchelli et al., 2016). In addition to physical activity, other recreational pursuits (e.g., artistic activities, hobby crafts) and even passive enjoyments (e.g., watching a movie, relaxing in a bath) may achieve behavioural activation (Macphillamy & Lewinsohn, 1982). Multiple clinical studies have demonstrated that behavioural activation improves depressive symptoms (Kanter et al., 2010; Mazzucchelli et al., 2009; Soucy-Chartier & Provencher, 2013). Soucy-Chartier & Provencher (2013, p. 292), have concluded that behavioural activation may be useful as “a low-intensity guided self-help psychological treatment for mild to moderate depression.” Behavioural activation may also reduce anxiety symptoms (Boswell et al., 2017; Dimaggio & Shahar, 2017; Hopko et al., 2006), but the empirical support for this proposition has been the subject of debate (Bernstein et al., 2019; Dimaggio & Shahar, 2017).

Belongingness

A sense of belonging can improve mental health in a variety of settings (Tangvald-Pedersen & Bongaardt, 2017). By the same token, a sense of belonging can lead to people becoming both more resilient and less vulnerable to common mental health concerns (Bryan & Heron, 2015; Macpherson et al., 2016; Reilly & Fitzpatrick, 2009). A person undertaking physical activity with others either informally, in a fitness class, or in an organized team, may have an

increased sense of belonging. This, includes the social interconnections within a group and more importantly, a sense of safety within the group (Walseth, 2006). Individuals' positive cognitions about fitness groups have been closely linked to their positive affective response to exercise (Graupensperger et al., 2019). Furthermore, those who undertake team sports have an increased likelihood of positive mental health relative to those who do not undertake team sports (Chekroud et al., 2018).

Common Factors

In addition to the social support of group activities, there are also interpersonal benefits that participants can experience through positive interactions with coaches or instructors. These interactions could mimic the beneficial common factors of a sound relationship with a therapist, which has been found to significantly influence the successful outcomes across a range of interventions (Ardito & Rabellino, 2011; Flückiger et al., 2012). These factors include shared goals, understanding, trust, and confidence in the therapist (Stamoulos et al., 2016; Wampold, 2015).

Flow States

Flow states are broadly described as occurring when someone becomes absorbed into an activity, often losing track of time or other concerns (Csikszentmihalyi, 2014; Harmat et al., 2016; Swann et al., 2018). This experience is correlated with participation in sport (Hodge et al., 2009; Jackson et al., 1998) and has been proposed to provide positive affect, thus increasing performance in competitive sport (Jackson et al., 2001) and long-term engagement in sport (Rhodes & Kates, 2015). In the clinical context, flow has been hypothesised to be related to reductions in anxiety (Moneta, 2012), although the

impact of physical activity on anxiety has been questioned (Bartley et al., 2013). Still, case studies of participation in physical activity have indicated that participants' sense of flow does assist in reducing trauma-related intrusive thoughts (Ley et al., 2017).

The four candidate mediators are largely distinct from those used by Doré et al. (2020). Only belongingness in the present study showed a moderate correspondence with Doré et al. (2020)'s concept of relatedness. Specifically, the six-item relatedness questionnaire used by Doré et al. (2020) had three items that referred to being “part of a group...”, “fit in well with others,” and “a close bond with others” (for complete wording, see P. M. Wilson and Bengoechea (2010)). In a corresponding fashion, within the ten items for belongingness in the present study, three had items that included to being “part of this community,” “I can fit in...”, and “people I feel close to in this community.”

There was no further correspondence of the candidate mediators of behavioural activation and flow states with the Doré et al. (2020) mediators of autonomy and competence. With respect to the nine items used to assess behavioural activation, only one (“I feel like I can make a lot of inputs to deciding how my job gets done”) had any wording even approximately shared with the four items used to assess autonomy (e.g., “I made good decisions about what type of activities and/or situations I put myself in.”). Nothing in the questionnaire used by Doré et al. (2020) was suggestive of cognitive flow.

Research Rationale and Research Questions

As described above, the four candidate mechanisms of behavioural activation, belonging, common factors, and flow states have been hypothesised to be factors

underpinning improvements in mental health. However, these factors have not been tested as separate or combined mediators for the apparent benefits of physical activity for mental health. For investigating the ability of the four candidates to mediate the relationship between physical activity and psychological distress, university students are a suitable non-clinical population as entry into university poses an acute stressor, which may take several years to subside in its effects (Gall et al., 2000; Leahy et al., 2010). For example, as measured by the K10 which covers both depression and anxiety, Australian university students from their first year through to their final year have shown elevated scores relative to age-matched peers who are not at university (Leahy et al., 2010). Among these students, 48% were classified as displaying a “high” level of psychological distress (a K10 score ≥ 22) as compared to 11% in age-matched peers. Depression and anxiety at a clinical level requiring treatment also appears with appreciable frequency in both US students (20%, 24%) (ACHA, 2019b) and Canadian students (19%, 24%) (ACHA, 2019a).

For testing the candidate mediators, we used the self-reported frequency of physical activity as the predictor variable. Although more physical activity might be increasingly beneficial to mental health, the available data suggests that there may be an optimal amount. For general mental health, exercise in the range of 2.5 to 7.5 hours per week provides the most benefit, with durations both above and below these ranges associated with increased psychological distress (Y. S. Kim et al., 2012). More recently, a very large multi-year survey of the US adult population ($N = 1,439,696$) revealed that for a wide range of exercise (e.g., running, calisthenics, golf, gardening, or walking) participating three to five times per week, each for 45 min or more, was associated with lower, self-reported

“stress, depression, and problems with emotions” (Chekroud et al., 2018, p. 740).

Physical activity that was less frequent or exceeded the above amounts was associated with reports of greater mental health difficulties.

Based on the foregoing considerations, the following research questions were addressed in the current study:

1. Do the candidate mechanisms of behavioural activation, sense of belonging, flow state, and common factors have any significant correlations with each other?
2. Do the candidate mechanisms of behavioural activation, sense of belonging, flow state, and common factors individually mediate any relationship between physical activity and a measure of psychological distress?
3. How much variance do the candidate mechanisms account for when placed into an integrated mediation model?
4. Does the mediation model differ for symptoms of depression and anxiety?

Method

Procedure

After giving informed consent, the respondents were administered the questionnaires outlined below. All questionnaires were administered online, which a respondent could complete via their phone, tablet, or computer. The study received ethical approval from the University of New South Wales under relevant regulations (Approval Number 3130, 19 December 2018).

Materials

Physical Activity Measure. The participants were asked how often they undertook physical activity in any form. Among the respondents, 2% never participated, 19% reported physical activity 1-3 days per year, 51% reported physical activity 2-3 times per month, 24% reported physical activity once per week, 0% reported physical activity 2-3 times per week, and 4% undertook physical activity daily or more. For the mediation analyses, these responses were converted to an approximate number of days per year of physical activity (0 to 365).

Behavioural Activation for Depression Scale – Short Form (BADSF).

The BADSF was used to measure behavioral activation. It consists of nine items, which were developed using a university population similar to the current study (Manos et al., 2011). For each item, the participant was asked to read a statement and rate how often the statement was true during the past week on a seven-point scale ranging from 0 (*not at all*) to 6 (*completely*). Five items concerned the frequency and quality of recent activities, e.g., “I was an active person and accomplished the goals I set out to do.” The other four items, which were reverse scored, concerned avoidance and rumination, e.g., “I engaged in activities that would distract me from feeling bad.” The BADSF is reported to have sound psychometric properties, e.g., Cronbach’s $\alpha = .819$ (Manos et al., 2011).

Community Integration Measure (CIM). The CIM is a measure of belongingness, which rates perceived connections within a community with respect to general assimilation, support, occupation, and independent living (McColl et al., 2001; Millis et al., 2014). Whilst originally designed for the those

who have had a traumatic brain injury (Griffen et al., 2010), the measure has been validated by McColl et al. (2001) using both patient samples (Cronbach's $\alpha = .830$) and university samples (Cronbach's $\alpha = .780$). It has been further validated with patient samples from China and Japan (Shioda et al., 2017; Tai-Wa et al., 2014). The CIM contains ten declarative statements which are rated on a five-point Likert scale (always agree, sometimes agree, neutral, sometimes disagree, always disagree), where they were coded from, 5 (*always agree*), and 1 (*always disagree*). Higher scores are interpreted as reflecting higher levels of community integration.

Short Dispositional Flow Scale (SDFS). The SDFS provides a brief assessment of a nine-dimensional conceptualisation of flow state as a cognitive construct (Jackson et al., 2008). The scale was developed using samples from the general Australian population (Cronbach's $\alpha = .810$) (Jackson et al., 2008). The scale contains nine statements, each being rated on a 5-point scale (never = 1, rarely = 2, sometimes = 3, frequently = 4, always = 5) with higher scores indicating a greater sense of flow. For example, one statement is "My attention is focused entirely on what I am doing."

Common Factors Questionnaire (CFQ). The CFQ was developed for the purposes of this study from a list of fifteen common factors identified by Stamoulos et al. (2016), including among others, rapport, trust, shared goals, and empathy between a physical activity participant and coach or instructor. The CFQ was designed to measure similar relationship factors deemed important in a variety of settings containing an instructor or coach. The questionnaire used a five-point Likert scale (strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, strongly agree). Higher scores indicate a better

relationship between the respondents and their coach/instructor. The questionnaire demonstrates appropriate reliability when tested with the current university sample (Cronbach's $\alpha = .822$).

K10. The K10 is widely used as a measure of psychological distress based on anxiety and depressive symptoms (Andrews & Slade, 2001; Brooks et al., 2006; Furukawa et al., 2003; Kessler et al., 2002; Sampasa-Kanyinga, Zamorski, & Colman, 2018; Vasiliadis, Chudzinski, Gontijo-Guerra, & Prévile, 2015). The K10 has ten items that each ask, “about how often did you feel...”, for example, “nervous,” “hopeless,” “depressed,” and others. Four items address anxiety symptoms, and six items address depressive symptoms. The response scale consisted of a five-point rating ranging from “none of the time” to “all of the time”. Thus, lower scores indicate less psychological distress. The K10 is reported to have sound psychometric properties, e.g., Cronbach's $\alpha = .930$ for the general US population (Kessler et al., 2002).

Statistical analyses

Correlational analyses were conducted using SPSS with the Process (V3.3) syntax (Hayes, 2017; Preacher & Hayes, 2004) being used for the mediation analyses, bootstrapping 5000 samples. For zero-order correlational analyses, correlation coefficients (r) of 0.10, 0.30, and 0.50 were designated as small, medium, and large, respectively (Cohen, 1992).

Results

Respondents

The sample consisted of 394 first-year, Sydney-based university students (59.9%) identified as females, 39.3% identified as males, and 0.8% identified as

other). The students were based at the Kensington Campus of UNSW and were recruited through the Sona program as part of their first-year psychology studies.

Pairwise Correlations

For testing the first research question, Table 1 shows zero-order correlations among the four candidate mechanism variables. As listed in Table 7.1, all the variables significantly correlated with each other ($ps < .01$). Belonging had correlations approaching the strong range with behavioural activation, flow state, and common factors, all $rs \geq .48$. The remaining correlations among the four variables were small to medium in size, ranging upward from .20.

Table 7.1. Correlations between candidate variables in the Physical Activity Model

	1	2	3	4
1. Common Factors	-			
2. Belonging	.48**	-		
3. Behavioural Activation	.20**	.49**	-	
4. Flow	.38**	.49**	.42**	-

** $p < 0.01$ level (2-tailed).

Individual Variable Mediation Effects

Hayes's Process V3.3 script was used to test the second research question, that the candidate mechanisms individually mediate the relationship between the frequency of self-reported physical activity and the K10 measure. Table 7.2 shows the results of the mediation analysis for each of the four variables. Each section of the table shows the results for (a) the path between physical activity and the mediator in terms of the beta weight, its standard error, the t -test of the significance of the beta weight, its p -value, the lower limit of the 95% confidence

interval of the beta weight, and the upper limit of the confidence interval. The next four lines show the corresponding statistics for (b) the path for the mediator variable with K10, (c) the total path for the effect of physical activity frequency on K10, which was constant across all analyses, (d) the direct effect (c') of physical activity on K10 subtracting the (a) and (b) paths, and (e) the indirect effect (c-c') of the mediator between physical activity and K10, subtracting out the direct effect.

Examination of Table 7.2 demonstrates behavioural activation, belonging, and flow state each had a significant individual mediating effect between physical activity and K10. Yet, there was no significant direct effect between physical activity and K10 once the mediating effect of each of these three mediator variables was accounted for. In contrast, common factors had an individual significant mediating effect, but there remained a significant direct effect of physical activity on K10, even when the contribution of common factors was accounted for.

Table 7.2. Individual mediation effects of Behavioural Activation, Belonging, Flow, and Coach Relationship on the relationship between physical activity and psychological distress.

Regression paths	B	se	t	P	LLCI	ULCI
Mediation a path (Physical Activity Frequency on Behavioural Activation)	0.027	0.005	5.864	0.000	0.018	0.037
Mediation b path (Behavioural Activation on K10)	-0.564	0.036	-15.731	0.000	-0.634	-0.493
Total effect, c path (Sport on K10)	-0.018	0.004	-4.191	0.000	-0.026	-0.009
Direct effect c' (Physical Activity on K10 including Behavioural Activation as mediator)	-0.002	0.003	-0.665	0.507	-0.009	0.005
Mediation a path (Physical Activity Frequency on Belonging)	0.022	0.004	6.121	0.000	0.015	0.029
Mediation b path (Belonging on K10)	-0.502	0.054	-9.340	0.000	-0.608	-0.397
Total effect, c path (Physical Activity Frequency on K10)	-0.018	0.004	-4.191	0.000	-0.026	-0.009
Direct effect c' (Physical Activity Frequency on K10 including Belonging as mediator)	-0.007	0.004	-1.667	0.096	-0.015	0.001
Mediation a path (Physical Activity Frequency on Flow)	0.018	0.003	6.334	0.000	0.012	0.024
Mediation b path (Flow on K10)	-0.413	0.072	-5.725	0.000	-0.554	-0.271
Total effect, c path (Physical Activity Frequency on K10)	-0.018	0.004	-4.191	0.000	-0.026	-0.009
Direct effect c' (Physical Activity Frequency on K10 including Flow as mediator)	-0.010	0.004	-2.408	0.165	-0.019	-0.002
Mediation a path (Physical Activity Frequency on Common Factors)	0.020	0.007	2.861	0.004	0.006	0.034
Mediation b path (Common Factors on K10)	-0.077	0.030	-2.565	0.011	-0.137	-0.018
Total effect, c path (Physical Activity Frequency on K10)	-0.018	0.004	-4.191	0.000	-0.026	-0.009
Direct effect c' (Physical Activity Frequency on K10 including Common Factors as mediator)	-0.016	0.004	-3.811	0.000	-0.025	-0.008

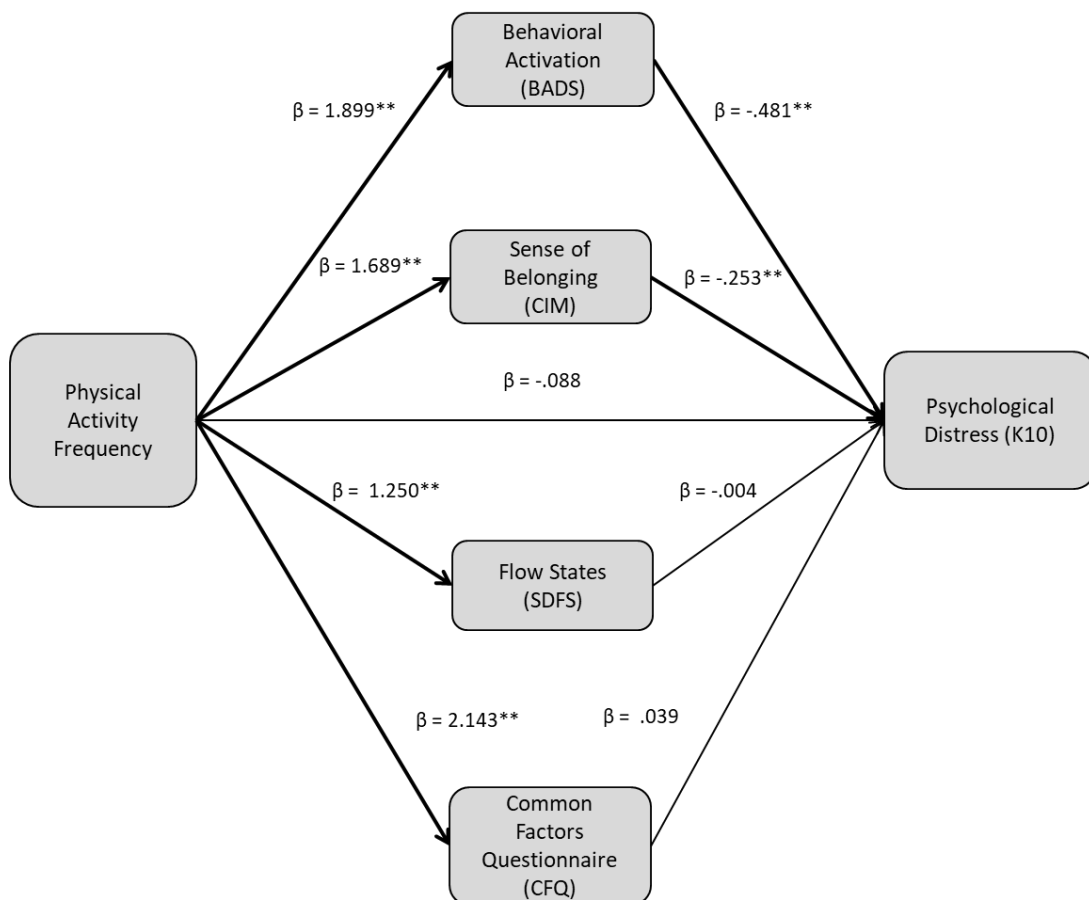
Overall Mediation Model

To test the third research question, that the candidate mechanisms collectively contributed to an overall model in those who undertake physical activity, all mediating variables were simultaneously placed into an analysis using Process v3.3 (Hayes, 2017). The results are summarised in Figure 7.1. This figure shows the beta weights for (a) the paths of physical activity on each proposed mediator, (b) the paths for each proposed mediator and the K10 score, and (c') the direct

path between physical activity frequency and the K10 score, after all mediation effects have been subtracted.

Inspection of the figure reveals that physical activity had a significant simultaneous relationship with behavioural activation, belonging, flow state, and common factors. However, only behavioural activation and belonging had a significant relationship with the K10, therefore making these two variables the only significant mediators in the integrated model. Moreover, the direct effect of physical activity on the K10 was not significant.

Figure 7.1. An integrated mediation model of sport participation on the K10.



Mediation Model for Depressive and Anxiety Symptoms.

For investigating the fourth research question, a mediation model was again tested, however this time, the two K10 factors of depression and anxiety were entered separately as outcome variables. Consistent with the overall model shown in Figure 7.1, the only two significant mediators were behavioural activation and belonging. Specifically, the paths from physical activity through behavioural activation (beta weight = 0.03, $t(393) = 5.86$, $p < .01$) to both the depression variable (beta weight = -0.33, $t(388) = -12.55$, $p < .01$) and the anxiety variable (beta weight = -0.15, $t(388) = -7.70$, $p < .01$) were significant. Similarly, the paths from physical activity through belonging (beta weight = 0.02, $t(393) = 6.12$, $p < .01$) to both the depression variable (beta weight = -0.16, $t(388) = -4.32$, $p < .01$) and the anxiety variable (beta weight = -0.94, $t(388) = -3.25$, $p < .01$) were significant. Further consistent with the model in Figure 1, there was no significant direct effect of physical activity on either depression or anxiety variables.

Discussion

Major Findings

The aim of the current study was to examine the self-reported impact of physical activity on wellbeing, via an integrated mediation model, developed to address four research questions:

Research Question 1 concerned the correlations among four candidate mediators. Specifically, behavioural activation, sense of belonging, flow state, and common factors all had at least medium significant correlations with each other. Among these correlations, belonging had correlations approaching strong levels with behavioural activation, flow state, and common factors.

Research Question 2 concerned whether physical activity had a significant association with psychological distress, and whether this association was explained by one or more of the separate candidate mediators. Overall, participants engaged in more frequent physical activity had significantly lower psychological distress when compared to participants engaged in less frequent physical activity. All four of the variables were, individually, significant mediators of the relationship. Once the individual mediating effect for each variable had been considered, there was no significant residual direct effect of physical activity on psychological distress for behavioural activation, belonging, and flow. However, a significant residual direct effect remained after the individual mediation of common factors had been accounted for.

Research Question 3 concerned the effect of combining the proposed mediators into one integrated model. The integrated modelling demonstrated that behavioural activation and belonging continued to have significant mediating effects, whilst flow state and common factors no longer had a mediating effect. Finally, there was no residual significant direct effect after the mediators had been accounted for.

Research Question 4 aimed to identify if the mediators remained the same for both depression and anxiety, considered separately. The result indicated that the same two mediators – behavioural activation and belonging – were significant when the K10 scores were partitioned into their depression and anxiety components.

Implications

The present results provide an expanded and more nuanced picture of the relationship between physical activity and psychological distress, as measured by the K10. The present results have revealed that, possibly for the first time, this relationship is strongly mediated by two specific mechanisms, namely, behavioural activation and belonging. Flow state and common factors by themselves were significant mediators, but their contributions disappeared in the integrated model. Thus, both behavioural activation, as indexed by the BADS-SF, and interpersonal connection, as indexed by the CIM, can each contribute to the positive effect of physical activity on lowering psychological distress.

The findings provide further evidence supporting the role that behavioural activation, engaged by participation in physical activity, has in reducing symptoms of depression and anxiety. Specifically, modelling for the depressive component of the K10 indicates that physical activity may be an effective means for engaging behavioural activation as a mediator and helps to explain the established association between physical activity and reductions in depressive symptoms (Mazzucchelli et al., 2009). Furthermore, the modelling supports the proposal of Hopko et al. (2006) that behavioural activation, engaged by physical activity, may also be effective in reducing anxiety. In the present case, the association between behavioural activation and reduction in anxiety was observed in a non-clinical population, rather than a clinical population. To test this implication, further research with populations identified specifically with anxiety symptoms could assist in understanding how the mechanism of behavioural activation works in reducing those symptoms.

The present results further confirm the role that belonging has in alleviating depression and anxiety symptoms (J. P. Allen et al., 2006; Anant, 1967; Bryan & Heron, 2015; Cassel, 1976; House et al., 1988; Kruse et al., 2014; Walseth, 2006). The present results also provide new evidence that belonging can mediate the effect physical activity on reductions in depression and anxiety. This mediation effect appeared even though the respondents were not asked whether their physical activity was conducted alone, in an informal group, and/or in a formal team setting.

Limitations and Future Directions

The present research was limited in four ways that suggest avenues for future research:

First, as noted above, the sample was limited to a non-clinical population of university students. Accordingly, the model developed in the present study would benefit from testing in clinical populations. Beyond clinical populations, military personnel may also be useful for testing this model as physical activity is routine and integral to military training. Moreover, the team structure in the military and the high value placed on a military member's service to others may be a worthwhile environment for testing the importance of belonging and behavioural activation. The same may be true for other first responders, e.g., paramedics, police, and firefighters.

