Neuropsychological profiles of people receiving Cognitive Behaviour Therapy for co-occurring depression and alcohol misuse

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B.A.(Psyc)Hons. M.Psych(Clin)

Thesis submitted for the Degree of Doctor of Philosophy
April 2015

School of Medicine and Public Health,
University of Newcastle, Australia
Statement of Originality

The thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to the final version of my thesis being made available worldwide when deposited in the University’s Digital Repository**, subject to the provisions of the Copyright Act 1968.

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I hereby certify that this thesis is in the form of a series of published papers of which I am a joint author. I have included as part of the thesis a written statement from each co-author, endorsed by the Faculty Assistant Dean (Research Training), attesting to my contribution to the joint publications.

30 March 2015

Ms. Sally Hunt

Date
List of publications included as part of the thesis

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Statement of contribution for Paper 1

I attest that Research Higher Degree candidate Sally Hunt contributed to the paper entitled:

**Randomized controlled trial of cognitive-behavioural therapy for coexisting depression and alcohol problems: short-term outcome**

Sally Hunt’s contribution:

- Co-authoring the DAISI treatment manual
- Was the study co-ordinator from 2005 – 2009
- Designing and implementing recruitment strategies
- Conducting baseline symptom assessments on 57 (20.1%) DAISI participants (which was 37.3% of those recruited at the Newcastle site)
- Implementing the DAISI treatment with 54 (19.0%) DAISI participants (which was 35.3% of those recruited at the Newcastle site) as a Clinical Psychologist
- Overseeing the day-to-day running of the randomised controlled trial at Newcastle site
- Providing Clinical Supervision to the other study therapists (Clinical Psychologists, Registered Psychologists and Psychologists-in-training)
- Co-ordinating data across the Newcastle and Brisbane sites and carrying out data cleaning
- Contributing significantly to the data analysis
- Preparing the method section of the manuscript

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Statement of contribution for Paper 2

I attest that Research Higher Degree candidate Sally Hunt contributed to the paper entitled:

Randomized controlled trial of MICBT for co-existing alcohol misuse and depression: outcomes to 36-months

Sally Hunt’s contribution:
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- Designing and implementing recruitment strategies
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Statement of contribution for Paper 3

I attest that Research Higher Degree candidate Sally Hunt contributed to the paper entitled:

Neurocognitive profiles of people with comorbid depression and alcohol use: Implications for psychological interventions

Sally Hunt’s contribution:

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Statement of contribution for Paper 4

I attest that Research Higher Degree candidate Sally Hunt contributed to the paper entitled:

**Systematic Review of Cognitive Functioning in People with Co-occurring Alcohol Misuse and Depression.**

Sally Hunt’s contribution:

- Conceiving the research question, search strategy and methods
- Carrying out the literature search
- Co-rating the study quality
- Carrying out the data synthesis and analyses
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- Designed the neuropsychological assessment battery
- Conducting baseline symptom assessments on 57 (20.1%) DAISI participants (which was 37.3% of those recruited at the Newcastle site)
- Carrying out data cleaning
- Devising the research question
- Carrying out all data analysis
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Statement of contribution for Paper 6

I attest that Research Higher Degree candidate Sally Hunt contributed to the paper entitled:

Change in neurocognition in people with co-occurring alcohol misuse and depression: 12-month follow-up

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- Designing and implementing recruitment strategies
- Designed the neuropsychological assessment battery
- Conducting baseline symptom assessments on 57 (20.1%) DAISI participants (which was 37.3% of those recruited at the Newcastle site)
- Carrying out data cleaning
- Devising the research question
- Obtaining $25,000 in competitive grant funding as chief investigator from the NSW Health Drug & Alcohol Research Grants Program to fund follow-up neuropsychological testing
- Carrying out all data analysis
- Preparing all sections of the manuscript
- Submitting the manuscript

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List of additional grants, publications and conference presentations relevant to this thesis

Research Grants as Chief Investigator

2006 NSW Health Drug & Alcohol Research Grants Program $25,000

Project title “Neurocognitive Profiles of People Receiving Cognitive Behaviour Therapy”

Publications


Published Abstracts


Oral Presentations


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**Poster Presentations**


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Abstract

The