Second, the battery of questionnaires used in the present study is open to refinement. The measurement of behavioural activation in the BADS-SF could be expanded beyond goal achievement and avoidance/rumination to test an individual's use of self-talk, relaxation, skill development, and activity monitoring

with regards to depression and anxiety (Kanter et al., 2010). Similarly, the belonging measure in the CIM could be expanded to better reveal whether a sense of belonging arises from the social context in which the physical activity occurs, including, among others, informal groups (e.g., regular training partner), formal groups (e.g., cycling club), or organised teams (e.g., basketball competition). Therefore, future research could use an alternative measure to the CIM, specifically exploring the impact of individual versus team sport. Moreover, it remains to be determined whether these social relationships differentially motivate meaningful involvement, as postulated by Hagerty et al. (1992).

Third, the potential mediators excluded from the present model, namely, flow state and common factors, could be retested as to whether or not they are relevant in a final model and in what contexts. Dore's (2020) research into the candidate mediators of autonomy, competence, and relatedness could be added to future mediation research to explore the relevance of such mediators when compared to the ones used in the current research.

Fourth, the K10 is a good measure of psychological distress, but does not seem to be a good measure of wellbeing. Its low scores indicate only an absence of distress. In contrast, a scale for positive functioning, indicating more than the absence of distress, may be worthwhile for detecting increased wellbeing associated with physical activity (Linton, Dieppe, & Medina-Lara, 2016). Such a measure would help guard against criticism concerning the medicalization of the benefits of exercise (Caddick & Smith, 2018).

Conclusion

Beyond the well-known benefits of physical activity for cardiovascular fitness and more general physical health, the present results indicate that regular physical activity can protect against the negative impact of psychological distress. To achieve these benefits, the present results point particularly to the value of using physical activity to engage an individual's behavioral activation and sense of belonging. Moreover, these two mechanisms may be engaged relatively safely and inexpensively by individuals, their peers, and/or professionals involved in physical activity, e.g., Soucy-Chartier and Provencher (2013).

Chapter 8 – Factor Structure of Candidate Mechanisms

Introduction

Chapter one, with a small population found that the four distinct mechanisms loaded onto one factor. To better understand this finding an appropriately large enough sample could provide further clarification on how the mechanisms contribute to change in participants. University students, whilst not recognised as a clinical population, have been found to have higher levels of anxiety and depression than age-matched peers (Gall et al., 2000; Leahy et al., 2010). Such a population could be considered a comparison group to the previously researched clinical populations. Chapter eight investigates the factor structure of the four mechanisms, while concurrently identifying a reduction in the volume of questions asked for future exploration.

Entry into university poses an acute stressor, which may take several years to subside in its effects (Gall et al., 2000; Leahy et al., 2010). For example, as measured by the Kessler 10 (K10) instrument, Australian university students from their first year through their final year have shown elevated scores relative to age-matched peers (Leahy et al., 2010). Among these students, 48% were classified as displaying a “high” level of psychological distress (a K10 score ≥ 22) as compared to 11% in the age-matched peers. Anxiety and depression at a clinical level requiring treatment appear with appreciable frequency in US students (24%, 20%) (ACHA, 2019b) and Canadian students (24%, 19%) (ACHA, 2019a).

Different theoretical perspectives have led to the evolution of a range of mechanisms that may plausibly contribute to reducing psychological distress. Concomitantly, specific instruments have been formulated to measure each of these mechanisms. At present, for theoretical purposes, it is unclear which of the

diverse mechanisms and their associated instruments converge on a single or multiple underlying constructs. For pragmatic purposes, psychologists, along with other health professionals, would benefit from the concise identification and integrated measurement of such mechanisms.

The present study aimed to create a concise, integrated measure of underlying mechanisms associated with reductions in psychological distress, specifically in a sample of first-year university students. The students were surveyed using four questionnaires purported to measure different mechanisms that are all individually considered beneficial to mental health. First, “behavioural activation” entails activities that provide a sense of purpose, achievement, or enjoyment, all of which reduce depressive symptoms (Kanter et al., 2010; Lejuez et al., 2011; Mazzucchelli et al., 2009; Soucy-Chartier & Provencher, 2013). Second, a “sense of belonging” to a larger group, for example, a sports team, has been theorised to increase resilience and reduce vulnerability to common mental health disorders (Bryan & Heron, 2015; Macpherson et al., 2016). Third, meaningful interactions with instructors, coaches, and/or trainers could mimic common factors that occur in formal therapeutic settings, which significantly enhance the positive outcomes of a wide range of interventions (Ardito & Rabellino, 2011; Flückiger et al., 2012; Stamoulos et al., 2016; Wampold, 2015). Fourth, a “flow” state is said to occur when one becomes absorbed in an activity, e.g., painting and drawing (Harmat et al., 2016), which provides a respite from mental health concerns and improvement in university studies (Kapitan, 2013; Kazuki, 2014; Wilkinson & Chilton, 2013). Recent research has identified that these four mechanisms may be experienced as positive outcomes resulting from physical activities and art based activities (Watt & Kehoe, 2020).

The current chapter had two overarching aims. Firstly, do the four mechanisms underlying reductions in psychological distress have convergent or divergent properties. Knowledge of this would add to the understanding of seemingly different mechanisms and how they relate to each other. Secondly, can the four mechanisms be measured in a manner that reduces burden on participants in activities which activate these mechanisms.

There were three specific research questions:

1. Do the proposed mechanisms, each measured by its own questionnaire, reappear or converge if their items are treated as a single pool and then subjected to exploratory factor analysis (EFA)?
2. In the interest of producing a concise measure of the underlying mechanisms, can the number of items loading on to each factor identified in the EFA be reduced without loss of precision?
3. How strongly are derived factor scores associated with psychological distress as measured by the K10 instrument?

Method

Procedure and materials

The study received ethical approval from the University of New South Wales under relevant regulations (Approval Number 3130, 19 December 2018). After giving informed consent, the respondents were administered the questionnaires described below. All questionnaires were administered online via phone, tablet, or computer.

Behavioural Activation for Depression Scale – Short Form (BADSF). The BADS is used to measure behavioral activation. It consists of nine items (Manos et al., 2011). For each item, the participant was asked to read a statement and rate how often the statement was true for during the past week on a seven-point scale ranging from 0 (*not at all*) to 6 (*completely*). Five items concerned the frequency and quality of recent activities, e.g., “I was an active person and accomplished the goals I set out to do.” The other four items, which were reverse scored, concerned avoidance and rumination, e.g., “I engaged in activities that would distract me from feeling bad.” Supporting previous validation, in the current study the BADS-SF had very good reliability (Cronbach $\alpha = 0.871$) (Manos et al., 2011).

Community Integration Measure (CIM). The CIM is a measure of belongingness, which asks respondents about their perceived connections within a community across four dimensions: general assimilation, support, occupation, and independent living (McColl et al., 2001). It contains ten declarative statements that are rated on a five-point Likert scale, ranging from strongly disagree to strongly agree. An example of an assimilation statement is, “I feel like part of this community, like I belong here.” Higher scores are interpreted as reflecting higher levels of community integration. Previously validated on a smaller sample, in the current study the CIM had fair reliability (Cronbach $\alpha = 0.786$) (McColl et al., 2001).

Short Dispositional Flow Scale (SDFS). The SDFS provides a brief assessment of a nine-dimensional conceptualisation of flow (Jackson et al., 2008). The scale contains nine statements, each being rated on a 5-point scale (never, rarely, sometimes, frequently, always) with higher scores indicating a greater

sense of flow (Jackson, 2009). An example statement is “My attention is focused entirely on what I am doing.” In line with previous validations, in the current study the BADS-SF had good reliability (Cronbach $\alpha = 0.827$).

Common Factors Questionnaire (CFQ). The CFQ was developed using a list of fifteen therapeutic alliance factors identified by Stamoulos et al. (2016). It is designed to measure relationship factors deemed important in a variety of activity settings, especially those with no formal therapist, such as a lecturer, tutor, coach, or other instructional staff member. Using a five-point Likert scale, the questionnaire asks for ratings on rapport, trust, shared goals, and empathy, e.g., “I have a good working relationship with the coach/instructor/staff.” Higher scores indicate a better relationship between the respondent and their instructional staff members. The questionnaire had very good reliability (Cronbach $\alpha = 0.922$).

Kessler 10 (K10). The K10 is widely used as a measure of wellbeing based on anxiety and depressive symptoms (Andrews & Slade, 2001; Brooks et al., 2006; Furukawa et al., 2003; Kessler et al., 2002). The K10 has ten items that each ask, “In the past four weeks, about how often did you feel...”, for example, “nervous,” “hopeless,” “depressed,” et alia. The response scale consisted of a five-point rating ranging from “none of the time” to “all of the time.” Thus, lower scores indicate less psychological distress and hence greater wellbeing.

Statistical Analysis

Exploratory Factor Analysis (EFA) of the data was undertaken using SPSS version 26. Specifically, a Principal Components Analysis (PCA), followed by a Varimax Rotation was completed on all data. A secondary EFA was conducted on those items which met a conservative cut off of .7. Eigenvalues of greater than

one were considered to be factors, with eigenvalues below one being discarded as lacking significance.

Results

Respondents

The total sample consisted of 394 university students (59.9% identified as females, 39.3% identified as males, and 0.8% identified as “other”). The students were based at the Sydney Campus of UNSW and were recruited through the Sona program as part of their first-year psychology studies. When signing up for the online study, they were asked whether they had recently participated in physical activity and/or art-based leisure activities. The final sample contained 382 respondents who completed all items in the questionnaires described below (60.7% identified as females, 38.5% identified as males, and 0.8% identified as “other”).

Table 8.1’s upper portion shows the results of an EFA of the 43-item scores from the four questionnaires, conducted using SPSS, specifically, a Principal Components Analysis followed by Varimax Rotation. The initial analysis yielded eight factors with an eigenvalue greater than 1. Inspection of the table reveals that the eight factors explained 61.2% of the total variance. Table 1’s lower portion shows the results of an EFA using a reduced set of 21 items that each had a loading of .7 or greater in the first EFA. This reduced set EFA yielded a six-factor structure that accounted for 70.4% of the total variance.

Table 8.1. Exploratory Factor Analyses, Eight Factor Solution (43 Items) and Six Factor Solution (21 Items)

<i>Eight Factors</i>						
<i>Principal Component Analysis</i>				<i>Varimax Rotation</i>		
<i>Component</i>	<i>Eigenvalues</i>	<i>Variance %</i>	<i>Cumulative %</i>	<i>Total</i>	<i>Variance %</i>	<i>Cumulative %</i>
1	12.2	28.4	28.4	5.3	12.3	12.3
2	3.7	8.5	36.9	4.1	9.4	21.8
3	2.4	5.5	42.4	3.9	9.0	30.8
4	2.0	4.7	47.1	3.4	8.0	38.8
5	1.9	4.4	51.5	3.4	7.8	46.6
6	1.7	3.9	55.4	2.7	6.2	52.9
7	1.2	2.9	58.3	2.3	5.3	58.2
8	1.2	2.8	61.2	1.3	2.9	61.2

<i>Six Factors</i>						
<i>Principal Component Analysis</i>				<i>Varimax Rotation</i>		
<i>Component</i>	<i>Eigenvalues</i>	<i>Variance %</i>	<i>Cumulative %</i>	<i>Total</i>	<i>Variance %</i>	<i>Cumulative %</i>
1	6.7	32.1	32.1	4.4	20.7	20.7
2	2.6	12.4	44.5	2.8	13.2	33.9
3	1.8	8.5	53.0	2.3	11.0	44.9
4	1.5	7.0	60.0	2.1	10.1	54.9
5	1.1	5.3	65.3	1.7	7.9	62.8
6	1.1	5.1	70.4	1.6	7.6	70.4

Table 8.2 shows the rotated factor structure for the eight-factor solution from the first EFA and lists the item loadings greater than .400. [Copyright permission for the SDFS did not allow for listing of the specific item wordings (Jackson, 2009). Hence, they are listed by item number.] Among the 43 items, 39 of them loaded on only one of the factors. Two items loaded on more than one factor. Specifically, Item No. 15 loaded on Factor 1 and Factor 8. Item 37 loaded on Factors 4 and 6. Finally, two items, No. 42 and 43, did not load on any factor.

Among the eight factors, Factor 8 appeared to have negligible value. It consisted of only a single item (No. 15) that also loaded on Factor 1. Setting aside

Factor 8, the remaining seven factors appeared distinct from each other. They were aligned with either all items or a subset of items in each the four questionnaires. The nine items of the BADS-SF loaded on either Factor 5 (Individual Activities) or Factor 7 (Avoidance). The 10 items in the CIM questionnaire were distributed across Factor 4 (Belonging) and Factor 6 (Community Activities), not including the two items that did not load on any factor. The nine items in the Flow questionnaire all loaded on Factor 2 (Flow). Finally, the 15 items of the CFQ were split across Factor 1 (Staff Relationships) and Factor 3 (Personal Development). In summary, the original four questionnaires were expanded into what may be viewed as seven distinct subscales.

Table 8.2. 43 Item Rotated Component Analysis

	<i>Factor</i>							
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
<i>Factor 1 - Staff Relationship</i>								
I have a good working relationship with the coach/instructor/staff.	0.76							
The coach/instructor/staff empathise with me	0.79							
The coach/instructor/staff are genuine in relating to me	0.80							
The coach/instructor/staff understand my issues	0.75							
The coach/instructor/staff and I have a high regard for each other	0.80							
I get good feedback from the coach/instructor/staff	0.76							
The coach/instructor/staff are good role models.	0.69							
The coach/instructor/staff help me overcome feelings of isolation	0.41							
<i>Factor 2 - Flow</i>								
Short Dispositional Flow Scale - Item 1		0.54						
Short Dispositional Flow Scale - Item 2		0.62						
Short Dispositional Flow Scale - Item 3		0.66						
Short Dispositional Flow Scale - Item 4		0.63						
Short Dispositional Flow Scale - Item 5		0.64						
Short Dispositional Flow Scale - Item 6		0.74						
Short Dispositional Flow Scale - Item 7		0.42						0.51
Short Dispositional Flow Scale - Item 8		0.59						
Short Dispositional Flow Scale - Item 9		0.52						
<i>Factor 3 - Personal Development</i>								
I am very hopeful about my development and changes			0.58					
I feel open to development and change			0.59					
The activity is enhancing my sense of mastery and achievement			0.63					
I can express my emotions in this program			0.53					
I am learning a great deal in the activity			0.73					
I am encouraged to try new behaviours			0.68					
I am getting better at understanding myself			0.72					
<i>Factor 4 - Belonging</i>								
I feel like part of this community, like I belong here				0.75				
I know my way around this community				0.71				
I know the rules in this community and I can fit in with them				0.73				
I feel that I am accepted in this community				0.68				
<i>Factor 5 - Individual Activities</i>								
There were certain things I needed to do that I didn't do*					0.46			
I am content with the amount and types of things I did					0.77			
I engaged in many different activities					0.72			
I made good decisions about ... activities and/or situations					0.77			
I was an active person and accomplished the goals I set out to do					0.76			
I did things that were enjoyable					0.52			
<i>Factor 6 - Community Activities</i>								
I know a number of people in this community well enough ...						0.66		
There are things that I can do ... for fun in my free time						0.81		
There are people I feel close to in this community				0.41		0.58		
I have something in this community ... that is useful and productive						0.74		
<i>Factor 7 - Avoidance</i>								
Most of what I did ... escape from or avoid something unpleasant*							0.80	
I spent a long time thinking over and over about my problems*							0.75	
I engaged in activities that would distract me from feeling bad*							0.84	
<i>Did not Load</i>								
I can be independent in this community								
I like where I'm living now								

*Reverse Scored

For determining the minimum number of items that would preserve the factor structure, we examined the number of items remaining in each factor when the minimum loading was progressively set at values of .5, .6, .7 and .8. These values reduced the number of items from 43 to 38, 30, 21, and 5, respectively. EFAs for the 38-item and 30-item versions did not produce an interpretable factor structure. Using a conventional loading criterion of .4, 34 items in the 38-item version loaded on to a single factor, and 15 items loaded on two factors. Similarly, for the 30-item version 27 items loaded on a single factor, and 17 loaded on two or more factors. However, the 21-item version yielded an interpretable structure of six factors. The loading of the 21 items was distributed across these factors, and no items loaded on more than one factor. This structure will be described in more detail in the next paragraph. Finally, the 5-item version did not cover enough of the original questionnaires to warrant factor analysis.

Table 8.3 shows the rotated structure for the six-factor solution from the EFA for the 21-item version. (See lower portion of Table 8.1.) This solution largely preserved the seven factors of the 43-item version. With one exception, the items loading on to each of the 6 factors were exclusively from each of the four questionnaires. Specifically, Factor 1 (Staff Relationship) contained six items from CFQ. Factor 2 (Behavioural Activation – Activities) contained four items from the BADS-SF. Factor 3 (Belonging) contained three items from the CIM. Factor 4 (Avoidance) contained three items from the BADS. Factor 5 (Community Activities) contained two items from the CIM. Factor 6 (Personal Mastery) contained one item from SDFS and two items from CFQ. Thus, while Factors 1 – 5 corresponded to factors in the EFA of the 43-item version, Factor 6

(Personal Mastery) in the 21-item EFA combined items from Factor 2 (Flow) and Factor 3 (Personal Development) in the 43-item EFA.

Table 8.3. 21 Item Rotated Component Analysis

	<i>Factor</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
<i>Factor 1 - Staff Relationship</i>						
I have a good working relationship with the coach/instructor/staff.	0.79					
The coach/instructor/staff empathise with me	0.82					
The coach/instructor/staff are genuine in relating to me	0.84					
The coach/instructor/staff understand my issues	0.78					
The coach/instructor/staff and I have a high regard for each other	0.82					
I get good feedback from the coach/instructor/staff	0.78					
<i>Factor 2 - Individual Activities</i>						
I am content with the amount and types of things I did		0.79				
I engaged in many different activities		0.77				
I made good decisions about ... activities and/or situations I put myself in		0.79				
I was an active person and accomplished the goals I set out to do		0.78				
<i>Factor 3 – Belonging</i>						
I feel like part of this community, like I belong here			0.75			
I know my way around this community			0.82			
I know the rules in this community, and I can fit in with them			0.82			
<i>Factor 4 – Avoidance</i>						
Most of what I did was to escape from or avoid something unpleasant*				0.83		
I spent a long time thinking over and over about my problems*				0.76		
I engaged in activities that would distract me from feeling bad*				0.85		
<i>Factor 5 - Community Activities</i>						
There are things that I can do in this community for fun in my free time					0.84	
I have something to do in this community ... that is useful and productive					0.85	
<i>Factor 6 - Personal Mastery</i>						
**.... feeling of total control....						0.43
I am learning a great deal in the activity						0.72
I am getting better at understanding myself						0.84

*Reverse Scored

** Stem from SHORT Dispositional Flow Scale (S DFS), Copyright © 2002, 2009 by S.A. Jackson.
All rights reserved in all media. Published by Mind Garden, Inc.

www.mindgarden.com

For a preliminary test of the potential use of the 21-item version, as a set of six subscales, two analyses were conducted to ascertain the reliability of the items within each of the six factors and the criterion validity of factor-derived scores

with respect to the K10 measure. The reliability analysis revealed that Cronbach's alphas for the six factors shown in Table 8.3 were, respectively, .913, .830, .853, .781, .747, and .610. The overall reliability across all 21 items was .863 indicating acceptable reliability (Mohsen, 2011).

The validities of both 21-item and 43-item versions were tested by averaging the scores of items loading on each factor to create a derived score for each respondent. Despite the smaller set of items in the 21-item versus the 43-item versions, the correlations between derived scores for the shared factors of Staff Relationship, Individual Activities, Belonging, Community Activities, and Avoidance were all large. Respectively, the correlation coefficients were .98, .96, .98, .90, and 1.00. (The correlation for Avoidance scores was 1.00, because they were based on the same three items in both versions.) Finally, the derived score for Personal Mastery in the 21-item version had large correlations of .69, .82, and .87 with the derived scores for Flow, Personal Development, and their average in the 43-item version.

The correlation coefficients of the derived scores with the K10 scores are shown in Table 8.4. As can be seen, the correlations were all negative, meaning that higher derived scores were associated with lower K10 scores, which indicate less psychological distress. Using Cohen's (1992) recommendations, the strength of the correlations ranged from small (.100 to .299) to medium (.300 to .499) to large ($\geq .500$). All were statistically significant using a conservative criterion ($p < .001$).

Table 8.4. 21-Item and 43-Item Derived Score Correlations with the K10

	<i>Instructor / Coach Relationships</i>	<i>Belonging</i>	<i>Individual Activities</i>	<i>Community Activities</i>	<i>Flow</i>	<i>Personal Development</i>	<i>Personal Mastery</i>	<i>Avoidance</i>
<i>21-Item Model K10 Correlation</i>	-0.211	-0.403	-0.401	-0.282	-	-	-0.256	-0.606
<i>43-Item Model K10 Correlation</i>	-0.192	-0.416	-0.457	-0.365	-0.326	-0.229	-	-0.606

Correlation is significant at the 0.01 level (2-tailed).

n=382

Discussion

Major findings

The aim of the current study was to examine convergence versus divergence of measures of the mechanisms hypothesised to contribute to reductions in psychological distress associated with everyday leisure activities such as art and physical activity. As revealed through EFA, the 43 items from the four questionnaires loaded on seven distinct factors, plus a redundant, single-item eighth factor. The seven factors reflected the theoretical distinctions among the four mechanisms, but with the division of the items in the BADS-SF, CIM, and CFQ each into two factors. As will be discussed in more detail below, the items from each questionnaire loaded uniquely with each other. There were two minor exceptions. One item from the SDFS questionnaire loaded on both the main factor for the Flow items and the single-item eighth factor, and one item from the CIM loaded on to the Community Belonging and Community Activities factors generated from the CIM items.

The initial EFA revealed that 21 items had loadings greater than .700. An EFA using only those 21 items yielded a six-factor solution, which largely, but not wholly, paralleled the seven factors obtained using 43 items. With respect to the

BADS-SF, the reduced set of items continued to load strongly on factors for Individual Activities and Avoidance. For the CIM, the reduced set of items from that questionnaire continued to load strongly on factors for Belonging and Community Activities. The items from the CFQ split two ways. The reduced set for the factor Staff Relationships continued to load strongly. However, only two of the seven items for the factor of Personal Development in the 43-item model met the criterion for retention (loading $\geq .700$) in the 21-item EFA. In the resulting 21-item model, those two items were merged into a single factor, along with the remaining item from the original CFQ. For the CFQ, that single item was the only one of nine items retained in the 21-item EFA. In summary, reducing the set of items from 43 to 21 led to retention of six factors from the original seven factors. These factors will be discussed below.

Finally, the correlations between derived scores from the two EFAs and psychological distress as measured by the K10 instrument. Across both the 43-item and 21-item models, the correlations were generally consistently as small to medium ($-.192$ to $-.457$). The single large correlation ($-.606$) appeared for items asking about ruminative and avoidant behaviours.

Interpretation

In reducing the number of items from 43 to 21, the original factor structure was largely preserved. The single-item factor (Factor 8) and the flow factor (Factor 2) disappeared. Flow was the second largest contributor in the 43-item model, however, as described in the results, the loading of only one of the flow items met the criterion of $.700$ or greater to be moved forward into the 21-item model. Furthermore, in the 21-item model, the one remaining flow item showed only a loading of $.434$, far lower than the next lowest item, which had a loading of

.723. The modest loadings of flow items with each other in the 43-item model and other items in the 21-item model appears be consistent with arguments that the flow construct and its measurement require further development (Swann et al., 2018).

Behavioural activation split into the factors of Activity and Avoidance in both the 43- and 21-item models. These two subscales are consistent with the original development of the BADS-SF (Manos et al., 2011). In the present research, increases on the activation subscale were associated with a reduction in distress as measured by the K10. A similar association between increases in activation and decreases in depressive symptoms has been observed in previous research (Kanter et al., 2007). By the same token, increases in avoidance were correlated with increases in the K10 scores in the present research. This supports previous research that demonstrates an association between avoidance and depressive symptoms has been observed (Shudo et al., 2017).

In both the 43- and 21-item models, the items of the CIM split into two distinct factors: that of belonging to a community and the other focused on community-based activities. This finding is an expansion of the initial validation of the CIM by McColl et al. (2001). Although they postulated four theoretical factors, their initial factor analysis based on 92 respondents yielded only a single factor. The current study had over four times as many participants, thus suggesting further research into sub factors of the CIM may be warranted.

The CFQ items yielded factors broadly based on Personal Relationships and Personal Development/Mastery. The items loading on to the personal relationship factor appear broadly similar to items that loaded on to a bonding factor in an

investigation of a working alliance in psychotherapy (Falkenström et al., 2015). The questionnaire in that investigation included items that loaded on to task and goal factors. Only some of those items concerning change overlapped the items in the present CFQ. Thus, there may be room for expanding the alliance items, particularly with reference to goal setting.

Implications

Chapters one to six have utilised a variety of questionnaires to explore the underlying mechanisms that may contribute to change from participating in art and sport-based activities. The current chapter has demonstrated that the underlying mechanisms remain distinct, using a larger sample, with validated questionnaires. Such a finding demonstrates that consistent with the mechanisms having different theoretical backgrounds each mechanism remains distinct.

The current research revealed that, using the initial 43-item questionnaire, there were small to large correlations between factor-derived scores and the K10 measure of psychological distress. By reducing the number of questions by over half, the factor structure remained largely intact, thus demonstrating that the underlying mechanisms are distinct. The correlations with the K10 scores remained largely the same.

The measurement of mechanisms potentially relevant to managing psychological distress in university students can be achieved through the use of either the 21-item or 43-item questionnaires. The 21-item questionnaire can assist psychologists and other mental health professionals in identifying students who are experiencing difficulties in integrating into the university community (staff relationships, belonging) and/or their own engagement with meaningful activities

(individual activities, community activities). The 43-item questionnaire additionally allows for the identification of students who are experiencing an insufficient sense of flow and/or personal development. Both the 21-item and 43-item questionnaires have the same items for measuring avoidant thoughts and behaviours, which may prompt further queries as to the source of the apparent distress, such as anxiety about university assignments and/or personal issues.

Furthermore, to demonstrate the robust nature of the questionnaires used, previously identified sub scales remained intact in the 21 Question, 6 Factor solution. Specifically, within the CIM, being Belonging and Independent Participation remained in a reduced form in the final six factor solution as Community Participation and Individual Activities. Furthermore, the subscales of the BADS-SF being Activation and Avoidance remained in a reduced but consistent form in the 21 Question, Six Factor solution, namely Individual Activities and Avoidance. These findings demonstrate that even when combined with other questionnaires, the robust nature of the questions and their theoretical development remain largely intact.

Chapter 9 - Discussion

To summarise the results of the empirical studies, they can be grouped around the two aims as originally described in Chapter 1: Introduction, testing the benefits of adjunct activities for the well-being of participants, and second, testing which theoretical mechanisms best explain any detected changes. In summary, the main findings were as follows:

First, three of the four empirical studies of adjunct art activities, conducted by professional art educators, revealed that the respondents experienced benefits from their participation in their respective programs. No less than 93% of ADF veterans' reported benefits when asked retrospectively (Chapters 3, 5). Civilian participants in a formal art therapy program, conducted by a qualified art therapist also reported benefits (97%, Chapter 6). Reports of overall change were recorded even when the participants were queried up to 42 months after completion of the program (Chapter 3).

As a quantitative index of benefit, low K10 scores for psychological distress showed some transient effects. In Chapter 4, the proportion of ADF veterans' who reported low K10 scores (< 16) increased from 16% at the start of the ARRTS program to 31% at the end of the program (Chapter 4). Concurrently, the proportion of ADF veterans' with high scores (> 30) decreased from 34% to 11%. However, within six months, the proportions of ADF veterans' reporting low scores (13%) versus high scores (32%) had returned to their starting baselines.

Second, the action of all four candidate mechanisms – behavioural activation, belonging, common factors, and flow – were reported by a significant proportion of ADF veterans' and civilian patients. However, the total numbers ($Ns < 93$)

were not large enough to conclusively determine which mechanisms were most prominent.

In a different context, specifically, that of physical activity reported by a substantial number of university students ($N = 396$), the mechanisms of belonging and behavioural activation significantly mediated the relationship between the level of activity and low K10 scores. This study is instructive in that different mechanisms were more prominent mediators than others. However, these results cannot be generalised to the arts-based studies for the following two main reasons: (1) among the distinct differences between the artistic and physical activities, the art activities were supervised by either art professionals or an art therapist, allowing for the common factor of therapeutic alliance to become prominent. It would appear that many of the physical activities engaged by the university students were undertaken without formal supervision.

Relationship with Previous Findings

Arts-Based Activities

The benefits of arts-based activities reported by participants in the present series of studies (Chapters 3, 4, 5, and 6) are consistent with previous findings that arts-based activities can have a positive effect on mental health (Abbing et al., 2018; Blomdahl et al., 2013; Boehm et al., 2014; Cristina & Aneta, 2012; Koch et al., 2019). With regard to the question of mechanism, all four studies confirmed previous findings that art-based activities produced experiences of behavioural activation (Ekers et al., 2011), sense of belonging (Bryan & Heron, 2015; Macpherson et al., 2016), common factors (American Psychological Association Presidential Task Force on Evidence-Based Practice, 2006; Heynen et al., 2017), and flow states (DeLucia, 2016; Kapitan, 2013; Wilkinson & Chilton, 2013).

Among these mechanisms, the sense of belonging appeared to have been fostered by the group setting, even though drawing, painting, and sculpture are performed individually. This observation adds to the previously limited reflection that group-based art therapy produces belonging (Macpherson et al., 2016).

Physical Activity

The modelling undertaken with a nonclinical population of university students (Chapter 7) revealed that separately, each of the four candidate mechanisms mediated the relationship between the reported levels of physical activity and low levels of psychological distress. However, when integrated into a single model, the mechanisms of behavioural activation and belonging emerged as the dominant mediators. Accordingly, this section will discuss the implications of the present results for those two mechanisms in the context of sport and exercise broadly defined.

With regard to depressive symptoms as a component of psychological distress, the present findings confirmed repeated demonstrations of a relationship between increased physical activity and low levels of depressive symptoms (Kvam et al., 2016; Schuch, 2016; Schuch et al., 2017; Schuch et al., 2016). Moreover, the modelling confirmed the single available demonstration that behavioural activation, as engaged by physical activity, is a mediator in reducing symptoms of depression (Mazzucchelli et al., 2009). Additionally, the modelling also provided evidence for a previously unknown relationship: that belongingness is a mediator of the association between physical activity and lower levels of depressive symptoms.

In contrast, despite its face validity (Hopko et al., 2006), the pairwise association between low anxiety symptoms and high levels of physical activity had been mixed, with some studies showing that physical activity is associated with reduced levels of anxiety (Bernstein et al., 2019; Conn, 2010a), but others showing either increased anxiety or no effect (Bartley et al., 2013; Cao et al., 2011; Larun et al., 2006). Thus, the present findings provide the further evidence with a substantial sample to support the association between reduced anxiety and increased physical activity. Furthermore, the modelling provides the first demonstrations that both behavioural activation and belongingness mediate the relationship between low levels of anxiety and high levels of physical activity (Anant, 1967, 1969; Reilly & Fitzpatrick, 2009).

Factor Structure

The findings from the studies of art-based activities in patient populations, and physical activity in non-clinical populations, have all provided evidence that, to varying degrees, the four candidate mechanisms had significant associations with either the overall benefit of an arts-based program or low levels of psychological distress in unsupervised physical activity. To determine whether or not the four candidate mechanisms, despite their conceptual differences, had a cohesive structure, an EFA was conducted using the non-clinical sample, which while at the lower end of respondents for an EFA was large enough to warrant the use of EFA ($N=396$). Of the 43 items from existing questionnaires for the four mechanisms, 41 loaded onto seven factors, which reflected the theoretical distinctions among the four mechanisms. Specifically, and consistent with previous research, the items for behavioural activation (BADS-SF) and belongingness (CIM) each split into two sub factors (Manos et al., 2011; McColl et al., 2001). Furthermore, the

common factors items (CFQ) also split into two factors. Finally, the flow state items (SDFS) loaded on one factor, thus rounding the seven-factor structure.

Limitations and Future Directions

Sample size and demographics

The current research aimed to understand if and how adjunct therapies achieved benefit. The thesis grew out of an evaluation of an art-based program within the ADF, where large sample sizes and control groups were not feasible. Furthermore, the retrospective study had a low response rate when compared to the sample size. A lack of knowledge of those who did not respond or were unable to be contacted could have led to potential bias in the results. Similarly, a study of an art therapy program with civilians did not generate a large sample or a control group. To obtain a clearer picture of the candidate mechanisms and their interrelationships, it was worthwhile to examine a substantial sample of tertiary students. Despite differences across such diverse samples, the benefit of participating in adjunct activities and evidence supporting the four mechanisms were found, potentially indicating the wide scope in the use of adjunct activities for people seeking mental health benefit.

To determine whether or not the four candidate mechanisms, despite their conceptual differences, had a cohesive structure, an EFA was conducted using the non-clinical sample, which, while at the lower end of respondents was large enough to warrant the use of EFA (N=396).

Art and physical activities can be considered different spheres of activity and could possibly be undertaken by different groups of people. While events such as the Invictus Games are designed for injured members of the military, it is

acknowledged that injured personnel may be limited in their ability to participate in physical activity. Such limitations could include limitations to range of motion, tolerance of pain, or even frequency of activity and subsequent recovery.

However, by having an alternative such as art, the opportunity to include more occasions where the underlying mechanisms can be experienced could be beneficial for those requiring rehabilitation.

To develop a more detailed understanding of adjunct activities for specific populations, future research with greater numbers would allow more precise comparisons, including the power to detect trends over time, in both categorical measures of benefit and standardised scale ratings for candidate mechanisms. One means of increasing the numbers in an inexpensive manner would be to offer focused programs which the participants attend in their locality. This strategy would broadly resemble the structure of the art therapy program (Chapter 6), in which the participants attended an arts-based program as outpatients in their locality for one day per week rather than every day for a month in a residential program. Another future way of increasing the power of analysis would be to extend the availability of art-based activities beyond current members of the ADF to discharged veterans' and first responders, who face similar mental health challenges, e.g., paramedics, police, and firefighters.

The samples in the non ADF studies included a higher proportion of females when compared to the ARRTS (Hodson et al., 2011). The results in the current studies did not differentiate the effectiveness of art-based activities between the genders. Given the higher proportion of females in the non ARRTS studies, future research may consider the impact of gender on outcomes, especially in populations containing a higher proportion of particular genders.

In the context of spreading the availability of arts-based activities, a key research question becomes how big a dose of arts-based activities is optimal for engaging important mechanisms and increasing benefits. By dose, one would need to examine the length of each session, its frequency, and perhaps the variety of activities. For each activity, the dose-response relationship may follow a law of diminishing returns, i.e., a negatively accelerated dose-response curve. Thus, there may be a practical limit of how much of each activity is worthwhile.

Measures of Mechanisms

The present study used a mixture of standardised, categorical, and qualitative measures to develop an understanding of creative and physical activities, as adjuncts for improving mental health. In the present research, the main outcome measure was the K10 instrument for psychological distress across anxiety and depression (Brooks et al., 2006). The K10 is a validated, widely used, brief measure of psychological distress. However, as a brief screening tool, the K10 may lack the fidelity to detect changes across the spectrum of anxiety and depressive disorders, especially among people who were generally stable at the first point of measurement. As a brief screening tool, the K10 may lack the fidelity to detect changes across the spectrum of anxiety and depressive disorders, especially among people who were generally stable at the first point of measurement. Furthermore, the K10 does not have the ability to detect comorbidities, e.g., PTSD, personality disorders, or adjustment disorders, all of which would require further assessment. Finally, the K10 is not an exact measure of wellbeing. Its low scores indicate only an absence of distress. In contrast, a scale for positive functioning, indicating more than the absence of distress, may be worthwhile for detecting increased wellbeing associated with adjunct activities

(Linton et al., 2016). A global validated measure of outcomes such as the Quality of Life (Richardson, Iezzi, Khan, & Maxwell, 2014) instrument could add to the evidence for the quality of life benefits arising from participating in creative and physical activities (Abdulah & Abdulla, 2018; Brauninger, 2004, 2012b; Chang et al., 2016; Pavlacic et al., 2019).

The battery of questionnaires used to measure the candidate mechanisms in the present study is open to refinement:

(1) The measurement of behavioural activation in the BADS-SF could be expanded beyond goal achievement and avoidance/rumination to test an individual's use of self-talk, relaxation, skill development, and activity monitoring in warding off depression and anxiety (Kanter et al., 2010).

(2) Similarly, the belonging measure in the CIM could be expanded to better reveal whether a sense of belonging arises from the social context in which the activity occurs. These contexts include, among others, informal groups (e.g., garage bands, regular exercise training partner), formal groups (e.g., photograph club, cycling club), and organised teams (e.g., competitive choir, basketball competition). A potentially suitable measure specifically for physical activities could be the Belonging in Sport Scale (J. B. Allen, 2003, 2006). Moreover, it remains to be determined whether these social relationships differentially motivate meaningful involvement (Hagerty et al., 1992; Hagerty & Patusky, 1995).

(3) The CFQ was developed by the authors to understand if there was a similarity in mechanisms experienced in adjunct activities, when compared to formalised therapy. The recent development of the Art Therapy-Working Alliance

Inventory could serve as a useful tool in measuring the common factor of therapeutic alliance in further detail (Bat Or & Zilcha-Mano, 2018).

Brief Measure for Adjunct Mechanisms

The measurement of the four candidate mechanisms, which is relevant to managing psychological distress/well-being, underwent initial development as a result of the EFA. The EFA confirmed the theoretical constructs of the four mechanisms and their major subscales. By reducing the number of questions by over half, the factor structure remained largely intact, except for the flow state questions. Future confirmatory factor analysis on the 21-items specifically with a clinical population could increase the construct validity of the proposed measure.

Mechanism and Outcome

The current research aimed to measure the contribution of four mechanisms for the mental health benefit for adjunct activities. The role of belonging was consistently identified as being associated with reduced psychological distress. However, belonging as measured by the CIM did not have the ability to identify three interacting contributors. Specifically, belongingness related to the therapist, the group, and the art activity, may together create a platform for social identification and group cohesion (Walker et al., 2017). Furthermore, in a review of recent research Holtum (2018) speculated that the sense of belonging gained through sharing art insights was one of the mechanisms leading to positive outcomes. Future research should aim to understand the contribution of these variables across the range of art-based and physical activities in different contexts, i.e., informal groups, formal groups, and competitive teams.

Finally, whilst the present research has focused on four candidate mechanisms, they are by no means exhaustive. When measured, for example, core self-evaluations were positively correlated with the benefits experienced by respondents both during and following the ARRTS program (Chapters 3 and 4). In contrast, there was no discernible correlation of the respondents' CSES scores with the initial scores for behavioural activation, belonging, flow, and therapeutic alliance. Furthermore, these CSES scores increased during the ARRTS program, largely due to increases in the locus of control factor. Further research into how core self-evaluations and particularly locus of control may mediate the relationship between adjunct activities and outcomes could be worthwhile.

Memory and recall

The studies into the ARRTS program highlighted a difference in the duration of benefit, depending on the measure used. The long-term retrospective evaluation (Chapter 3) found overall benefit of arts-based activities plus specific benefits related to the four mechanisms. In contrast, in the longitudinal evaluation (Chapter 4), standardised, multi-item questionnaires used more precisely defined measures of experienced benefits. In that case, the specific benefits diminished substantially within six months. The third study, following up on the longitudinal study, used categorical measures and found the benefit endured at least six months.

Previous research has found that the perception of highly salient events such as physical injury, can change substantially over the time intervening between initial treatment and recovery (Gotlin et al., 2020). More generally, over retention intervals, the central aspects of an event, including major emotional reactions, can be readily retrieved while details are lost (Bookbinder & Brainerd, 2016; Kaplan

et al., 2015). In terms of the three evaluations of the ARRTS program, the overall and specific mechanism-related benefits appeared to remain retrievable over several months and year. In contrast, the responses to the standardised questionnaires for the mechanism were less retrievable over a period of three- to six-months.

The recall of experiences in the ARRTS program could be considered both semantic and episodic in nature, and given the theorised differences in degradation of such memories (Winocur, 2011), it would be beneficial to understand how the program influences the encoding of those memories at the time of experience, and how such encoding may lead to differences in the duration of the benefit following participation. An opportunity for further investigation that is less reliant on recall could clarify the present findings, for example, periodic face-to-face mental well-being assessments both before and following the program.

Ongoing Behavioural Change and Post Program Follow up

When specifically asked, the majority of respondents reported positive ongoing behaviour change, including both art and physical activity following participation in the ARRTS program. Furthermore, the bulk of respondents reported that they would like to have had an opportunity for a follow up activity. The ARRTS respondents' desire for follow-up art activities is consistent with findings that sustaining the retention and maintenance of training is bolstered by brief refresher training (Ginzburg & Dar-El, 2000; Isaak et al., 2018; Kluge & Frank, 2014). Future research could evaluate the impact of follow up activities, on both the ongoing experience of the mechanisms and the ongoing perceived benefit of the program (Murphy et al., 2009).

Conclusion

In conclusion, this thesis began with the aim of evaluating the ADF ARRTS program in both terms of benefit and the potential underlying mechanism that mediated any benefit. The research expanded into a broader perspective of both creative arts and physical adjunct activities for mental health, across a demographic that expanded beyond military members to include art therapy patients and non-clinical university students. The broader results demonstrate that perceived benefit from undertaking this range of activities was experienced. Additionally, the four mechanisms were all found to be experienced by participants in both creative and physical activities, although behavioural activation and belonging both appeared to be consistently stronger than common factors and flow states. Thus, this thesis has found evidence that adjunct activities to traditional therapies can provide both temporary and sustained benefits in clinical and non-clinical populations in a variety of settings.

References

- Abbing, A., de Sonnevile, L., & Swaab, H. (2018). The effectiveness of art therapy for anxiety in adults: A systematic review of randomised and non-randomised controlled trials. *PLoS ONE*, *13*(12), e0208716.
doi:10.1371/journal.pone.0208716
- Abbott, K. A., Shanahan, M. J., & Neufeld, R. W. J. (2013). Artistic tasks outperform nonartistic tasks for stress reduction. *Art Therapy: Journal of the American Art Therapy Association*, *30*(2), 71-78.
doi:10.1080/07421656.2013.787214
- Abdulah, D. M., & Abdulla, B. M. O. (2018). Effectiveness of group art therapy on quality of life in paediatric patients with cancer: A randomized controlled trial. *Complementary Therapies in Medicine*, *41*, 180-185.
doi:10.1016/j.ctim.2018.09.020
- Abuhamdeh, S., & Csikszentmihalyi, M. (2012). Attentional involvement and intrinsic motivation. *Motivation and Emotion*, *36*(3), 257-267.
doi:10.1007/s11031-011-9252-7
- ACHA. (2019a). *American College Health Association-National College Health Assessment II: Canadian Consortium Executive Summary Spring 2019*. Retrieved from Silver Spring, MD:
https://www.acha.org/documents/ncha/NCHA-II_SPRING_2019_CANADIAN_REFERENCE_GROUP_EXECUTIVE_SUMMARY.pdf
- ACHA. (2019b). *American College Health Association-National College Health Assessment II: Undergraduate Student Executive Summary Spring 2019*. Retrieved from Silver Spring, MD:

<https://www.acha.org/documents/ncha/NCHA->

[II_SPRING_2019_UNDERGRADUATE_REFERENCE%20GROUP_EXECUTIVE_SUMMARY.pdf](#)

- Adler, A. (1927). Individual psychology. *The Journal of Abnormal and Social Psychology*, 22(2), 116-122. doi:10.1037/h0072190
- Agell, G. (1980). History of Art Therapy. *Art Education*, 33(4), 8-9.
doi:10.1080/00043125.1980.11651990
- AhnAllen, J. M., Suyemoto, K. L., & Carter, A. S. (2006). Relationship between physical appearance, sense of belonging and exclusion, and racial/ethnic self-identification among multiracial Japanese European Americans. *Cultural Diversity & Ethnic Minority Psychology*, 12(4), 673-686.
doi:10.1037/1099-9809.12.4.673
- Alexopoulos, G. S., O'Neil, R., Banerjee, S., Raue, P. J., Victoria, L. W., Bress, J. N., . . . Arean, P. A. (2017). "Engage" therapy: Prediction of change of late-life major depression. *Journal of Affective Disorders*, 221, 192.
doi:10.1016/j.jad.2017.06.037
- Ali, S., Rhodes, L., Moree, O., McMillan, D., Gilbody, S., Leach, C., . . . Delgadillo, J. (2017). How durable is the effect of low intensity CBT for depression and anxiety? Remission and relapse in a longitudinal cohort study. *Behaviour Research and Therapy*, 94, 1-8. doi:info:doi/
- Allen, J. B. (2003). Social Motivation in Youth Sport. *Journal of sport & exercise psychology*, 25(4), 551-567. doi:10.1123/jsep.25.4.551
- Allen, J. B. (2006). The perceived belonging in sport scale: Examining validity. *Psychology of Sport and Exercise*, 7(4), 387-405.
doi:10.1016/j.psychsport.2005.09.004

- Allen, J. P., Insabella, G., Porter, M. R., Smith, F. D., Land, D., & Phillips, N. (2006). A social-interactional model of the development of depressive symptoms in adolescence. *Journal of Consulting and Clinical Psychology*, 74(1), 55-65. doi:10.1037/0022-006X.74.1.55
- Altenmüller, E., Finger, S., & Boller, F. o. (2015). *Music, Neurology, and Neuroscience: Evolution, the Musical Brain, Medical Conditions, and Therapies* (First edition. ed.). Amsterdam, Netherlands: Amsterdam, Netherlands : Elsevier.
- Altenmüller, E., & Schneider, S. (2008). Planning and Performance. In S. Hallam, I. Cross, & M. Thaut (Eds.), *The Oxford Handbook of Music Psychology* (pp. 529-546). Oxford, United Kingdom: Oxford University Press.
- Alter-Muri, S. B. (2017). Art education and art therapy strategies for Autism Spectrum Disorder students. *Art Education*, 70(5), 20-25. doi:10.1080/00043125.2017.1335536
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (Vol. 5). Washington, DC.
- American Psychological Association Presidential Task Force on Evidence-Based Practice. (2006). Evidence-Based Practice in Psychology. *American Psychologist*, 61(4), 271-285. doi:10.1037/0003-066X.61.4.271
- Amerine, J. L. (2016). Using animal-assisted therapy to enrich psychotherapy. *Advances in Mind-Body Medicine*., 30(3), 11-11. doi:info:doi/
- Anant, S. S. (1967). Belongingness and mental health: Some research findings. *Acta Psychologica*, 26(C), 391-396.
- Anant, S. S. (1969). A cross-cultural study of belongingness, anxiety and self sufficiency. *Acta Psychologica*, 31(C), 385-393.

- Andrews, G., & Slade, T. (2001). Interpreting scores on the Kessler Psychological Distress Scale (K10). *Australian and New Zealand Public Health*, 25(6), 494-497.
- Araújo, M. V., & Hein, C. F. (2016). Finding Flow in Music Practice: An Exploratory Study About Self-Regulated Practice Behaviours and Dispositions to Flow in Highly Skilled Musicians. In László Harmat, Frans Ørsted Andersen, Fredrik Ullén, Jon Wright, & G. Sadlo (Eds.), *Flow Experience : Empirical Research and Applications* (pp. 23-36): Springer International Publishing.
- Araújo, M. V., & Hein, C. F. (2019). A survey to investigate advanced musicians' flow disposition in individual music practice. *International Journal of Music Education*, 37(1), 107-117. doi:10.1177/0255761418814563
- Arbisi, P. A., Kaler, M. E., Kehle-Forbes, S. M., Erbes, C. R., Polusny, M. A., & Thuras, P. (2012). The predictive validity of the PTSD checklist in a nonclinical sample of combat-exposed National Guard troops. *Psychological Assessment*, 24(4), 1034-1040. doi:10.1037/a0028014
- Archer, S., Buxton, S., & Sheffield, D. (2015). The effect of creative psychological interventions on psychological outcomes for adult cancer patients: a systematic review of randomised controlled trials. *Psycho-Oncology*, 24(1), 1-10. doi:10.1002/pon.3607
- Ardito, R. B., & Rabellino, D. (2011). Therapeutic alliance and outcome of psychotherapy: Historical excursus, measurements, and prospects for research. *Frontiers in Psychology*, 2. doi:10.3389/fpsyg.2011.00270
- Asay, T. P., & Lambert, M. J. (1999). The empirical case for the common factors in therapy: Quantitative findings. In *The Heart and Soul of Change: What*

Works in Therapy (pp. 23-55). Washington: Washington: American Psychological Association.

Asmundson, G. J. G., Thorisdottir, A. S., Roden-Foreman, J. W., Baird, S. O., Witcraft, S. M., Stein, A. T., . . . Powers, M. B. (2019). A meta-analytic review of cognitive processing therapy for adults with posttraumatic stress disorder. *Cognitive Behaviour Therapy*, 48(1), 1-14.

doi:10.1080/16506073.2018.1522371

Asztalos, M., Wijndaele, K., De Bourdeaudhuij, I., Philippaerts, R., Matton, L., Duvigneaud, N., . . . Cardon, G. (2009). Specific associations between types of physical activity and components of mental health. *Journal of Science and Medicine in Sport*, 12(4), 468-474.

doi:10.1016/j.jsams.2008.06.009

Baardseth, T. P., Goldberg, S. B., Pace, B., Wislocki, A. P., Frost, N., Siddiqui, Jr., . . . Wampold, B. E. (2013). Cognitive-behavioral therapy versus other therapies: Redux. *Clinical Psychology Review*, 33(3), 395-405.

doi:10.1016/j.cpr.2013.01.004

Bailey, R. J., & Ogles, B. M. (2019). Common factors as a therapeutic approach: What is required? *Practice Innovations*, 4(4), 241-254.

doi:10.1037/pri0000100

Baird, A. D., Scheffer, I. E., & Wilson, S. J. (2011). Mirror neuron system involvement in empathy: A critical look at the evidence. *Social Neuroscience*, 6(4), 327-335. doi:10.1080/17470919.2010.547085

Balchin, R., Linde, J., Blackhurst, D., Rauch, H. L., & Schönbachler, G. (2016). Sweating away depression? The impact of intensive exercise on

depression. *Journal of Affective Disorders*, 200, 218.

doi:10.1016/j.jad.2016.04.030

Baldwin, S. A., Wampold, B. E., & Imel, Z. E. (2007). Untangling the alliance-outcome correlation: Exploring the relative importance of therapist and patient variability in the alliance. *Journal of Consulting and Clinical Psychology*, 75(6), 842. doi:10.1037/0022-006X.75.6.842

Balfour, M., Westwood, M., & Buchanan, M. J. (2014). Protecting into emotion: therapeutic enactments with military veterans transitioning back into civilian life. *Research in Drama Education: The Journal of Applied Theatre and Performance*, 19(2), 1-17.

doi:10.1080/13569783.2014.911806

Barlow, D. (1988). *Anxiety and Its Disorders*. . New York: Guilford.

Barlow, D. (2010). Negative effects from psychological treatments. *American Psychologist*, 65(1), 13-20. doi:10.1037/a0015643

Barnes, S., & Pressey, A. (2016). Cyber-mavens and online flow experiences: Evidence from virtual worlds. *Technological Forecasting and Social Change*, 111, 285. doi:10.1016/j.techfore.2016.07.025

Bartley, C. A., Hay, M., & Bloch, M. H. (2013). Meta- analysis: Aerobic exercise for the treatment of anxiety disorders. *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, 45, 34.

doi:10.1016/j.pnpbp.2013.04.016

Bat Or, M., & Zilcha-Mano, S. (2018). The Art Therapy Working Alliance Inventory: the development of a measure. *International Journal of Art Therapy*, 24(1), 1-12. doi:10.1080/17454832.2018.1518989

- Baumgartner, J. N., & Burns, J. K. (2014). Measuring social inclusion—a key outcome in global mental health. *International Journal of Epidemiology*, 43(2), 354-364. doi:10.1093/ije/dyt224
- Beck, A. T. (1970). Cognitive therapy: Nature and relation to behavior therapy. *Behavior Therapy*, 1(2), 184-200. doi:10.1016/S0005-7894(70)80030-2
- Beck, A. T. (1979). *Cognitive Therapy of Depression*. New York: New York : Guilford Press.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives Of General Psychiatry*, 4(6), 561-571. doi:10.1001/archpsyc.1961.01710120031004
- Beetz, A., Uvnas-Moberg, K., Julius, H., & Kotrschal, K. (2012). Psychosocial and psychophysiological effects of human- animal interactions: The possible role of oxytocin. *Frontiers in Psychology*, 3. doi:10.3389/fpsyg.2012.00234
- Beringer, A., & Martin, P. (2003). On adventure therapy and the natural worlds: Respecting natures healing. *Journal of Adventure Education & Outdoor Learning*, 3(1), 29-39. doi:10.1080/14729670385200221
- Bernstein, E. E., Curtiss, J. E., Wu, G. W. Y., Barreira, P. J., & McNally, R. J. (2019). Exercise and emotion dynamics: An experience sampling study. *Emotion*, 19(4), 637-644. doi:10.1037/emo0000462
- Berrol, C. F. (2006). Neuroscience meets dance/movement therapy: Mirror neurons, the therapeutic process and empathy. *The Arts in Psychotherapy*, 33(4), 302-315. doi:10.1016/j.aip.2006.04.001
- Bettez, S. C. (2010). Mixed-Race Women and Epistemologies of Belonging. *Frontiers in Psychology*, 31(1), 142-165. doi:10.1353/fro.0.0074

- Bidabadi, S., & Mehryarb, A. (2015). Music therapy as an adjunct to standard treatment for obsessive compulsive disorder and co-morbid anxiety and depression: A randomized clinical trial. *Journal of Affective Disorders*, 184(Preprints), 13-17. doi:info:doi/
- Binfet, J.-T. (2017). The effects of group-administered canine therapy on university students' wellbeing: A randomized controlled trial. *Anthrozoös*, 30(3), 397-414. doi:10.1080/08927936.2017.1335097
- Binfet, J.-T., Passmore, H.-A., Cebry, A., Struik, K., & McKay, C. (2018). Reducing university students' stress through a drop-in canine-therapy program. *Journal of Mental Health*, 27(3), 197. doi:10.1080/09638237.2017.1417551
- Bird, K. D. (2004). *Analysis of Variance via Confidence Intervals*. London: London : SAGE.
- Blacker, J., Watson, A., & Beech, A. R. (2008). A combined drama-based and CBT approach to working with self-reported anger aggression. *Criminal Behaviour and Mental Health*, 18(2), 129-137. doi:10.1002/cbm.686
- Blainey, G. (2004). *A Very Short History of the World*. Camberwell, Vic.: Camberwell, Vic. : Penguin Books.
- Blatt, S. J., Zuroff, D. C., Quinlan, D. M., & Pilkonis, P. A. (1996). Interpersonal factors in brief treatment of depression: Further analyses of the National Institute of Mental Health Treatment of Depression Collaborative Research Program. *Journal of Consulting and Clinical Psychology*, 64(1), 162-171. doi:10.1037/0022-006X.64.1.162

- Blomdahl, Gunnarsson, A. B., Guregård, S., & Björklund, A. (2013). A realist review of art therapy for clients with depression. *Art Psychotherapy, 40*(3), 322-330. doi:10.1016/j.aip.2013.05.009
- Blomdahl, Gunnarsson, B. A., Guregård, S., Rusner, M., Wijk, H., & Björklund, A. (2016). Art therapy for patients with depression: Expert opinions on its main aspects for clinical practice. *Journal of Mental Health, 25*(6), 527.
- Boehm, K., Cramer, H., Staroszyński, T., & Ostermann, T. (2014). Arts Therapies for anxiety, depression, and quality of life in breast cancer patients: A systematic review and meta-analysis. *Evidence-Based Complementary and Alternative Medicine, 2014*. doi:10.1155/2014/103297
- Bohart, A. C., & Tallman, K. (1999). *How clients make therapy work: The process of active self-healing*. Washington: American Psychological Association.
- Bolinski, F., Hendriks, G.-J., Bardoel, S., Hollon, S., Martell, C., & Huibers, M. (2018). Cognitive Therapy or Behavioral Activation for Major Depressive Disorder in Dutch mental health care: Pilot effectiveness and process trial. *International Journal of Cognitive Therapy, 11*(3), 343-358. doi:10.1007/s41811-018-0027-8
- Bookbinder, S. H., & Brainerd, C. J. (2016). Emotion and false memory: The context–content paradox. *Psychol Bull, 142*(12), 1315-1351. doi:10.1037/bul0000077
- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy: Theory, Research & Practice, 16*(3), 252-260.

- Boswell, J. F., Iles, B. R., Gallagher, M. W., & Farchione, T. J. (2017). Behavioral Activation strategies in Cognitive-Behavioral Therapy for anxiety disorders. *Psychotherapy*, 54(3), 231-236. doi:10.1037/pst0000119
- Bourne, J., Andersen-Warren, M., & Hackett, S. (2018). A systematic review to investigate dramatherapy group work with working age adults who have a mental health problem. *Arts Psychotherapy*, 61, 1-9. doi:10.1016/j.aip.2018.08.001
- Boyd-Wilson, B. M., Walkey, F. H., & McClure, J. (2002). Present and correct: We kid ourselves less when we live in the moment. *Personality and Individual Differences*, 33(5), 691-702. doi:10.1016/S0191-8869(01)00183-0
- Brauninger, I. (2004). Dance/movement therapy as stress management and improvement in quality of life: Results of a randomized control study. *The Arts in Psychotherapy*, 31(3), 195-195. doi:info:doi/
- Brauninger, I. (2012a). Dance movement therapy group intervention in stress treatment: A randomized controlled trial (RCT). *The Arts in Psychotherapy*, 39(5), 443-450. doi:10.1016/j.aip.2012.07.002
- Brauninger, I. (2012b). The efficacy of dance movement therapy group on improvement of quality of life: A randomized controlled trial. *The Arts in Psychotherapy*, 39(4), 296-303. doi:info:doi/
- Brooks, R. T., Beard, J., & Steel, Z. (2006). Factor structure and interpretation of the K10. *Psychological Assessment*, 18(1), 62-70. doi:10.1037/1040-3590.18.1.62
- Brown, J. C., Huedo-Medina, T. B., Pescatello, L. S., Ryan, S. M., Pescatello, S. M., Moker, E., . . . Johnson, B. T. (2012). The efficacy of exercise in

reducing depressive symptoms among cancer survivors: A meta- analysis (exercise and depression: Meta- analysis). *PLoS ONE*, 7(1), e30955.

doi:10.1371/journal.pone.0030955

Bryan, C. J., & Heron, E. A. (2015). Belonging protects against post deployment depression in military personnel. *Depression and Anxiety*, 32(5), 349-355.

doi:10.1002/da.22372

Budge, S., Moore, J., Del Re, A., Wampold, B. E., Baardseth, T. P., & Nienhuis, J. (2013). The effectiveness of evidence-based treatments for personality disorders when comparing treatment-as-usual and bona fide treatments.

Clinical Psychology Review, 33(8), 1057-1066.

doi:10.1016/j.cpr.2013.08.003

Caddick, N., & Smith, B. (2014). The impact of sport and physical activity on the well-being of combat veterans: A systematic review. *Psychology of Sport and Exercise*, 15(1), 9-18. doi:10.1016/j.psychsport.2013.09.011

Caddick, N., & Smith, B. (2018). Exercise is medicine for mental health in military veterans: a qualitative commentary. *Qualitative Research in Sport, Exercise and Health*, 10(4), 429-440.

doi:10.1080/2159676X.2017.1333033

Caddick, N., Smith, B., & Phoenix, C. (2015). The effects of surfing and the natural environment on the well-being of combat veterans. *Qualitative Health Research*, 25(1), 76. doi:10.1177/1049732314549477

Campbell, M., Decker, K. P., Kruk, K., & Deaver, S. P. (2016). Art therapy and cognitive processing therapy for combat-related PTSD: A randomized controlled trial. *Art Therapy*, 33(4), 169-177.

doi:10.1080/07421656.2016.1226643

- Cao, H., Qian, Q., Weng, T., Yuan, C., Sun, Y., Wang, H., & Tao, F. (2011). Screen time, physical activity and mental health among urban adolescents in China. *Preventive Medicine*, 53(4-5), 316. doi:10.1016/j.ypmed.2011.09.002
- Case, R. B., Moss, A. J., Case, N., McDermott, M., & Eberly, S. (1992). Living alone after myocardial infarction. Impact on prognosis. *JAMA*, 267(4), 515. doi:10.1001/jama.1992.03480040063031
- Cassel, J. (1976). The contribution of the social environment to host resistance: the Fourth Wade Hampton Frost Lecture. *American Journal of Epidemiology*, 104(2), 107. doi:10.1093/oxfordjournals.aje.a112281
- Cassidy, S., Turnbull, S., & Gumley, A. (2014). Exploring core processes facilitating therapeutic change in Dramatherapy: A grounded theory analysis of published case studies. *Arts Psychotherapy*, 41(4), 353-365. doi:10.1016/j.aip.2014.07.003
- Castillo-Perez, S. (2010). Effects of music therapy on depression compared with psychotherapy. *The Arts in Psychotherapy*, 37(5), 387-390. doi:info:doi/
- Chaitin, J., Awwad, E., & Andriani, C. (2009). Belonging to the conflict: collective identities among Israeli and Palestinian émigrés to the United States. *Social Identities*, 15(2), 207-225. doi:10.1080/13504630902778644
- Chan, M. F., Wong, Z. Y., Onishi, H., & Thayala, N. V. (2012). Effects of music on depression in older people: a randomised controlled trial. *Journal of Clinical Nursing*, 21(5-6), 776.
- Chanda, M. L., & Levitin, D. J. (2013). The neurochemistry of music. *Trends in Cognitive Sciences*, 17(4), 179. doi:10.1016/j.tics.2013.02.007

- Chang, S.-P., Shih, K.-S., Chi, C.-P., Chang, C.-M., Hwang, K.-L., & Chen, Y.-H. (2016). Association between exercise participation and quality of sleep and life among university students in Taiwan. *Asia Pacific Journal of Public Health*, 28(4), 356-367. doi:10.1177/1010539516645160
- Charnetski, C. J., Riggers, S., & Brennan, F. (2004). Effect of petting a dog on immune system function. *Psychological Reports*, 95(3), 1087-1091.
- Charry-Sánchez, J., Pradilla, I., & Talero-Gutiérrez, C. (2018a). Animal-assisted therapy in adults: A systematic review. *Complementary Therapies in Clinical Practice*, 32, 169. doi:10.1016/j.ctcp.2018.06.011
- Charry-Sánchez, J., Pradilla, I., & Talero-Gutiérrez, C. (2018b). Effectiveness of animal-assisted therapy in the pediatric population: Systematic review and meta-analysis of controlled studies. *Journal of Developmental & Behavioral Pediatrics*, 39(7), 580-590. doi:10.1097/DBP.0000000000000594
- Chávez-Eakle, R. A. (2007). From incubation to insight: Working memory and the role of the cerebellum. *Creativity Research Journal*, 19(1), 31-34. doi:10.1080/10400410709336876
- Chekroud, S. R., Gueorguieva, R., Zheutlin, A. B., Paulus, M., Krumholz, H. M., Krystal, J. H., & Chekroud, A. M. (2018). Association between physical exercise and mental health in 1·2 million individuals in the USA between 2011 and 2015: a cross-sectional study. *The Lancet Psychiatry*, 5(9), 739. doi:10.1016/S2215-0366(18)30227-X
- Chemi, T. (2016). The experience of flow in artistic creation. In L. Harmat, F. Ø. Andersen, F. Ullén, J. Wright, & G. Sadlo (Eds.), *Flow Experience* (pp. 37-50). Switzerland: Springer Nature.

- Cheung, C., Wang, L., & Chan, R. (2013). Differential impacts of stressors on sense of belonging. *Social Indicators Research*, 113(1), 277-297.
doi:10.1007/s11205-012-0092-y
- Chiang, M., Reid-Varley, W., & Fan, X. (2019). Creative art therapy for mental illness. *Psychiatry Research*, 275, 129-136.
doi:10.1016/j.psychres.2019.03.025
- Chilton, G. (2013). Art therapy and flow: A review of the literature and applications. *Art Therapy*, 30(2), 64-70.
doi:10.1080/07421656.2013.787211
- Chinchilla, M., Gabrielian, S., Hellemann, G., Glasmeier, A., & Green, M. (2019). Determinants of Community Integration Among Formerly Homeless Veterans Who Received Supportive Housing. *Frontiers in Psychiatry*, 10, 472-472. doi:10.3389/fpsyt.2019.00472
- Cho, J. M., & Lee, K. (2018). Effects of motivation interviewing using a group art therapy program on negative symptoms of schizophrenia. *Archives of Psychiatric Nursing*, 32(6), 878. doi:10.1016/j.apnu.2018.07.002
- Chung, J., & Woods-Giscombe, C. (2016). Influence of dosage and type of music therapy in symptom management and rehabilitation for individuals with schizophrenia. *Issues in Mental Health Nursing*, 37(9), 631-641.
doi:10.1080/01612840.2016.1181125
- Civitci, A. (2015). Perceived stress and life satisfaction in college students: Belonging and extracurricular participation as moderators. *Procedia - Social and Behavioral Sciences*, 205, 271-281.
doi:<https://doi.org/10.1016/j.sbspro.2015.09.077>

- Clark, D. M. (1986). A cognitive approach to panic. *Behaviour Research and Therapy*, 24(4), 461. doi:10.1016/0005-7967(86)90011-2
- Cohen. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159.
doi:10.1037/0033-2909.112.1.155
- Cohen, S. (2004). Social relationships and health. *American Psychologist*, 59(8), 676-684. doi:info:doi/
- Conn, V. (2010a). Anxiety outcomes after physical activity interventions: Meta-analysis findings. *Nursing Research*, 59(3), 224-231.
doi:10.1097/NNR.0b013e3181dbb2f8
- Conn, V. (2010b). Depressive symptom outcomes of physical activity interventions: meta-analysis findings. *Annals of Behavioral Medicine : A Publication of the Society of Behavioral Medicine*, 39(2), 128.
doi:10.1007/s12160-010-9172-x
- Constantino, M., Arnkoff, D., Glass, C., Ametrano, R., & Smith, J. (2011). Expectations. *Journal of Clinical Psychology*, 67(2), 184.
- Cooper, P. R., & Davis, D. A. (2016). Using writing as therapy: Finding identity—an evaluation of its effects upon clinical outcomes and service. *International Journal of Therapy and Rehabilitation*, 23(2), 64-74.
doi:10.12968/ijtr.2016.23.2.64
- Corradini, A. (2013). Mirror neurons and their function in cognitively understood empathy. *Consciousness and Cognition*, 22(3), 1152-1161.
- Corrigan, P. (2004). How stigma interferes with mental health care. *American Psychologist*, 59(7), 614-625.

- Creswell, J. D. (2007). Does self-affirmation, cognitive processing, or discovery of meaning explain cancer-related health benefits of expressive writing? *Personality and Social Psychology Bulletin*, 33(2), 238-250. doi:info:doi/
- Cristina, C., & Aneta, F. (2012). How can we improve the existing assessments used in arttherapy: A meta- analysis on art therapy assesments. *Procedia - Social and Behavioral Sciences*, 33(1), 358-362.
doi:10.1016/j.sbspro.2012.01.143
- Croom, A. M. (2015). Music practice and participation for psychological well-being: A review of how music influences positive emotion, engagement, relationships, meaning, and accomplishment. *Musicae Scientiae*, 19(1), 44-64. doi:10.1177/1029864914561709
- Csikszentmihalyi, M. (1975). *Beyond Boredom and Anxiety* (1st ed. ed.). San Francisco: San Francisco : Jossey-Bass Publishers.
- Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience* (1st Harper Perennial ed. ed.). New York: New York : Harper Collins.
- Csikszentmihalyi, M. (1997). Happiness and creativity - Going with the flow. *Futurist*, 31(5), A8-A12.
- Csikszentmihalyi, M. (2014). *Flow and the Foundations of Positive Psychology : The Collected Works of Mihaly Csikszentmihalyi*. Dordrecht: Dordrecht : Springer Netherlands.
- Csikszentmihalyi, M., & Getzels, J. W. (1971). Discovery-oriented behavior and the originality of creative products: A study with artists. *Journal of Personality and Social Psychology*, 19(1), 47-52. doi:10.1037/h0031106

- Csikszentmihalyi, M., & Robinson, R. E. (1990). *The Art of Seeing: An Interpretation of the Aesthetic Encounter*: Getty Center for Education in the Arts.
- Cuijpers, P., Berking, M., Andersson, G., Quigley, L., Kleiboer, A., & Dobson, K. S. (2013). A meta-analysis of Cognitive-Behavioural Therapy for adult depression, alone and in comparison with other treatments. *The Canadian Journal of Psychiatry*, 58(7), 376-385. doi:10.1177/070674371305800702
- Cuijpers, P., Sijbrandij, M., Koole, S., Huibers, M., Berking, M., & Andersson, G. (2014). Psychological treatment of generalized anxiety disorder: a meta-analysis. *Clinical Psychology Review*, 34(2), 130. doi:10.1016/j.cpr.2014.01.002
- Cuijpers, P., van Straten, A., & Warmerdam, L. (2007). Behavioral activation treatments of depression: A meta-analysis. *Clinical Psychology Review*, 27(3), 318-326. doi:10.1016/j.cpr.2006.11.001
- Culverwell, R. M. (1993). The California Psychotherapy Alliance Scales: a pilot study of dimensions and elements. *British Journal of Medical Psychology*, 66(2), 157-165.
- Curl, K. (2008). Assessing stress reduction as a function of artistic creation and cognitive focus. *Art Therapy*, 25(4), 164-169. doi:10.1080/07421656.2008.10129550
- Custodero, L. A. (2002). Seeking challenge, finding skill: Flow experience and music education. *Arts Education Policy Review*, 103(3), 3-9. doi:10.1080/10632910209600288
- Daley, A. J., Foster, L., Long, G., Palmer, C., Robinson, O., Walmsley, H., & Ward, R. (2015). The effectiveness of exercise for the prevention and

treatment of antenatal depression: Systematic review with meta- analysis.

BJOG : An International Journal of Obstetrics and Gynaecology, 122(1),

57. doi:10.1111/1471-0528.12909

Dasberg, H. (1977). Belonging and loneliness in relation to mental breakdown in battle. (With some remarks on treatment). *The Israel Annals of Psychiatry and Related Disciplines*, 14, 307-321.

Davidson, J. W. (2012). Bodily movement and facial actions in expressive musical performance by solo and duo instrumentalists: Two distinctive case studies. *Psychology of Music*, 40(5), 595-633.

doi:10.1177/0305735612449896

Dayton-Johnson, J. (2003). Knitted warmth: the simple analytics of social cohesion. *Journal of Socio - Economics*, 32(6), 623-645.

doi:10.1016/j.socec.2003.10.002

de Manzano, Ö., Cervenka, S., Jucaite, A., Hellenäs, O., Farde, L., & Ullén, F.

(2013). Individual differences in the proneness to have flow experiences are linked to dopamine D2-receptor availability in the dorsal striatum.

NeuroImage, 67, 1. doi:10.1016/j.neuroimage.2012.10.072

de Manzano, Ö., Theorell, T., Harmat, L., & Ullén, F. (2010). The

psychophysiology of flow during piano playing. *Emotion*, 10(3), 301-311.

doi:10.1037/a0018432

Dean, J., Potts, H. W. W., & Barker, C. (2016). Direction to an internet support group compared with online expressive writing for people with depression and anxiety: A randomized trial. *JMIR Mental Health*, 3(2).

doi:10.2196/mental.5133

- Decker, K. P., Deaver, S. P., Abbey, V., Campbell, M., & Turpin, C. (2018). Quantitatively improved treatment outcomes for combat-associated PTSD with adjunctive art therapy: randomized controlled trial. *Art Therapy*, 1-11. doi:10.1080/07421656.2018.1540822
- Del Re, A. C., Flückiger, C., Horvath, A. O., Symonds, D., & Wampold, B. E. (2012). Therapist effects in the therapeutic alliance-outcome relationship: a restricted-maximum likelihood meta-analysis. *Clinical Psychology Review*, 32(7), 642. doi:10.1016/j.cpr.2012.07.002
- DeLucia, J. M. (2016). Art therapy services to support veterans' transition to civilian life: The studio and the gallery. *Art Therapy: Journal of the American Art Therapy Association*, 33(1), 4-12. doi:10.1080/07421656.2016.1127113
- Demers, A. (2011). When veterans return: The role of community in reintegration. *Journal of Loss & Trauma*, 16(2), 160.
- Department of Defence. (2017). *Defence Mental Health Wellbeing Strategy 2018-2023*. Canberra: Defence Publishing Services Retrieved from https://www.defence.gov.au/Health/_master/HealthUpdates/docs/Defence_Mental_Health_Wellbeing_Strategy_2018-2023.PDF
- Dery, N., Pilgrim, M., Gibala, M., Gillen, J., Wojtowicz, J., Macqueen, G., & Becker, S. (2013). Adult hippocampal neurogenesis reduces memory interference in humans: Opposing effects of aerobic exercise and depression. *Frontiers in Neuroscience*, 7. doi:10.3389/fnins.2013.00066
- Dichter, G. S., Felder, J. N., & Smoski, M. J. (2010). The effects of Brief Behavioral Activation Therapy for depression on cognitive control in

- affective contexts: An fMRI investigation. *Journal of Affective Disorders*, 126(1-2), 236. doi:10.1016/j.jad.2010.03.022
- Diehle, J., Williamson, V., & Greenberg, N. (2019). Out of sight out of mind: an examination of mental health problems in UK military reservists and veterans. *Journal of Mental Health*, 1. doi:10.1080/09638237.2019.1581348
- Diehm, R., & Armatas, C. (2004). Surfing: an avenue for socially acceptable risk-taking, satisfying needs for sensation seeking and experience seeking. *Personality and Individual Differences*, 36(3), 663-677. doi:10.1016/S0191-8869(03)00124-7
- Dimaggio, G., & Shahar, G. (2017). Behavioral Activation as a common mechanism of change across different orientations and disorders. *Psychotherapy*, 54(3), 221-224. doi:10.1037/pst0000117
- Dimidjian, S., Barrera, M., Martell, C., Muñoz, R. F., & Lewinsohn, P. M. (2011). The origins and current status of behavioral activation treatments for depression. *Annual Review of Clinical Psychology*, 7(1), 1-38. doi:10.1146/annurev-clinpsy-032210-104535
- Doomen, L. (2018). The effectiveness of schema focused drama therapy for Cluster C Personality Disorders: An exploratory study. *Art Psychotherapy*, 61, 66-76. doi:10.1016/j.aip.2017.12.002
- Doré, I., O'Loughlin, J. L., Beauchamp, G., Martineau, M., & Fournier, L. (2016). Volume and social context of physical activity in association with mental health, anxiety and depression among youth. *Preventive Medicine*, 91, 344. doi:10.1016/j.ypmed.2016.09.006

- Doré, I., Sylvester, B., Sabiston, C., Sylvestre, M. P., O'Loughlin, J., Brunet, J., & Bélanger, M. (2020). Mechanisms underpinning the association between physical activity and mental health in adolescence: a 6-year study. *The International Journal of Behavioral Nutrition and Physical Activity*, 17(1), 9. doi:10.1186/s12966-020-0911-5
- Doroud, N., Fossey, E., & Fortune, T. (2018). Place for being, doing, becoming and belonging: A meta-synthesis exploring the role of place in mental health recovery. *Health & Place*, 52, 110.
- Doyle, C. (2016). The creative process: Effort and effortless cognition. *Journal of Cognitive Education and Psychology*, 15(1), 37-54. doi:10.1891/1945-8959.15.1.37
- Drisko, J. W. (2018). Common factors in psychotherapy outcome: Meta-analytic findings and their implications for practice and research. *Families in Society*, 85(1), 81-90. doi:10.1606/1044-3894.239
- Duncan, B. L., Miller, S. D., Wampold, B. E., & Hubble, M. A. (2010). *The Heart and Soul of Change: Delivering What Works in Therapy*: American Psychological Association.
- Earles, J. L., Vernon, L. L., & Yetz, J. P. (2015). Equine-assisted therapy for anxiety and posttraumatic stress symptoms. *Journal of Traumatic Stress*, 28(2), 149-152. doi:10.1002/jts.21990
- Eaton, J., & Tieber, C. (2017). The effects of coloring on anxiety, mood, and perseverance. *Art Therapy*, 34(1), 42-46.
doi:10.1080/07421656.2016.1277113

- Edwards, J. (2016). Researching in the creative arts therapies: Why do we do it, and what is it meant to achieve? *Arts in Psychotherapy*, 48, A1.
doi:10.1016/j.aip.2016.05.001
- Eisenberger, N. I., Lieberman, M. D., & Williams, K. D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science*, 302(5643), 290-292.
doi:10.1126/science.1089134
- Ekers, D., Godfrey, C., Gilbody, S., Parrott, S., Richards, D. A., Hammond, D., & Hayes, A. (2011). Cost utility of behavioural activation delivered by the non-specialist. *The British Journal of Psychiatry*, 199(6), 510.
doi:10.1192/bjp.bp.110.090266
- Ekers, D., Webster, L., Cuijpers, P., Richards, D., & Gilbody, S. (2014). Behavioural activation for depression: An update of meta-analysis of effectiveness and sub group analysis. *PLoS ONE*, 9(6), e100100.
doi:10.1371/journal.pone.0100100
- Elliott, R., Bohart, A. C., Watson, J. C., & Murphy, D. (2018). Therapist empathy and client outcome: An updated meta-analysis. *Psychotherapy*, 55(4), 399-410. doi:10.1037/pst0000175
- Ellis, A. (1976). The biological basis of human irrationality. *Journal of Individual Psychology*, 32(2), 145.
- Engeser, S., & Rheinberg, F. (2008). Flow, performance and moderators of challenge-skill balance. *Motivation and Emotion*, 32(3), 158-172.
doi:10.1007/s11031-008-9102-4
- Erez, A., & Judge, T. (2001). Relationship of Core Self Evaluations to goal setting, motivation, and performance. *Journal of Applied Psychology*, 86(6), 1270-1279.

- Ertel, K. A., Glymour, M. M., & Berkman, L. F. (2009). Social networks and health: A life course perspective integrating observational and experimental evidence. *Journal of Social and Personal Relationships*, 26(1), 73-92. doi:10.1177/0265407509105523
- Euteneuer, F., Dannehl, K., Rey, A. D., Engler, H., Schedlowski, M., & Rief, W. (2017). Immunological effects of behavioral activation with exercise in major depression: an exploratory randomized controlled trial. *Translational Psychiatry*, 7(5), e1132. doi:10.1038/tp.2017.76
- Everson-Rose, S. A., & Lewis, T. T. (2005). Psychosocial factors and cardiovascular diseases. *Annual Review of Public Health*, 26(1), 469-500. doi:10.1146/annurev.publhealth.26.021304.144542
- Fagerlid, C., & Tisdell, M. A. (2020). *A literary anthropology of migration and belonging : roots, routes, and rhizomes*. Cham: Cham : Palgrave Macmillan.
- Falkenström, F., Hatcher, R. L., & Holmqvist, R. (2015). Confirmatory factor analysis of the patient version of the Working Alliance Inventory–Short Form Revised. *Assessment*, 22(5), 581-593. doi:10.1177/1073191114552472
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G * Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160. doi:10.3758/BRM.41.4.1149
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and

biomedical sciences. *Behavior Research Methods*, 39(2), 175-191.

doi:10.3758/BF03193146

- Felsman, P., Gunawardena, S., & Seifert, C. M. (2020). Improv experience promotes divergent thinking, uncertainty tolerance, and affective well-being. *Thinking Skills and Creativity*, 35. doi:10.1016/j.tsc.2020.100632
- Felsman, P., Seifert, C. M., & Himle, J. (2019). The use of improvisational theater training to reduce social anxiety in adolescents. *Art Psychotherapy*, 63, 111-117. doi:10.1016/j.aip.2018.12.001
- Fernandes, H. M., Reis, V. M., Vilaça-Alves, J., Saavedra, F., Aidar, F. J., & Brustad, R. (2014). Social support and sport injury recovery: An overview of empirical findings and practical implications. *Revista de Psicología del Deporte*, 23(2), 445-449. doi:10.13140/2.1.1164.3525
- Ferrari, P. F., Gallese, V., Rizzolatti, G., & Fogassi, L. (2003). Mirror neurons responding to the observation of ingestive and communicative mouth actions in the monkey ventral premotor cortex. *European Journal of Neuroscience*, 17(8), 1703-1714. doi:10.1046/j.1460-9568.2003.02601.x
- Firth, J., Cotter, J., Elliott, R., French, P., & Yung, A. R. (2015). A systematic review and meta-analysis of exercise interventions in schizophrenia patients. *Psychological Medicine*, 45(7), 1343-1361. doi:10.1017/S0033291714003110
- Fisher, L., Skaff, M. M., Mullan, J. T., Arian, P., Mohr, D., Masharani, U., . . . Laurencin, G. (2007). Clinical depression versus distress among patients with type 2 diabetes : Not just a question of semantics. *Diabetes Care*, 30(3), 542-548. doi:10.2337/dc06-1614

- Flett, J. A. M., Lie, C., Riordan, B. C., Thompson, L. M., Conner, T. S., & Hayne, H. (2017). Sharpen your pencils: Preliminary evidence that adult coloring reduces depressive symptoms and anxiety. *Creativity Research Journal*, 29(4), 409-416. doi:10.1080/10400419.2017.1376505
- Flint, D. D., Ferrell, E. L., & Engelman, J. (2020). Clinical research on behavioral activation as treatment for post-traumatic stress disorder: A brief review and meta-analysis. *Behavioral Interventions*, 35(2), 325-335. doi:10.1002/bin.1712
- Flückiger, C., Del Re, A. C., Wampold, B. E., Symonds, D., & Horvath, A. O. (2012). How central is the alliance in psychotherapy? A multilevel longitudinal meta-analysis. *Journal of Counseling Psychology*, 59(1), 10-17. doi:10.1037/a0025749
- Flückiger, C., Heer, S., Del Re, T., Munder, B. E., & Wampold, B. E. (2014). Enduring effects of evidence- based psychotherapies in acute depression and anxiety disorders versus treatment as usual at follow- up - A longitudinal meta- analysis. *Clinical Psychology Review*, 34(5), 367-375. doi:10.1016/j.cpr.2014.05.001
- Foa, E. B. (2008). *Effective Treatments for PTSD, Second Edition : Practice Guidelines from the International Society for Traumatic Stress Studies* (2nd ed. ed.). New York: New York : Guilford Publications.
- Frankfurt, S., Frazier, P., Litz, B. T., Schnurr, P. P., Orazem, R. J., Gravely, A., & Sayer, N. (2019). Online Expressive Writing Intervention for Reintegration Difficulties Among Veterans: Who Is Most Likely to Benefit? *Psychological Trauma: Theory, Research, Practice, and Policy*, 11(8), 861-868. doi:10.1037/tra0000462

- Fritz, B. S., & Avsec, A. (2007). The experience of flow and subjective well-being of music students. *Psihološka Obzorja*, 16(2), 5-17.
- Furukawa, T. A., Kessler, R. C., Slade, T., & Andrews, G. (2003). The performance of the K6 and K10 screening scales for psychological distress in the Australian National Survey of Mental Health and Well-Being. *Psychological Medicine*, 33(2), 357-362.
doi:10.1017/S0033291702006700
- Gabel, A., & Robb, M. (2017). (Re)considering psychological constructs: A thematic synthesis defining five therapeutic factors in group art therapy. *Arts in Psychotherapy*, 55, 126-135. doi:10.1016/j.aip.2017.05.005
- Gall, T., Evans, D., & Bellerose, S. (2000). Transition to first-year university: patterns of change in adjustment across life domains and time. *Journal of Social and Clinical Psychology*, 19(4), 544.
doi:10.1521/jscp.2000.19.4.544
- Gantt, L., & Tinnin, L. (2007). Intensive trauma therapy of PTSD and dissociation: An outcome study. *Art Psychotherapy*, 34(1), 69-80.
doi:10.1016/j.aip.2006.09.007
- Gardner, D. G., & Pierce, J. L. (2010). The Core Self-Evaluation Scale: Further construct validation evidence. *Educational and Psychological Measurement*, 70(2), 291-304. doi:10.1177/0013164409344505
- Garza, T., Huerta, M., Garcia, H., & Lau, J. (2020). Exploring sense of belonging, socioacademic integrative moments, and learning communities related to ELs' persistence based on reenrollment decisions in community colleges. *Community College Review*. doi:DOI: 10.1177/0091552120964873

- Gawrysiak, M., Nicholas, C., & Hopko, D. R. (2009). Behavioral activation for moderately depressed university students: randomized controlled trial. *Journal of Counseling Psychology, 56*(3), 468-475. doi:10.1037/a0016383
- Gayton, S. D., & Kehoe, E. J. (2015). A prospective study of character strengths as predictors of selection into the Australian army special force. *Military Medicine, 180*(2), 151-157. doi:10.7205/MILMED-D-14-00181
- Geist, T. S. (2011). Conceptual framework for animal assisted therapy. *Child and Adolescent Social Work Journal, 28*(3), 243-256. doi:10.1007/s10560-011-0231-3
- Gerge, A., & Pedersen, I. N. (2017). Analyzing pictorial artifacts from psychotherapy and art therapy when overcoming stress and trauma. *Arts in Psychotherapy, 54*, 56-68. doi:10.1016/j.aip.2017.02.001
- Getzels, J. W., & Csikszentmihalyi, M. (1968). The value-orientations of art students as determinants of artistic specialization and creative performance. *Studies in Art Education, 10*(1), 5-16. doi:10.1080/00393541.1968.11650632
- Ginzburg, S., & Dar-El, E. M. (2000). Skill retention and relearning--A proposed cyclical model. *Journal of Workplace Learning: Employee Counselling Today, 12*(8), 327-332. doi:10.1108/13665620010378822
- Godoy-Izquierdo, D., Molina, S., Velez, M., & Godoy, J. (2010a). Positive emotions during and after practice and flow: Enhancing adherence to exercise. *Psychology & Health, 25*, 223-223.
- Godoy-Izquierdo, D., Molina, S., Velez, M., & Godoy, J. (2010b). Self-determined motivation and exercise adherence: Could flow be a mediator? *Psychology & Health, 25*, 223-223.

- Goldbeck, L. (2012). A randomized controlled trial of multimodal music therapy for children with anxiety disorders. *Journal of Music Therapy*, 49(4), 395-413. doi:info:doi/
- Gotlin, M. J., Kingery, M. T., Baron, S. L., McCafferty, J., Jazrawi, L. M., & Meislin, R. J. (2020). Recall bias in retrospective assessment of preoperative patient-reported American shoulder and elbow surgeons scores in arthroscopic rotator cuff repair surgery. *The American Journal of Sports Medicine*, 48(6), 1471-1475. doi:10.1177/0363546520913491
- Graupensperger, S., Gottschall, J. S., Benson, A. J., Eys, M., Hastings, B., & Evans, M. B. (2019). Perceptions of groupness during fitness classes positively predict recalled perceptions of exertion, enjoyment, and affective valence: An intensive longitudinal investigation. *Sport, Exercise, and Performance Psychology*, 8(3), 290-304. doi:10.1037/spy0000157
- Grencavage, L. M., & Norcross, J. C. (1990). Where Are the Commonalities Among the Therapeutic Common Factors? *Professional Psychology: Research and Practice*, 21(5), 372-378. doi:10.1037/0735-7028.21.5.372
- Griffen, J. A., Hanks, R. A., & Meachen, S.-J. (2010). The reliability and validity of the Community Integration Measure in persons with traumatic brain injury. *Rehabilitation Psychology*, 55(3), 292-297. doi:10.1037/a0020503
- Griffith, J. (2010). Citizens coping as soldiers: A review of deployment stress symptoms among reservists. *Military Psychology*, 22(2), 176-206. doi:10.1080/08995601003638967
- Grossberg, J. M. (1964). Behavior therapy: A review. *Psychological Bulletin*, 62(2), 73-88. doi:10.1037/h0041033

- Gutiérrez, E. O. F., & Camarena, V. A. T. (2015). Music therapy in Generalized Anxiety Disorder. *The Arts in Psychotherapy, 44*(C), 19-24. doi:info:doi/
- Habib, H., & Ali, U. (2015). The efficacy of art therapy in the reduction of symptoms of ADHD *Pakistan Journal of Clinical Psychology, 14*(1), n/a.
- Hadjistavropoulos, H. D., Pugh, N. E., Hesser, H., & Andersson, G. (2017). Therapeutic alliance in internet-delivered Cognitive Behaviour Therapy for depression or generalized anxiety. *Clinical Psychology and Psychotherapy, 24*(2), 451-461. doi:10.1002/cpp.2014
- Hagerty, B. M., Lynch-Sauer, J., Patusky, K., Bouwsema, M., & Collier, P. (1992). Sense of belonging: A vital mental health concept. *Archives of Psychiatric Nursing, 6*(3), 172-177. doi:10.1016/0883-9417(92)90028-H
- Hagerty, B. M., & Patusky, K. (1995). Developing a measure of sense of belonging. *Nursing Research, 44*(1), 9-13. Retrieved from https://journals.lww.com/nursingresearchonline/Fulltext/1995/01000/Developing_a_Measure_Of_Sense_of_Belonging.3.aspx
- Hagerty, B. M., Williams, R. A., Coyne, J. C., & Early, M. R. (1996). Sense of belonging and indicators of social and psychological functioning. *Archives of Psychiatric Nursing, 10*(4), 235. doi:10.1016/S0883-9417(96)80029-X
- Haiblum-Itskovitch, S., Czamanski-Cohen, J., & Galili, G. (2018). Emotional response and changes in heart rate variability following art-making with three different art materials. *Frontiers in Psychology, 9*. doi:10.3389/fpsyg.2018.00968
- Halm, M. A. (2008). The healing power of the human-animal connection. *American Journal of Critical Care, 17*(4), 373-376. Retrieved from <http://ajcc.aacnjournals.org/content/17/4/373.short>

- Hamilton, E., & Hurford, A. (2007). *Combining collaborative workspaces with tablet computing: Research in learner engagement and conditions of flow*. Paper presented at the 2007 37th Annual Frontiers In Education Conference - Global Engineering: Knowledge Without Borders, Opportunities Without Passports, Milwaukee, WI.
- Hancock, P. A., Kaplan, A. D., Cruik, J., Hancock, G., Macarthur, K., & Szalma, J. (2019). A meta-analysis of flow effects and the perception of time. *Acta Psychologica*, 198, 1. doi:10.1016/j.actpsy.2019.04.007
- Hanifi, R. (2006). Social, cultural and political participation and trust. In L. Isakke (Ed.), *Social capital in Finland – statistical review* (pp. 35–44). Helsinki.
- Happell, B., Gaskin, C. J., & Platania-Phung, C. (2014). The construct validity of the work-related flow inventory in a sample of Australian workers. *The Journal of Psychology*. doi:10.1080/00223980.2013.838539
- Harmat, L. s., Ørsted Andersen, F., Ullén, F., Wright, J., & Sadlo, G. (2016). *Flow Experience: Empirical Research and Applications*. Switzerland: Springer.
- Harris, A. (2006). Does expressive writing reduce health care utilization? A meta-analysis of randomized trials. *Journal of Consulting and Clinical Psychology*, 74(2), 243-252. doi:info:doi/
- Harrist, B. L. (2007). Benefits of expressive writing and expressive talking about life goals. *Journal of Research in Personality*, 41(4), 923-930. doi:info:doi/
- Hart, E., & Di Blasi, Z. (2015). Combined flow in musical jam sessions: A pilot qualitative study. *Psychology of Music*, 43(2), 275-290. doi:10.1177/0305735613502374

- Harvey, B., Climstein, M., Naughton, G., & Buhagiar, N. (2005). A 10-week intervention program assessing the effectiveness of exercise on depression, anxiety and general well-being in Australian Vietnam veterans. *Journal of Science and Medicine in Sport*, 8, 132. doi:10.1016/S1440-2440(17)30725-9
- Hatcher, R. L., & Barends, A. W. (2006). How a return theory could help alliance research. *Psychotherapy: Theory, Research, Practice, Training*, 43(3), 292-299. doi:10.1037/0033-3204.43.3.292
- Hatcher, R. L., & Gillaspay, J. A. (2006). Development and validation of a revised short version of the Working Alliance Inventory. *Psychotherapy Research*, 16(1), 12-25. doi:10.1080/10503300500352500
- Hausmann, L. R. M., Schofield, J. W., & Woods, R. L. (2007). Sense of belonging as a predictor of intentions to persist among African American and white first-year college students. *Research in higher education.*, 48(7), 803-839.
- Havsteen-Franklin, D., Haeyen, S., Grant, C., & Karkou, V. (2019). A thematic synthesis of therapeutic actions in arts therapies and their perceived effects in the treatment of people with a diagnosis of Cluster B personality disorder. *Arts in Psychotherapy*, 63, 128-140. doi:10.1016/j.aip.2018.10.001
- Hayes. (2017). *Introduction to Mediation, Moderation, and Conditional Process Analysis : A Regression-Based Approach* (Second edition. ed.). New York: New York Guilford Publications.
- Hayes, S. C. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour research and therapy.*, 44(1), 1-25. doi:info:doi/

- Herbert, J. (1997). Fortnightly review: Stress, the brain, and mental illness. *British Medical Journal*, 315(7107), 530. doi:10.1136/bmj.315.7107.530
- Heynen, E., Roest, J., Willemars, G., & van Hooren, S. (2017). Therapeutic alliance is a factor of change in arts therapies and psychomotor therapy with adults who have mental health problems. *Arts Psychotherapy*, 55, 111-115. doi:10.1016/j.aip.2017.05.006
- Hoagwood, K. E. (2016). Animal-assisted therapies for youth with or at risk for mental health problems: A systematic review. *Applied Developmental Science*, 21(1), 1-13. doi:info:doi/
- Hodge, K., Lonsdale, C., & Jackson, S. A. (2009). Athlete engagement in elite sport: An exploratory investigation of antecedents and consequences. *The Sport Psychologist*, 23(2), 186. doi:10.1123/tsp.23.2.186
- Hodson, S. E., McFarlane, A. C., Davies, C., & Van Hooff, M. (2011). *Mental Health in the Australian Defence Force – 2010 ADF Mental Health Prevalence and Wellbeing Study: Executive Report*. Canberra
- Hoerster, K. D., Jakupcak, M., McFall, M., Unützer, J., & Nelson, K. M. (2012). Mental health and somatic symptom severity are associated with reduced physical activity among US Iraq and Afghanistan veterans. *Preventive Medicine*, 55(5), 450. doi:10.1016/j.ypmed.2012.08.017
- Hoffman, D., L. , & Novak, T. P. (1997). A new marketing paradigm for electronic commerce. *The Information Society*, 13(1), 43-54. doi:10.1080/019722497129278
- Hofmann, S., Asnaani, A., Vonk, I., Sawyer, A., & Fang, A. (2012). The efficacy of Cognitive Behavioral Therapy: A review of meta-analyses. *Cognitive Therapy and Research*, 36(5), 427-440. doi:10.1007/s10608-012-9476-1

- Hogan, S. (2013). Peripheries and borders: Pushing the boundaries of visual research. *International Journal of Art Therapy, 18*(2), 67-74.
doi:10.1080/17454832.2013.797480
- Holdsworth, E., Bowen, E., Brown, S., & Howat, D. (2014). Client engagement in psychotherapeutic treatment and associations with client characteristics, therapist characteristics, and treatment factors. *Clinical Psychology Review, 34*(5), 428. doi:10.1016/j.cpr.2014.06.004
- Hollon, S. D., & Garber, J. (1990). Cognitive Therapy for depression: A social cognitive perspective. *Personality and Social Psychology Bulletin, 16*(1), 58-73. doi:10.1177/0146167290161005
- Holttum, S. (2018). Group art therapy: supporting social inclusion through an ancient practice? *Mental Health and Social Inclusion, 22*(1), 6-12.
doi:10.1108/MHSI-12-2017-0051
- Hopko, D. R., Robertson, S. M. C., & Lejuez, C. W. (2006). Behavioral Activation for anxiety disorders. *The Behavior Analyst Today, 7*(2), 212-232. doi:10.1037/h0100084
- Horvath, A. O., Del Re, A., Fluckiger, C., & Symonds, D. (2011). Alliance in individual psychotherapy. *Psychotherapy, 48*(1), 9-16.
doi:10.1037/a0022186
- Horvath, A. O., & Symonds, B. D. (1991). Relation between working alliance and outcome in psychotherapy: A meta-analysis. *Journal of Counseling Psychology, 38*(2), 139-149. doi:10.1037/0022-0167.38.2.139
- House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science (New York, N.Y.), 241*(4865), 540.
doi:10.1126/science.3399889

- Howarth, L. (2018). Creative health: the arts for health and wellbeing. *Perspectives in Public Health*, 138(1), 26-27.
doi:10.1177/1757913917736680
- Howes, R. (2019). Theater as therapy: Can Shakespeare heal the trauma of war? *Psychotherapy Networker*, 43(1), 59-61.
- Hughes, G. (2010). Identity and belonging in social learning groups: The importance of distinguishing social, operational and knowledge-related identity congruence. *British Educational Research Journal*, 36(1), 47-63.
doi:10.1080/01411920902834167
- Hughes, M. E., & Waite, L. J. (2009). Marital biography and health at mid-life. *Journal of Health and Social Behavior*, 50(3), 344-358.
doi:10.1177/002214650905000307
- Huguet, A., Miller, A., Kisely, S., Rao, S., Saadat, N., & McGrath, P. J. (2018). A systematic review and meta-analysis on the efficacy of internet-delivered behavioral activation. *Journal of Affective Disorders*, 235, 27-38.
doi:10.1016/j.jad.2018.02.073
- Huppert, J. D., Bufka, L. F., Barlow, D. H., Gorman, J. M., Shear, M. K., & Woods, S. W. (2001). Therapists, therapist variables, and cognitive-behavioral therapy outcome in a multicenter trial for Panic Disorder. *Journal of Consulting and Clinical Psychology*, 69(5), 747-755.
doi:10.1037/0022-006X.69.5.747
- Ibrahim, H., Ertl, V., Catani, C., & Neuner, F. (2018). The validity of Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) as screening instrument with Kurdish and Arab displaced populations living in the

Kurdistan region of Iraq. *BMC Psychiatry*, 18(1). doi:10.1186/s12888-018-1839-z

Isaak, V., Vashdi, D., & Steiner-Lavi, O. (2018). The long-term effects of a prevention program on the number of critical incidents and sick leave days. *International Journal of Mental Health Systems*, 12(1). doi:10.1186/s13033-018-0250-y

Jackson, S. A. (1996). Toward a conceptual understanding of the flow experience in elite athletes. *Research Quarterly for Exercise and Sport*, 67(1), 76-90. doi:10.1080/02701367.1996.10607928

Jackson, S. A. (2009). *Short Dispositional Flow Scale*. Menlo Park, California: Mind Garden.

Jackson, S. A., & Eklund, R. C. (2002). Assessing flow in physical activity: The Flow State Scale-2 and Dispositional Flow Scale-2. *Journal of Sport and Exercise Psychology*, 24(2), 133-150.

Jackson, S. A., Eklund, R. C., & Martin, A. J. (2009). The Flow Scales Instrument and Scoring Guide. In. Menlo Park, California: Mind Garden, Inc.

Jackson, S. A., Ford, S. K., Kimiecik, J. C., & Marsh, H. W. (1998). Psychological correlates of flow in sport. *Journal of Sport and Exercise Psychology*, 20(4), 358-378. doi:10.1123/jsep.20.4.358

Jackson, S. A., & Marsh, H. (1996). Development and validation of a scale to measure optimal experience: The Flow State Scale. *Journal of Sport and Exercise Psychology*, 18(1), 17. doi:10.1123/jsep.18.1.17

Jackson, S. A., Martin, A. J., & Eklund, R. C. (2008). Long and short measures of flow: the construct validity of the FSS-2, DFS-2, and new brief

counterparts. *Journal of Sport and Exercise Psychology*, 30(5), 561.

doi:10.1123/jsep.30.5.561

Jackson, S. A., Thomas, P. R., Marsh, H. W., & Smethurst, C. J. (2001).

Relationships between flow, self-concept, psychological skills, and performance. *Journal of Applied Sport Psychology*, 13(2), 129-153.

doi:10.1080/104132001753149865

Jacobson, N. S., Dobson, K. S., Truax, P. A., Addis, M. E., Koerner, K., Gollan, J.

K., . . . Prince, S. E. (1996). A component analysis of Cognitive

Behavioral Treatment for depression. *Journal of Consulting and Clinical*

Psychology, 64(2), 295-304. doi:10.1037/0022-006X.64.2.295

Jeong, Y.-J., Hong, S.-C., Lee, M. S., Park, M.-C., Kim, Y.-K., & Suh, C.-M.

(2006). Dance movement therapy improves emotional responses and modulates neurohormones in adolescents with mild depression.

International journal of neuroscience., 115(12), 1711-1720. doi:info:doi/

Jiang, J. (2016). The mechanism of music for reducing psychological stress:

Music preference as a mediator. *The Arts in Psychotherapy*, 48, 62-68.

doi:info:doi/

Johnsen, T. J., & Friberg, O. (2015). The effects of cognitive behavioral therapy

as an anti- depressive treatment is falling: A meta-analysis. *Psychological*

Bulletin, 141(4), 747-768. doi:10.1037/bul0000015

Joiner, T. E., & Silva, C. (2012). *Why people die by suicide: Further development*

and tests of the interpersonal-psychological theory of suicidal behavior:

American Psychological Association.

Judge, T., Erez, A., Bono, J., & Thoresen, C. (2003). The Core Self-Evaluations

Scale: Development of a measure. *Personnel Psychology*, 56(2), 303.

- Judge, T., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology, 83*(1), 17-34. doi:10.1037/0021-9010.83.1.17
- Justman, S. (2011). From medicine to psychotherapy: The placebo effect. *History of the Human Sciences, 24*(1), 95-107.
- Kahl, K., Winter, L., & Schweiger, U. (2012). The third wave of cognitive behavioural therapies: What is new and what is effective? *Current Opinion in Psychiatry, 25*(6), 522.
- Kaimal, G., Ray, K., & Muniz, J. (2016). Reduction of cortisol levels and participants' responses following art making. *Art Therapy, 33*(2), 74-80. doi:10.1080/07421656.2016.1166832
- Kaimal, G., Walker, M. S., Herres, J., French, L. M., & DeGraba, T. J. (2018). Observational study of associations between visual imagery and measures of depression, anxiety and post-traumatic stress among active-duty military service members with traumatic brain injury at the Walter Reed National Military Medical Center. *BMJ Open, 8*(6). doi:10.1136/bmjopen-2017-021448
- Kalmanowitz, D., & Potash, J. (2010). Ethical considerations in the global teaching and promotion of art therapy to non-art therapists. *The Arts in Psychotherapy, 37*(1), 20-26. doi:10.1016/j.aip.2009.11.002
- Kalmijn, M. (2003). Shared friendship networks and the life course: an analysis of survey data on married and cohabiting couples. *Social Networks, 25*(3), 231-249. doi:10.1016/S0378-8733(03)00010-8
- Kalmijn, M. (2005). Differential effects of divorce on social integration. *Journal of Social and Personal Relationships, 22*(4), 455-476.

Kamioka, H., Okada, S., Tsutani, K., Park, H., Okuizumi, H., Handa, S., . . .

Mutoh, Y. (2014). Effectiveness of animal-assisted therapy: A systematic review of randomized controlled trials. *Complementary Therapies in Medicine*, 22(2), 371-390. doi:10.1016/j.ctim.2013.12.016

Kanter, J. W. (2010). Initial outcomes of a culturally adapted behavioral activation for latinas diagnosed with depression at a community clinic. *Behavior Modification*, 34(2), 120-144. doi:info:doi/

Kanter, J. W., Manos, R. C., Bowe, W. M., Baruch, D. E., Busch, A. M., & Rusch, L. C. (2010). What is behavioral activation? A review of the empirical literature. *Clinical Psychology Review*, 30(6), 608-620. doi:10.1016/j.cpr.2010.04.001

Kanter, J. W., Mulick, P., Busch, A., Berlin, K., & Martell, C. (2007). The Behavioral Activation for Depression Scale (BADs): Psychometric properties and factor structure. *Journal of Psychopathology and Behavioral Assessment*, 29(3), 191-202. doi:10.1007/s10862-006-9038-5

Kapitan, L. (2012). Does art therapy work? Identifying the active ingredients of art therapy efficacy. *Art Therapy*, 29(2), 48-49. doi:10.1080/07421656.2012.684292

Kapitan, L. (2013). Art therapy's sweet spot between art, anxiety, and the flow experience. *Art Therapy*, 30(2), 54-55. doi:10.1080/07421656.2013.789761

Kaplan, R. L., Van Damme, I., Levine, L. J., & Loftus, E. F. (2015). Emotion and False Memory. *Emotion Review*, 8(1), 8-13. doi:10.1177/1754073915601228

- Kaptchuk, T. J., Kelley, J. M., Conboy, L. A., Davis, R. B., Kerr, C. E., Jacobson, E. E., . . . Lembo, A. J. (2008). Components of placebo effect: Randomised controlled trial in patients with irritable bowel syndrome. *BMJ : British Medical Journal*, *336*(7651), 999.
doi:10.1136/bmj.39524.439618.25
- Karkou, V., Aithal, S., Zubala, A., & Meekums, B. (2019). Effectiveness of dance movement therapy in the treatment of adults with depression: A systematic review with meta-analyses. *Frontiers in Psychology*, *10*.
doi:10.3389/fpsyg.2019.00936
- Kates, N. (2008). Individual art therapy for elderly clients. *Canadian Art Therapy Association Journal*, *21*(1), 11-17. doi:10.1080/08322473.2008.11432296
- Kaye, L. (2016). Exploring flow experiences in cooperative digital gaming contexts. *Computers in Human Behavior*, *55*, 286-291.
doi:10.1016/j.chb.2015.09.023
- Kazdin, A. E. (2009). Understanding how and why psychotherapy leads to change. *Psychotherapy Research*, *19*(4-5), 418-428.
doi:10.1080/10503300802448899
- Kazdin, A. E. (2017). Addressing the treatment gap: A key challenge for extending evidence-based psychosocial interventions. *Behaviour Research and Therapy*, *88*, 7. doi:10.1016/j.brat.2016.06.004
- Kazuki, H. (2014). Changes in flow experience among occupational therapy students: a 1-year longitudinal study. *Journal of Educational Evaluation for Health Professions*, *11*, 14. doi:10.3352/jeehp.2014.11.14

- Keeling, M. I. (2006). Externalizing problems through art and writing: Experiences of process and helpfulness. *Journal of Marital and Family Therapy*, 32(4), 405-419.
- Keller, J., & Blomann, F. (2008). Locus of control and the flow experience: An experimental analysis. *European journal of personality*, 22(7), 589-607.
doi:info:doi/
- Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L. T., . . . Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, 32(6), 959-976.
doi:10.1017/S0033291702006074
- Kestenberg, M., & Kestenberg, J. S. (1988). The sense of belonging and altruism in children who survived the Holocaust. *Psychoanalytic Review*, 75(4), 533.
- Kim, D. M., Wampold, B. E., & Bolt, D. M. (2006). Therapist effects in psychotherapy: A random-effects modeling of the National Institute of Mental Health Treatment of Depression Collaborative Research Program data. *Journal of Psychosomatic Research*, 16(2), 161-172.
doi:10.1080/10503300500264911
- Kim, Y. S., Park, Y. S., Allegrante, J. P., Marks, R., Ok, H., Ok Cho, K., & Garber, C. E. (2012). Relationship between physical activity and general mental health. *Preventive Medicine*, 55(5), 458.
doi:10.1016/j.ypmed.2012.08.021

- Kimport, E. R., & Robbins, S. J. (2012). Efficacy of creative clay work for reducing negative mood: A randomized controlled trial. *Art Therapy*, 29(2), 74-79. doi:10.1080/07421656.2012.680048
- King, J. L., Kaimal, G., Konopka, L., Belkofer, C., & Strang, C. E. (2019). Practical applications of neuroscience-informed art therapy. *Art Therapy: American Art Therapy Association at 50*, 36(3), 149-156. doi:10.1080/07421656.2019.1649549
- King, J. L., Knapp, K. E., Shaikh, L. A., Fang Li, D. S., Pascuzzi, R. M., & Osburn, L. L. (2017). Cortical activity changes after art making and rote motor movement as measured by EEG: A preliminary study. *Biomedical Journal of Scientific & Technical Research*, 1(4). doi:10.26717/BJSTR.2017.01.00
- Kissinger, J., Campbell, R. C., Lombrozo, A., & Wilson, D. (2009). *The role of gender in belonging and sense of community*. Paper presented at the 2009 39th IEEE Frontiers in Education Conference, San Antonio, TX, USA.
- Klein, D. N., Schwartz, J. E., Santiago, N. J., Vivian, D., Vocisano, C., Arnow, B., . . . Keller, M. B. (2003). Therapeutic alliance in depression treatment: Controlling for prior change and patient characteristics. *Journal of Consulting and Clinical Psychology*, 71(6), 997-1006. doi:10.1037/0022-006X.71.6.997
- Kluge, A., & Frank, B. (2014). Counteracting skill decay: four refresher interventions and their effect on skill and knowledge retention in a simulated process control task. *Ergonomics*, 57(2), 175-190. doi:10.1080/00140139.2013.869357

- Koch, S. C., Riege, R., Tisborn, K., Biondo, J., Martin, L., & Beelmann, A. (2019). Effects of dance movement therapy and dance on health-related psychological outcomes. A meta-analysis update. *Frontiers of Psychology, 10*. doi:10.3389/fpsyg.2019.01806
- Kopytin, A., & Lebedev, A. (2013). Humor, self-attitude, emotions, and cognitions in group art therapy with war veterans. *Art Therapy: Journal of the American Art Therapy Association, 30*(1), 20-29. doi:10.1080/07421656.2013.757758
- Krantz, D. S., & McCeney, M. K. (2002). Effects of psychological and social factors on organic disease: a critical assessment of research on coronary heart disease. *Annual Review of Psychology, 53*, 341.
- Kremer, P., Elshaug, C., Leslie, E., Toumbourou, J. W., Patton, G. C., & Williams, J. (2014). Physical activity, leisure-time screen use and depression among children and young adolescents. *Journal of Science and Medicine in Sport, 17*(2), 183. doi:10.1016/j.jsams.2013.03.012
- Krpan, K. M. (2013). An everyday activity as a treatment for depression: The benefits of expressive writing for people diagnosed with major depressive disorder. *Journal of Affective Disorders, 150*(3), 1148-1151. doi:info:doi/
- Krueger, K. R., Murphy, J. W., & Bink, A. B. (2019). Thera-prov: a pilot study of improv used to treat anxiety and depression. *Journal of Mental Health, 28*(6), 621-626. doi:10.1080/09638237.2017.1340629
- Kruse, J. A., Hagerty, B. M., Byers, W. S., Gatien, G., & Williams, R. A. (2014). Considering a relational model for depression in Navy recruits. *Military Medicine, 179*(11), 1293. doi:10.7205/MILMED-D-14-00116

- Kvam, S., Kleppe, C. L., Nordhus, I. H., & Hovland, A. (2016). Exercise as a treatment for depression: A meta- analysis. *Journal of Affective Disorders*, 202, 67-86. doi:10.1016/j.jad.2016.03.063
- Lambert, M. J., & Barley, D. E. (2001). Research summary on the therapeutic relationship and psychotherapy outcome. *Psychotherapy (Chicago, Ill.)*, 38(4), 357-361. doi:10.1037//0033-3204.38.4.357
- Lamont, A. (2012). Emotion, engagement and meaning in strong experiences of music performance. *Psychology of Music*, 40(5), 574-594. doi:10.1177/0305735612448510
- Lamont, S., Brunero, S., & Sutton, D. (2009). Art psychotherapy in a consumer diagnosed with borderline personality disorder: A case study. *International Journal of Mental Health Nursing*, 18(3), 164-172. doi:10.1111/j.1447-0349.2009.00594.x
- Larun, L., Nordheim, L. V., Ekeland, E., Hagen, K. B., & Heian, F. (2006). Exercise in prevention and treatment of anxiety and depression among children and young people. *Cochrane Database of Systematic Reviews*(3), Cd004691. doi:10.1002/14651858.CD004691.pub2
- Leahy, C. M., Peterson, R. F., Wilson, I. G., Newbury, J. W., Tonkin, A. L., & Turnbull, D. (2010). Distress levels and self-reported treatment rates for medicine, law, psychology and mechanical engineering tertiary students: cross-sectional study. *Australian and New Zealand Journal of Psychiatry*, 44(7), 608-615. doi:10.3109/00048671003649052
- Lee, J., & Thyer, B. A. (2013). Does music therapy improve mental health in adults? A review. *Journal of Human Behavior in the Social Environment*, 23(5), 591-603. doi:10.1080/10911359.2013.766147

- Lee, R. M., & Robbins, S. B. (1998). The relationship between social connectedness and anxiety, self-esteem, and social identity. *Journal of Counseling Psychology, 45*(3), 338-345. doi:10.1037/0022-0167.45.3.338
- Lee, S. Y. (2013). "Flow" in art therapy: Empowering immigrant children with adjustment difficulties. *Art Therapy, 30*(2), 56-63.
doi:10.1080/07421656.2013.786978
- Lee, S. Y. (2015). Flow indicators in art therapy: Artistic engagement of immigrant children with acculturation gaps. *Art Therapy: Culture, Diversity, and Identity, 32*(3), 120-129.
doi:10.1080/07421656.2015.1060836
- Lee, T., & Breen, L. (2007). Young people's perceptions and experiences of leaving high school early: an exploration. *Journal of Community & Applied Social Psychology, 17*(5), 329-346. doi:10.1002/casp.887
- Lejuez, C. W., Hopko, D. R., Acierno, R., Daughters, S. B., & Pagoto, S. L. (2011). Ten year revision of the brief behavioral activation treatment for depression: revised treatment manual. *Behavior Modification, 35*(2), 111-161. doi:10.1177/0145445510390929
- Lejuez, C. W., Hopko, D. R., LePage, J. P., Hopko, S. D., & McNeil, D. W. (2001). A brief behavioral activation treatment for depression. *Cognitive and Behavioral Practice, 8*(2), 164-175. doi:10.1016/S1077-7229(01)80022-5
- Lenz, A. S., Haktanir, A., & Callender, K. (2017). Meta-Analysis of trauma-focused therapies for treating the symptoms of Post Traumatic Stress Disorder. *Journal of Counseling & Development, 95*(3), 339-353.
doi:10.1002/jcad.12148

- Lenz, A. S., & Hollenbaugh, K. M. (2015). Meta-analysis of trauma- focused Cognitive Behavioral Therapy for treating PTSD and co-occurring depression among children and adolescents. *Counseling Outcome Research and Evaluation*, 6(1), 18-32. doi:10.1177/2150137815573790
- Lewinsohn, P. M., & Graf, M. (1973). Pleasant activities and depression. *Journal of Consulting and Clinical Psychology*, 41(2), 261-268. doi:10.1037/h0035142
- Ley, C., Krammer, J., Lippert, D., & Rato Barrio, M. (2017). Exploring flow in sport and exercise therapy with war and torture survivors. *Mental Health and Physical Activity*, 12, 83-93. doi:10.1016/j.mhpa.2017.03.002
- Leyland, L.-A., Spencer, B., Beale, N., Jones, T., & van Reekum, C. M. (2019). The effect of cycling on cognitive function and well-being in older adults. *PLoS ONE*, 14(2), e0211779. doi:10.1371/journal.pone.0211779
- Linnemann, A., Ditzen, B., Strahler, J., Doerra, J., & Natera, U. (2015). Music listening as a means of stress reduction in daily life. *Psychoneuroendocrinology*, 60, 82-90. doi:info:doi/
- Linton, M.-J., Dieppe, P., & Medina-Lara, A. (2016). Review of 99 self-report measures for assessing well-being in adults: exploring dimensions of well-being and developments over time. *BMJ Open*, 6(7). doi:10.1136/bmjopen-2015-010641
- Lloyd, C., King, R., & Moore, L. (2010). Subjective and objective indicators of recovery in severe mental illness: a cross-sectional study. *International Journal of Social Psychiatry*, 56(3), 220-229. doi:10.1177/0020764009105703

- Lloyd, C., Waghorn, G., Best, M., & Gemmell, S. (2008). Reliability of a composite measure of social inclusion for people with psychiatric disabilities. *Australian Occupational Therapy Journal*, 55(1), 47-56. doi:10.1111/j.1440-1630.2007.00656.x
- Lobban, J. (2012). The invisible wound: Veterans art therapy. *International Journal of Art Therapy*, 1-16. doi:10.1080/17454832.2012.725547
- Lobban, J. (2016). Factors that influence engagement in an inpatient art therapy group for veterans with Post Traumatic Stress Disorder. *International Journal of Art Therapy*, 1-8. doi:10.1080/17454832.2015.1124899
- Loprinzi, P. D. (2013). Objectively measured light and moderate-to-vigorous physical activity is associated with lower depression levels among older US adults. *Aging & Mental Health*, 17(7), 801. doi:10.1080/13607863.2013.801066
- Lusebrink, V. B. (2004). Art therapy and the brain: An attempt to understand the underlying processes of art expression in therapy. *Art Therapy*, 21(3), 125. doi:10.1080/07421656.2004.10129496
- Lutz, W., Leon, S. C., Martinovich, Z., Lyons, J. S., & Stiles, W. B. (2007). Therapist effects in outpatient psychotherapy: A three-level growth curve approach. *Journal of Counseling Psychology*, 54(1), 32-39. doi:10.1037/0022-0167.54.1.32
- Maber-Aleksandrowicz, S., Avent, C., & Hassiotis, A. (2016). A systematic review of animal-assisted therapy on psychosocial outcomes in people with intellectual disability. *Research in developmental disabilities*, 49-50, 322. doi:10.1016/j.ridd.2015.12.005

- Macpherson, H., Hart, A., & Heaver, B. (2016). Building resilience through group visual arts activities: Findings from a scoping study with young people who experience mental health complexities and/or learning difficulties. *Journal of Social Work, 16*(5), 541-560. doi:10.1177/1468017315581772
- Macphillamy, D. J., & Lewinsohn, P. M. (1982). The pleasant events schedule: Studies on reliability, validity, and scale intercorrelation. *Journal of Consulting and Clinical Psychology, 50*(3), 363-380. doi:10.1037/0022-006X.50.3.363
- Mahar, A. L., Cobigo, V., & Stuart, H. (2013). Conceptualizing belonging. *Disability and Rehabilitation, 35*(12), 1026-1032. doi:10.3109/09638288.2012.717584
- Mala, A. (2012). Dance/Movement Therapy (D/MT) for depression: A scoping review. *The Arts in Psychotherapy, 39*(4), 287-295. doi:info:doi/
- Malone, G. P., Pillow, D., & Osman, A. (2012). The General Belongingness Scale (GBS): Assessing achieved belongingness. *Personality and Individual Differences, 52*(3), 311-316. doi:10.1016/j.paid.2011.10.027
- Manos, R. C., Kanter, J. W., & Busch, A. (2010). A critical review of assessment strategies to measure the behavioral activation model of depression. *Clinical Psychology Review, 30*(5), 547-561. doi:10.1016/j.cpr.2010.03.008
- Manos, R. C., Kanter, J. W., & Luo, W. (2011). The Behavioral Activation for Depression Scale- Short Form: development and validation. *Behavior Therapy, 42*(4), 726-739. doi:10.1016/j.beth.2011.04.004

- Maratos, A., Crawford, M., & Procter, S. (2011). Music therapy for depression: It seems to work, but how? *The British Journal of Psychiatry*, 199(2), 92-93. doi:info:doi/
- Marcus, D. A. (2013). The science behind animal-assisted therapy. In *Current Pain and Headache Reports* (Vol. 17).
- Marsh, H. W., & Jackson, S. A. (1999). Flow experience in sport: Construct validation of multidimensional, hierarchical state and trait responses. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(4), 343-371. doi:10.1080/10705519909540140
- Martin, D. J., Garske, J. P., & Davis, M. K. (2000). Relation of the therapeutic alliance with outcome and other variables: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, 68(3), 438.
- Maslow, A. H. (1954). *Motivation and Personality* ([1st ed]. ed.). New York: New York, Harper.
- Mazzucchelli, T., Kane, R., & Rees, C. (2009). Behavioral activation treatments for depression in adults: A meta-analysis and review. *Clinical Psychology: Science and Practice*, 16(4), 383-411. doi:10.1111/j.1468-2850.2009.01178.x
- Mazzucchelli, T., Kane, R. T., & Rees, C. S. (2010). Behavioral activation interventions for well-being: A meta-analysis. *Journal of Positive Psychology*, 5(2), 105-121. doi:10.1080/17439760903569154
- Mazzucchelli, T., Kanter, J. W., & Martell, C. R. (2016). A clinician's quick guide of evidence-based approaches: Behavioural activation. *Clinical Psychologist*, 20(1), 54-55. doi:10.1111/cp.12086

- McCauley, E., Gudmundsen, G., Schloredt, K., Martell, C., Rhew, I., Hubley, S., & Dimidjian, S. (2016). The Adolescent Behavioral Activation Program: Adapting behavioral activation as a treatment for depression in adolescence. *Journal of Clinical Child & Adolescent Psychology*, 45(3), 291-304. doi:10.1080/15374416.2014.979933
- McColl, M. A., Davies, D., Carlson, P., Johnston, J., & Minnes, P. (2001). The community integration measure: Development and preliminary validation. *Archives of Physical Medicine and Rehabilitation*, 82(4), 429-434.
- McCoy, J., Kirova, A., & Knight, W. (2016). Gauging social integration among Canadian muslims: A sense of belonging in an age of anxiety. *Canadian Ethnic Studies*, 48(2), 21-52. doi:10.1353/ces.2016.0012
- McDonald, K., & Fenton, L. (2018). Identifying the role of occupational therapists in promoting student resilience: An environmental scan of mental health initiatives on Canadian university campuses. *Occupational Therapy Now*, 20(1), 24-26.
- McEvoy, P., Law, A., Bates, R., Hylton, K., & Mansell, W. (2012). Using behavioural activation in the treatment of depression: A control theory perspective. *Journal of Psychiatric and Mental Health Nursing*. doi:10.1111/jpm.12032
- McMackin, M. (2016). Assessing the value of creative arts workshops and hand papermaking for student veterans in transition. In M. Rosal, J. Broome, D. Gussak, & D. Schrock (Eds.): ProQuest Dissertations Publishing.
- Meekums, B., Karkou, V., & Nelson, A. (2015). Dance movement therapy for depression. *Cochrane Database of Systematic Reviews*(2). doi:10.1002/14651858.CD009895.pub2

- Mennin, D., Ellard, K., Fresco, D., & Gross, J. (2013). United we stand: Emphasizing commonalities across Cognitive- Behavioral Therapies. *Behavior Therapy, 44*(2), 234.
- Michaels, P., Buchholz, B., Corrigan, P., Abelson, S., & Kanodia, N. (2015). Mental health priorities: Stigma elimination and community advocacy in college settings. *Journal of College Student Development, 56*(8), 872-875.
- Milardo, R. M. (1987). Changes in Social Networks of Women and Men Following Divorce: A Review. *Journal of Family Issues, 8*(1), 78-96.
doi:10.1177/019251387008001004
- Millis, S. R., Meachen, S.-J., Griffen, J. A., Hanks, R. A., & Rapport, L. J. (2014). Rasch analysis of the community integration measure in persons with traumatic brain injury. *Archives of Physical Medicine and Rehabilitation, 95*(4), 734. doi:10.1016/j.apmr.2013.11.020
- Mitchell, R. (2013). Is physical activity in natural environments better for mental health than physical activity in other environments? *Social Science & Medicine, 91*, 130.
- Mohr, D. C. (1995). Negative outcome in psychotherapy: A critical review. *Clinical Psychology: Science and Practice, 2*(1), 1-27. doi:10.1111/j.1468-2850.1995.tb00022.x
- Mohsen, M. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2*, 53-55.
- Moneta, G. B. (2012). On the measurement and conceptualization of flow. In *Advances in Flow Research* (Vol. 9781461423591, pp. 23-50).
- Morgan, J., & Coutts, R. (2016). Measuring peak experience in recreational surfing. *Journal of Sport Behavior, 39*(2), 202-217.

- Moss, H., Brady, C., & Kelly, B. (2017). A fuller picture: Evaluating an art therapy programme in a multi-disciplinary mental health service. *European Psychiatry, 41*(sS), S612-S612. doi:10.1016/j.eurpsy.2017.01.970
- Murphy, P. J., Kehoe, E. J., & Butcher, A. (2009). Keeping the blunt edge at bay: Preventing skill erosion. In P. J. Murphy (Ed.), *Focus on Human Performance in Land Operations* (Vol. 1, pp. 33-39). Canberra: Australian Defence Force Psychology Organisation.
- Nan, J. K. M., & Ho, R. T. H. (2017). Effects of clay art therapy on adults outpatients with major depressive disorder: A randomized controlled trial. *Journal of Affective Disorders, 217*, 237. doi:10.1016/j.jad.2017.04.013
- Neisser, U. (1967). *Cognitive Psychology*. New York: New York : Appleton-Century-Crofts.
- Nelson, M. L., & Neufeldt, S. A. (1996). Building on an empirical foundation: Strategies to enhance good practice. *Journal of Counseling & Development, 74*(6), 609-615. doi:10.1002/j.1556-6676.1996.tb02300.x
- Nepps, P., Stewart, C. N., & Bruckno, S. R. (2014). Animal-assisted activity: Effects of a complementary intervention program on psychological and physiological variables. *Journal of Evidence-Based Complementary & Alternative Medicine, 19*(3), 211-215. doi:10.1177/2156587214533570
- Ng, F., Dodd, S., & Berk, M. (2006). The effects of physical activity in the acute treatment of bipolar disorder: A pilot study. *Journal of Affective Disorders, 101*(1), 259-262. doi:10.1016/j.jad.2006.11.014

- Novak, T. P., Hoffman, D. L., & Yung, Y.-F. (2000). Measuring the customer experience in online environments: A structural modeling approach. *Marketing Science*, 19(1), 22-42. doi:10.1287/mksc.19.1.22.15184
- O'Brien, R. G., & Kaiser, M. K. (1985). MANOVA method for analyzing repeated measures designs: an extensive primer. *Psychological Bulletin*, 97(2), 316-333. doi:10.1037/0033-2909.97.2.316
- O'Hara, J. M. (1990). The retention of skills acquired through simulator-based training. *Ergonomics*, 33(9), 1143-1153. doi:10.1080/00140139008925319
- O'Donnell, M. D., L.; Fletcher, S.; Couineau, AL.; Forbes, D. (2014). The Australian Defence Force Mental Health Screening Continuum Framework: Full Report.
- O'Haire, M. E., & Rodriguez, K. E. (2018). Preliminary efficacy of service dogs as a complementary treatment for Posttraumatic Stress Disorder in military members and veterans. *Journal of Consulting and Clinical Psychology*, 86(2), 179-188. doi:10.1037/ccp0000267
- Oppizzi, L. M., & Umberger, R. (2018). The effect of physical activity on PTSD. *Issues in Mental Health Nursing*, 1-9. doi:10.1080/01612840.2017.1391903
- Orkibi, H., Bar, N., & Eliakim, I. (2014). The effect of drama-based group therapy on aspects of mental illness stigma. *The Arts in Psychotherapy*, 41(5), 458-466. doi:10.1016/j.aip.2014.08.006
- Orme, G. J., & Kehoe, E. J. (2019). Development of Cohesion in Mixed-Gender Recruit Training. *Military Medicine*, 184(7-8), e212-e217. doi:10.1093/milmed/usy409

- Overup, C. S., McLean, E., Brunson, J., & Coffman, A. D. (2017). Belonging, burdensomeness, and self-compassion as mediators of the association between attachment and depression. *Journal of Social Clinical Psychology, 36*(8), 675-703. doi:10.1521/jscp.2017.36.8.675
- Papasavvas, T., Alhashemi, M., & Micklewright, D. (2015). Association between depressions and exercise capacity in cardiovascular disease: A meta analysis. *Journal of the American College of Cardiology, 65*(10), A1495. doi:10.1016/S0735-1097(15)61495-4
- Patel, M., & Chaudhari, A. (2014). Sports for positive mental health: A comparative study of mental health among individual athletes, team athletes and non-athletes. *International Journal of Indian Psychology, 1*(4). doi:10.25215/0104.022
- Pavlacic, J. M., Buchanan, E. M., Maxwell, N. P., Hopke, T. G., & Schulenberg, S. E. (2019). A meta-analysis of expressive writing on posttraumatic stress, posttraumatic growth, and quality of life. *Review of General Psychology, 23*(2), 230-250. doi:10.1177/1089268019831645
- Pecinovsky, C. R., & Greenleaf, C. (2015). Exercise experiences, flow, anxiety, comfort and motivation among women. *Research Quarterly for Exercise and Sport, 86*, A34-A35.
- Pels, F., & Kleinert, J. (2016). Loneliness and physical activity: A systematic review. *International Review of Sport and Exercise Psychology, 9*(1), 231-260. doi:10.1080/1750984x.2016.1177849
- Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science, 8*(3), 162-166. doi:10.1111/j.1467-9280.1997.tb00403.x

- Pennebaker, J. W., Mayne, T. J., & Francis, M. E. (1997). Linguistic Predictors of Adaptive Bereavement. *Journal of Personality and Social Psychology*, 72(4), 863-871. doi:10.1037/0022-3514.72.4.863
- Perraton, L. G., Kumar, S., & Machotka, Z. (2010). Exercise parameters in the treatment of clinical depression: a systematic review of randomized controlled trials. *Journal of Evaluation in Clinical Practice*, 16(3), 597-604. doi:10.1111/j.1365-2753.2009.01188.x
- Phillips, K. (2019). A constructive-critical response to Creative Health: The Arts for Health and Wellbeing (July 2017) by the All-Party Parliamentary Group on Arts, Health and Wellbeing. *International Journal of Art Therapy*, 24(1), 21-29. doi:10.1080/17454832.2018.1491612
- Phung, A., Joyce, C., Ambutas, S., Browning, M., Fogg, L., Christopher, B.-A., & Flood, S. (2017). Animal-assisted therapy for inpatient adults. *Nursing*, 47(1), 63.
- Pickett, K., Yardley, L., & Kendrick, T. (2012). Physical activity and depression: A multiple mediation analysis. *Mental Health and Physical Activity*, 5(2), 125-134. doi:10.1016/j.mhpa.2012.10.001
- Pluhar, E., McCracken, C., Griffith, K. L., Christino, M. A., Sugimoto, D., & Meehan, W. P. (2019). Team Sport Athletes May Be Less Likely To Suffer Anxiety or Depression than Individual Sport Athletes. *Journal Sports Science & Medicine*, 18(3), 490-496.
- Podell, J. L., Kendall, P. C., Gosch, E. A., Compton, S. N., March, J. S., Albano, A.-M., . . . Piacentini, J. C. (2013). Therapist factors and outcomes in CBT for anxiety in youth. *Professional Psychology: Research and Practice*, 44(2), 89-98. doi:10.1037/a0031700

- Podlogar, M. C., Houtsma, C., Khazem, L. R., Ringer, F., Mofield, T., Green, B. A., . . . Joiner, T. E. (2017). The associations between Army National Guard versus Active Duty Soldier status and perceived burdensomeness, thwarted belongingness, and acquired capability. *Journal of Clinical Psychology, 73*(12), 1682-1691. doi:10.1002/jclp.22473
- Potash, J. S., Mann, S. M., Martinez, J. C., Roach, A. B., & Wallace, N. M. (2016). Spectrum of art therapy practice: systematic literature review of art therapy , 1983–2014. *Art Therapy, 33*(3), 119-127. doi:10.1080/07421656.2016.1199242
- Pounsett, H., Parker, K., Hawtin, A., & Collins, S. (2006). Examination of the changes that take place during an art therapy intervention. *International Journal of Art Therapy, 11*(2), 79-101. doi:10.1080/17454830600980325
- Powers, M. B., Medina, J. L., Burns, S., Kauffman, B. Y., Monfils, M., Asmundson, G. J. G., . . . Smits, J. A. J. (2015). Exercise augmentation of exposure therapy for PTSD: Rationale and pilot efficacy data. *Cognitive Behaviour Therapy, 44*(4), 1-14. doi:10.1080/16506073.2015.1012740
- Preacher, K., & Hayes, A. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717-731. doi:10.3758/BF03206553
- Price, S., & Pellmann, R. (1989). Art Therapy and first stage insight. *Canadian Art Therapy Association Journal, 4*(2), 1-8. doi:10.1080/08322473.1989.11432178
- Proops, L., & McComb, K. (2010). Attributing attention: The use of human-given cues by domestic horses (*Equus caballus*). *Animal Cognition, 13*(2), 197-205. doi:10.1007/s10071-009-0257-5

- Prout, K., & DeBerard, M. (2017). Therapist-specific factors and psychotherapy outcomes of adult and youth clients seen in a psychology training clinic. *Administration and Policy in Mental Health and Mental Health Services Research*, 44(5), 681-690. doi:10.1007/s10488-017-0798-x
- Rachman, S. (2009). Psychological treatment of anxiety: The evolution of behavior therapy and cognitive behavior therapy. *Annual Review of Clinical Psychology*, 5, 97-119.
doi:10.1146/annurev.clinpsy.032408.153635
- Raglio, A. (2011). When music becomes music therapy. *Psychiatry and clinical neurosciences.*, 65(7), 682-683.
- Raines, A. M., Thomas, E. A., Tock, J. L., Hallinan, T. M., Hartley, S., MacKenna, H., . . . Franklin, C. L. (2020). Examining the Effectiveness of a Group-Based Behavioral Activation Treatment for Depression among Veterans. *Journal of Psychopathology and Behavioral Assessment*, 42(2), 306-313. doi:10.1007/s10862-019-09778-3
- Reiling, J. (2017). The placebo effect in psychotherapy. *JAMA*, 317(16), 1695.
doi:10.1001/jama.2017.0645
- Reilly, J. E. R., & Fitzpatrick, J. J. (2009). Perceived stress and sense of belonging in doctor of nursing practice students. *Journal of Professional Nursing: Official Journal of the American Association of Colleges of Nursing*, 25(2), 81. doi:10.1016/j.profnurs.2008.10.002
- Reinhardt, C., Wiener, S., Heimbeck, A., Stoll, O., Lau, A., & Schliermann, R. (2008). Flow in der Sporttherapie der Depression e ein beanspruchungsorientierter Ansatz. *Bewegungstherapie und Gesundheitssport*, 24(4), 147-151.

- Reinhold, M., Burkner, P. C., & Holling, H. (2018). Effects of expressive writing on depressive symptomsA meta-analysis. *Clinical Psychology: Science and Practice*, 25(1). doi:10.1111/cpsp.12224
- Reynolds, F., & Prior, S. (2006). Creative adventures and flow in art-making: A qualitative study of women living with cancer. *The British Journal of Occupational Therapy*, 69(6), 255-262.
doi:10.1177/030802260606900603
- Rheinberg, F. (2008). Intrinsic motivation and flow. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation and Action* (pp. 323-348). England: Cambridge University Press.
- Rhodes, R., & Kates, A. (2015). Can the affective response to exercise predict future motives and physical activity behavior? A systematic review of published evidence. *Annals of Behavioral Medicine*, 49(5), 715-731.
doi:10.1007/s12160-015-9704-5
- Richards, D. A., Ekers, D., McMillan, D., Taylor, R. S., Byford, S., Warren, F. C., . . . Finning, K. (2016). Cost and outcome of Behavioural Activation versus Cognitive Behavioural Therapy for depression (COBRA): a randomised, controlled, non-inferiority trial. *The Lancet*, 388(10047), 871-880. doi:10.1016/S0140-6736(16)31140-0
- Richardson, J., Iezzi, A., Khan, M. A., & Maxwell, A. (2014). Validity and reliability of the Assessment of Quality of Life (AQoL)-8D multi-attribute utility instrument. *The patient*, 7(1), 85. doi:10.1007/s40271-013-0036-x
- Riggins, J., & McLennon, S. M. (2020). Testing a musical game activity for community-dwelling older adults. *Home Health Care Management & Practice*, 32(1), 22-27. doi:10.1177/1084822319868703

- Riley, T., & White, V. (2016). Developing a sense of belonging through engagement with like-minded peers: A matter of equity. *New Zealand Journal of Educational Studies*, 51(2), 211-225. doi:10.1007/s40841-016-0065-9
- Robinson, J., & Hatten, R. S. (2012). Emotions in music. *Music Theory Spectrum*, 34(2), 71-106. doi:10.1525/mts.2012.34.2.71
- Robles, T. F., & Kiecolt-Glaser, J. K. (2003). The physiology of marriage: Pathways to health. *Physiology and Behavior*, 79(3), 409. doi:10.1016/S0031-9384(03)00160-4
- Rogatko, T. (2009). The influence of flow on positive affect in college students. *An Interdisciplinary Forum on Subjective Well-Being*, 10(2), 133-148. doi:10.1007/s10902-007-9069-y
- Rogers, C. M., Mallinson, T., & Peppers, D. (2014). High-intensity sports for Posttraumatic Stress Disorder and Depression: Feasibility study of ocean therapy with veterans of Operation Enduring Freedom and Operation Iraqi Freedom. *American Journal of Occupational Therapy*, 68(4), 395-404. doi:10.5014/ajot.2014.011221
- Romberg, K., Tufvesson, E., & Bjermer, L. (2012). Asthma is more prevalent in elite swimming adolescents despite better mental and physical health: Asthma in elite swimming adolescents. *Scandinavian Journal of Medicine & Science in Sports*, 22(3), 362-371. doi:10.1111/j.1600-0838.2010.01177.x
- Rose, S., Aiken, A., & McColl, M. A. (2014). A scoping review of psychological interventions for PTSD in military personnel and veterans. *Military Behavioral Health*, 00-00. doi:10.1080/21635781.2014.963757

- Rosenzweig, S. (1936). Some implicit common factors in diverse methods of psychotherapy. *American Journal of Orthopsychiatry*, 6(3), 412-415.
doi:10.1111/j.1939-0025.1936.tb05248.x
- Sabiston, C., Jewett, R., Ashdown-Franks, G., Belanger, M., Brunet, J., O'Loughlin, E., & O'Loughlin, J. (2016). Number of years of team and individual sport participation during adolescence and depressive symptoms in early adulthood. *Journal of Sport and Exercise Psychology*, 38(1), 105-110. doi:info:doi/
- Sabol, M. A., & Wisher, R. A. (2001). Retention and reacquisition of military skills. *Military Operations Research*, 6(1), 59-80. Retrieved from <http://www.jstor.org/stable/43943665>
- Sacco, D. F., & Ismail, M. M. (2014). Social belongingness satisfaction as a function of interaction medium: Face-to-face interactions facilitate greater social belonging and interaction enjoyment compared to instant messaging. *Computers in Human Behavior*, 36, 359-364.
doi:10.1016/j.chb.2014.04.004
- Sampaio Barros, M., Araújo-Moreira, F., Trevelin, L., & Radel, R. (2018). Flow experience and the mobilization of attentional resources. *Cognitive, Affective, & Behavioral Neuroscience*, 18(4), 810-823.
doi:10.3758/s13415-018-0606-4
- Sampasa-Kanyinga, H., Zamorski, M. A., & Colman, I. (2018). The psychometric properties of the 10-item Kessler Psychological Distress Scale (K10) in Canadian military personnel. *PLoS ONE*, 13(4), e0196562.
doi:10.1371/journal.pone.0196562

- Sarid, O., Cwikel, J., Czamanski-Cohen, J., & Huss, E. (2017). Treating women with perinatal mood and anxiety disorders (PMADs) with a hybrid cognitive behavioural and art therapy treatment (CB-ART). *Archives of Women's Mental Health*, 20(1), 229. doi:10.1007/s00737-016-0668-7
- Sayer, N. A. (2015). Randomized controlled trial of online expressive writing to address readjustment difficulties among U.S. Afghanistan and Iraq War veterans. *Journal of traumatic stress.*, 28(5), 381-390.
- Scheel, M. J. (2011). Client common factors represented by client motivation and autonomy. *The Counseling Psychologist*, 39(2), 276-285.
doi:10.1177/0011000010375309
- Schneider, K. L., Panza, E., Handschin, B., Ma, Y., Busch, A. M., Waring, M. E., . . . Pagoto, S. L. (2016). Feasibility of pairing Behavioral Activation with exercise for women with Type 2 Diabetes and Depression: The Get It Study pilot randomized controlled trial. *Behavior Therapy*, 47(2), 198.
doi:10.1016/j.beth.2015.10.005
- Schnohr, P., Kristensen, T. S., Prescott, E., & Scharling, H. (2005). Stress and life dissatisfaction are inversely associated with jogging and other types of physical activity in leisure time—The Copenhagen City Heart Study. *Scandinavian Journal of Medicine & Science in Sports*, 15(2), 107-112.
doi:10.1111/j.1600-0838.2004.00394.x
- Schofield, S. (2019). Group Art Therapy, aesthetic experiences of difference and belonging. *Language and Psychoanalysis*, 8(1).
doi:10.7565/landp.v8i1.1591

- Schuch, F. B. (2016). Exercise as a treatment for depression: A meta-analysis adjusting for publication bias. *Journal of Psychiatric Research*, 77(1), 42-51.
- Schuch, F. B., Vancampfort, D., Firth, J., Rosenbaum, S., Ward, P., Reichert, T., . . . Stubbs, B. (2017). Physical activity and sedentary behavior in people with major depressive disorder: A systematic review and meta-analysis. *J. Affect. Disord.*, 210, 139-150. doi:10.1016/j.jad.2016.10.050
- Schuch, F. B., Vancampfort, D., Rosenbaum, S., Richards, J., Ward, P. B., & Stubbs, B. (2016). Exercise improves physical and psychological quality of life in people with depression: A meta- analysis including the evaluation of control group response. *Psychiatry Research*, 241, 47-54. doi:10.1016/j.psychres.2016.04.054
- Schweizer, C., Spreen, M., & Knorth, E. J. (2017). Exploring what works in art therapy with children with Autism: Tacit knowledge of art therapists. *Art Therapy*, 34(4), 183-191. doi:10.1080/07421656.2017.1392760
- Schwenke, D., Dshemuchadse, M., Rasehorn, L., Klarhölter, D., & Scherbaum, S. (2020). Improv to improve: The impact of improvisational theater on creativity, acceptance, and psychological well-being. *Journal of Creativity in Mental Health*, 1-18. doi:10.1080/15401383.2020.1754987
- Sedlár, M. (2014). Relationships between flow experience, life meaningfulness and subjective well-being in music students. *Psychology and its Contexts*, 5(1), 89-104.
- Segal-Engelchin, D., Achdut, N., Huss, E., & Sarid, O. (2020). CB-Art interventions implemented with mental health professionals working in a shared war reality: Transforming negative images and enhancing coping

- resources. *International Journal of Environmental Research and Public Health*, 17(7), 2287. doi:10.3390/ijerph17072287
- Shapiro, D. A., & Shapiro, D. (1982). Meta-analysis of comparative therapy outcome studies: A replication and refinement. *Psychological Bulletin*, 92(3), 581-604. doi:10.1037/0033-2909.92.3.581
- Shapiro, F. (2002). EMDR 12 years after its introduction: Past and future research. *Journal of Clinical Psychology*, 58(1), 1-22. doi:10.1002/jclp.1126
- Sharpless, B. A., & Barber, J. P. (2011). A clinicians guide to PTSD treatments for returning veterans. *Professional Psychology: Research and Practice*, 42(1), 8-15. doi:10.1037/a0022351
- Shioda, A., Tadaka, E., & Okochi, A. (2017). Reliability and validity of the Japanese version of the Community Integration Measure for community-dwelling people with schizophrenia. *International Journal of Mental Health Systems*, 11(1). doi:10.1186/s13033-017-0138-2
- Shirazipour, C. H. (2019). The Invictus Games: An opportunity for physical and mental health recovery through sport. *Annals of Behavioral Medicine*, 53(s1), S423-S423.
- Shudo, Y., Yamamoto, T., & Sakai, M. (2017). Longitudinal predictions of depression symptoms using the activation and avoidance subscales of the Japanese Behavioral Activation for Depression Scale-Short Form. *Psychological Reports*, 120(1), 130-140. doi:10.1177/0033294116680794
- Shvedko, A., Whittaker, A. C., Thompson, J. L., & Greig, C. A. (2018). Physical activity interventions for treatment of social isolation, loneliness or low social support in older adults: A systematic review and meta-analysis of

- randomised controlled trials. *Psychology of Sport and Exercise*, 34, 128-137. doi:10.1016/j.psychsport.2017.10.003
- Silva, L. A. D., Doyenart, R., Henrique Salvan, P., Rodrigues, W., Felipe Lopes, J., Gomes, K., . . . Silveira, P. C. (2019). Swimming training improves mental health parameters, cognition and motor coordination in children with Attention Deficit Hyperactivity Disorder. *International Journal of Environmental Research and Public Health*, 30(5), 1-9. doi:10.1080/09603123.2019.1612041
- Simmonds-Buckley, M., Kellett, S., & Waller, G. (2019). Acceptability and Efficacy of Group Behavioral Activation for Depression Among Adults: A Meta-Analysis. *Behav Ther*, 50(5), 864-885. doi:10.1016/j.beth.2019.01.003
- Sloan, D. M., Marx, B. P., Epstein, E. M., & Dobbs, J. L. (2008). Expressive writing buffers against maladaptive rumination. *Emotion*, 8(2), 302-306. doi:10.1037/1528-3542.8.2.302
- Smith, A. (2016). A literature review of the therapeutic mechanisms of art therapy for veterans with post-traumatic stress disorder. *International Journal of Art Therapy*, 21(2), 66-74. doi:10.1080/17454832.2016.1170055
- Smolarski, K., Leone, K., & Robbins, S. J. (2015). Reducing negative mood through drawing: Comparing venting, positive expression, and tracing. *Art Therapy*, 32(4), 197-201. doi:10.1080/07421656.2015.1092697
- Smyth, J., True, N., & Souto, J. (2001). Effects of writing about traumatic experiences: The necessity for narrative structuring. *Journal of Social and Clinical Psychology*, 20(2), 161-172. doi:10.1521/jscp.20.2.161.22266

- Snipelisky, D., & Burton, M. C. (2014). Canine-assisted therapy in the inpatient setting. *Southern Medical Journal*, 107(4), 265-273.
doi:10.1097/SMJ.0000000000000090
- Søndergaard, D. M. (2012). Bullying and social exclusion anxiety in schools. *British Journal of Sociology of Education*, 33(3), 355-372.
doi:10.1080/01425692.2012.662824
- Soucy-Chartier, I., & Provencher, M. D. (2013). Behavioural activation for depression: Efficacy, effectiveness and dissemination. *Journal of Affective Disorders*, 145(3), 292-299. doi:10.1016/j.jad.2012.07.023
- Springham, N., & Camic, P. M. (2017). Observing mentalizing art therapy groups for people diagnosed with borderline personality disorder. *International Journal of Art Therapy*, 22(3), 138-152.
doi:10.1080/17454832.2017.1288753
- Srivastava, A., Locke, E. A., Judge, T., & Adams, J. W. (2010). Core Self-Evaluations as causes of satisfaction: The mediating role of seeking task complexity. *Journal of Vocational Behavior*, 77(2), 255-265.
doi:10.1016/j.jvb.2010.04.008
- Stallen, M., De Dreu, C. K. W., Shalvi, S., Smidts, A., & Sanfey, A. G. (2012). The herding hormone: Oxytocin stimulates in-group conformity. *Psychological Science*, 23(11), 1288-1292.
doi:10.1177/0956797612446026
- Stamoulos, C., Trepanier, L., Bourkas, S., Bradley, S., Stelmaszczyk, K., Schwartzman, D., & Drapeau, M. (2016). Psychologists' perceptions of the importance of common factors in psychotherapy for successful

treatment outcomes. *Journal of Psychotherapy Integration*.

doi:10.1037/a0040426

Stein, A. T., Carl, E., Cuijpers, P., Karyotaki, E., & Smits, J. A. J. (2020).

Looking beyond depression: a meta-analysis of the effect of behavioral activation on depression, anxiety, and activation. *Psychological Medicine*, 1-14. doi:10.1017/S0033291720000239

Steinert, C., Hofmann, M., Kruse, J., & Leichsenring, F. (2014). Relapse rates after psychotherapy for depression - Stable long-term effects? A meta-analysis. *Journal of Affective Disorders*, 168, 107-118.

doi:10.1016/j.jad.2014.06.043

Steinkamp, M. W., & Kelly, J. R. (1987). Social integration, leisure activity, and life satisfaction in older adults: activity theory revisited. *The International Journal of Aging and Human Development*, 25(4), 293-307.

doi:10.2190/V813-QA3G-6AQC-MWYM

StGeorge, J. M., Holbrook, A. P., & Cantwell, R. H. (2012). Learning patterns in music practice: links between disposition, practice strategies and outcomes. *Music Education Research*, 14(2), 243-263.

doi:10.1080/14613808.2012.685454

Strassel, J. K. (2011). A systematic review of the evidence for the effectiveness of dance therapy. *Alternative Therapies in Health and Medicine*, 17(3), 50-59. doi:info:doi/

Strunk, D. R., Brotman, M. A., & Derubeis, R. J. (2010). The process of change in cognitive therapy for depression: predictors of early inter-session symptom gains. *Behaviour Research and Therapy*, 48(7), 599.

doi:10.1016/j.brat.2010.03.011

- Swann, C., Piggott, D., Schweickle, M., & Vella, S. A. (2018). A review of scientific progress in flow in sport and exercise: Normal science, crisis, and a progressive shift. *Journal of Applied Sport Psychology*, 30(3), 249-271. doi:10.1080/10413200.2018.1443525
- Tai-Wa, L., Shamay, S. M. N., & Gabriel, Y. F. N. (2014). Translation and initial validation of the Chinese (Cantonese) version of Community Integration Measure for use in patients with chronic stroke. *BioMed Research International*, 2014. doi:10.1155/2014/623836
- Tangvald-Pedersen, O., & Bongaardt, R. (2017). The interconnection between mental health, work and belonging: A phenomenological investigation. *Indo-Pacific Journal of Phenomenology*, 17(2), 1-11. doi:10.1080/20797222.2017.1392759
- Terhell, E. L., Broese van Groenou, M. I., & van Tilburg, T. (2007). Network contact changes in early and later postseparation years. *Social Networks*, 29(1), 11-24. doi:10.1016/j.socnet.2005.11.006
- The Royal British Legion. (2018). Bravo-22-Company. Retrieved from <https://www.britishlegion.org.uk/get-support/physical-and-mental-wellbeing/recovery-through-art>
- Tindall, L., Mikocka-Walus, A., McMillan, D., Wright, B., Hewitt, C., & Gascoyne, S. (2017). Is behavioural activation effective in the treatment of depression in young people? A systematic review and meta-analysis. *Psychology and Psychotherapy: Theory, Research and Practice*, 90(4), 770-796. doi:info:doi/

- Tolin, D. F. (2010). Is cognitive- behavioral therapy more effective than other therapies?. A meta- analytic review. *Clinical Psychology Review*, 30(6), 710-720. doi:10.1016/j.cpr.2010.05.003
- Tyson, P. (2010). Physical activity and mental health in a student population. *Journal of Mental Health*, 19(6), 492-499.
- Uchino, B. (2006). Social support and health: A review of physiological processes potentially underlying links to disease outcomes. *Journal of Behavioral Medicine*, 29(4), 377-387. doi:10.1007/s10865-006-9056-5
- Ulrich, M., Keller, J., & Grön, G. (2016). Neural signatures of experimentally induced flow experiences identified in a typical fMRI block design with BOLD imaging. *Social Cognitive and Affective Neuroscience*, 11(3), 496-507. doi:10.1093/scan/nsv133
- Ulrich, M., Keller, J., Hoenig, K., Waller, C., & Grön, G. (2014). Neural correlates of experimentally induced flow experiences. *NeuroImage*, 86, 194-202. doi:10.1016/j.neuroimage.2013.08.019
- Uttley, L., Stevenson, M., Scope, A., Rawdin, A., & Sutton, A. (2015a). The clinical and cost effectiveness of group art therapy for people with non-psychotic mental health disorders: A systematic review and cost-effectiveness analysis. *BMC Psychiatry*, 15(1). doi:10.1186/s12888-015-0528-4
- Uttley, L., Stevenson, M., Scope, A., Rawdin, A., & Sutton, A. (2015b). Erratum to: The clinical and cost effectiveness of group art therapy for people with non- psychotic mental health disorders: A systematic review and cost-effectiveness analysis [BMC Psychiatry. 15, (2015) 151]. *BMC Psychiatry*, 15(1). doi:10.1186/s12888-015-0599-2

- van Emmerik, A. A. P., Reijntjes, A., & Kamphuis, J. H. (2013). Writing therapy for Posttraumatic Stress: A meta-analysis. *Psychotherapy and Psychosomatics*, 82(2), 82-88. doi:10.1159/000343131
- van Tilburg, T. (1998). Losing and gaining in old age: Changes in personal network size and social support in a four-year longitudinal study. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 53(6), S313-S323.
- van Tilburg, T. (2003). Consequences of men's retirement for the continuation of work-related personal relationships. *Ageing International*, 28(4), 345-358. doi:10.1007/s12126-003-1008-6
- Vasiliadis, H.-M., Chudzinski, V., Gontijo-Guerra, S., & Prévile, M. (2015). Screening instruments for a population of older adults: The 10-item Kessler Psychological Distress Scale (K10) and the 7-item Generalized Anxiety Disorder Scale (GAD-7). *Psychiatry Research*, 228(1), 89. doi:10.1016/j.psychres.2015.04.019
- Velehorsch, C., Bleau, P., Vermani, M., Furtado, M., & Klassen, L. (2014). Understanding the role of adjunctive nonpharmacological therapies in management of the multiple pathways to depression. *Psychiatry Research*, 220(s1), S34-S44. doi:10.1016/S0165-1781(14)70004-6
- Visnola, D., Sprudza, D., Arija, M., & Pike, A. (2010). Effects of art therapy on stress and anxiety of employees. *Proceedings of the Latvian Academy of Sciences*, 64(1-2), 85. doi:10.2478/v10046-010-0020-y
- Walker, M. S., Kaimal, G., Gonzaga, A. M. L., Myers-Coffman, K. A., & Degra, T. J. (2017). Active-duty military service members' visual representations of PTSD and TBI in masks. *International Journal of*

Qualitative Studies on Health and Well-being, 12(1).

doi:10.1080/17482631.2016.1267317

Walker, M. S., Stamper, A. M., Nathan, D. E., & Riedy, G. (2018). Art therapy and underlying fMRI brain patterns in military TBI: A case series.

International Journal of Art Therapy, 23(4), 180-187.

doi:10.1080/17454832.2018.1473453

Walseth, K. (2006). Sport and belonging. *International Review for the Sociology of Sport*, 41(3-4), 447-464. doi:10.1177/1012690207079510

Wampold, B. E. (2015). How important are the common factors in psychotherapy? An update. *World Psychiatry*, 14(3), 270-277.

doi:10.1002/wps.20238

Wampold, B. E., & Bhati, K. S. (2004). Attending to the omissions: A historical examination of evidence-based practice movements. *Professional Psychology: Research and Practice*, 35(6), 563-570. doi:10.1037/0735-7028.35.6.563

Wampold, B. E., Minami, Tierney, Baskin, & Bhati. (2005). The placebo is powerful: Estimating placebo effects in medicine and psychotherapy from randomized clinical trials. *Journal of Clinical Psychology*, 61(7), 835-854. doi:info:doi/

Wanzer, D. L., Finley, K. P., Zarian, S., & Cortez, N. (2020). Experiencing flow while viewing art: Development of the aesthetic experience questionnaire.

Psychology of Aesthetics, Creativity, and the Arts, 14(1), 113-124.

doi:10.1037/aca0000203

- Warren, S. (2006). An exploration of the relevance of the concept of "flow" in art therapy. *International Journal of Art Therapy, 11*(2), 102-110.
doi:10.1080/17454830600980358
- Watt, T. J., & Kehoe, E. J. (2019). *Validation study to measure art therapy mechanisms*. Psychology. UNSW. Unpublished manuscript.
- Watt, T. J., & Kehoe, E. J. (2020). Causes and duration of change resulting from art-based activities for members of the Australian Defence Force. *Journal of Military and Veterans Health, 28*(1), 7-15.
- Watt, T. J., & Kehoe, E. J. (In Press). Longitudinal Change Resulting from the ADF's Arts for Recovery, Resilience, Teamwork and Skills (ARRTS) Program. *Journal of Military and Veterans' Health*.
- Watts, S. E., Turnell, A., Kladnitski, N., Newby, J. M., & Andrews, G. (2015). Treatment-as-usual (TAU) is anything but usual: A meta-analysis of CBT versus TAU for anxiety and depression. *Journal of Affective Disorders, 175*, 152-167. doi:10.1016/j.jad.2014.12.025
- Weiss, T. C., Dickstein, B. D., Hansel, J. E., Schumm, J. A., & Chard, K. M. (2017). Aikido as an augment to residential Posttraumatic Stress Disorder Treatment. *Military Psychology*. doi:10.1037/mil0000194
- Wenzel, A. (2016). *Cognitive behavioral therapy techniques and strategies* (First edition. ed.). Washington, District of Columbia: Washington, District of Columbia : American Psychological Association.
- Wessely, S. (2006). Twentieth-century theories on combat motivation and breakdown. *Journal of Contemporary History, 41*(2), 269-286.
- White, R. L., Babic, M. J., Parker, P. D., Lubans, D. R., Astell-Burt, T., & Lonsdale, C. (2017). Domain-specific physical activity and mental health:

A meta-analysis. *American journal of preventive medicine*, 52(5), 653.

doi:10.1016/j.amepre.2016.12.008

Wiedenhofer, S., Hofinger, S., Wagner, K., & Koch, S. (2017). Active factors in dance/movement therapy: Health effects of non-goal-orientation in movement. *American Journal of Dance Therapy*, 39(1), 113-125.

doi:10.1007/s10465-016-9240-2

Wilkinson, R. A., & Chilton, G. (2013). Positive art therapy: Linking positive psychology to art therapy theory, practice, and research. *Art Therapy: Journal of the American Art Therapy Association*, 30(1), 4-11.

doi:10.1080/07421656.2013.757513

Williams, J., Bullock, O., Drayton, I., & Grey, G. (2019). Creative arts by artist educators: An intensive creative program for injured and ill military personnel in Australia. *Australian and New Zealand Journal of Art Therapy*, 14(1), 110-119.

Williams, R. A., Hagerty, B. M., Yousha, S. M., Hoyle, K. S., & Oe, H. (2002). Factors associated with depression in navy recruits. *Journal of Clinical Psychology*, 58(4), 323-337. doi:10.1002/jclp.1146

Willis, D. A. (1997). Animal therapy. *Rehabilitation Nursing*, 22(2), 78.

Wilson, C., Bungay, H., Munn-Giddings, C., & Boyce, M. (2016). Healthcare professionals' perceptions of the value and impact of the arts in healthcare settings: A critical review of the literature. *International Journal of Nursing Studies*, 56, 90-101. doi:10.1016/j.ijnurstu.2015.11.003

Wilson, P. M., & Bengoechea, E. G. (2010). The relatedness to others in Physical Activity Scale: Evidence for structural and criterion validity. *Journal of*

Applied Biobehavioral Research, 15(2), 61-87. doi:10.1111/j.1751-9861.2010.00052.x

- Winocur, G. (2011). Memory transformation and systems consolidation. *Journal of the International Neuropsychological Society.*, 17(5), 1-15.
- Wolpe, J. (1954). Reciprocal inhibition as the main basis of psychotherapeutic effects. *A.M.A. Archives of Neurology and Psychiatry*, 72(2), 205.
- Wolpe, J. (1964). Behaviour therapy in complex neurotic states. *The British Journal of Psychiatry*, 110(464), 28-34. doi:info:doi/
- Wolpe, J. (1982). *The Practice of Behavior Therapy* (3rd ed.). New York: New York : Pergamon Press.
- Wolpe, J., & Lazarus, A. (1966). *Behavior Therapy Techniques; A Guide to the Treatment of Neuroses* (1st ed.). Oxford, New York: Oxford, New York, Pergamon Press.
- Wrigley, W. J., & Emmerson, S. B. (2013). The experience of the flow state in live music performance. *Psychology of Music*, 41(3), 292-305. doi:10.1177/0305735611425903
- Wyatt, C., Harper, B., & Weatherhead, S. (2014). The experience of group mindfulness-based interventions for individuals with mental health difficulties: A meta-synthesis. *Psychother Res*, 24(2), 214-228. doi:10.1080/10503307.2013.864788
- Yarborough, B. J. H., Stumbo, S. P., Yarborough, M. T., Owen-Smith, A., & Green, C. A. (2018). Benefits and challenges of using service dogs for veterans with Posttraumatic Stress Disorder. *Psychiatric Rehabilitation Journal*, 41(2), 118-124. doi:10.1037/prj0000294

- Yigiter, K. (2014). The effects of participation in regular exercise on self-esteem and hoplessness of female university students. *Social Behavior and Personality*, 42(8), 1233-1244. doi:10.2224/sbp.2014.42.8.1233
- Yorke, J., Nugent, W., Strand, E., Bolen, R., New, J., & Davis, C. (2012). Equine-assisted therapy and its impact on cortisol levels of children and horses: a pilot study and meta- analysis. *Early Child Development and Care*, 1-21. doi:10.1080/03004430.2012.693486
- Youngren, M. A., & Lewinsohn, P. M. (1980). The functional relation between depression and problematic interpersonal behavior. *Journal of Abnormal Psychology*, 89(3), 333-341. doi:10.1037/0021-843X.89.3.333
- Zhang, Y., Fu, R., Sun, L., Gong, Y., & Tang, D. (2019). How Does Exercise Improve Implicit Emotion Regulation Ability: Preliminary Evidence of Mind-Body Exercise Intervention Combined With Aerobic Jogging and Mindfulness-Based Yoga. *Frontiers in Psychology*, 10, 1888. doi:10.3389/fpsyg.2019.01888
- Zhang, Z., & Hayward, M. D. (2006). Gender, the marital life course, and cardiovascular disease in late midlife. *Journal of Marriage and Family*, 68(3), 639-657. doi:10.1111/j.1741-3737.2006.00280.x
- Zinzow, H. M., Britt, T. W., Pury, C. L. S., Jennings, K., Cheung, J. H., & Raymond, M. A. (2015). Barriers and facilitators of mental health treatment-seeking in U.S. active duty soldiers with sexual assault histories. *Journal of Traumatic Stress*, 28(4), 289-297. doi:10.1002/jts.22026
- Zung, W. W. K. (1965). A Self-Rating Depression Scale. *Archives Of General Psychiatry*, 12(1), 63-70. doi:10.1001/archpsyc.1965.01720310065008

Zuroff, D. C., & Blatt, S. J. (2006). The therapeutic relationship in the brief treatment of depression: Contributions to clinical improvement and enhanced adaptive capacities. *Journal of Consulting and Clinical Psychology*, 74(1), 130-140. doi:10.1037/0022-006X.74.1.130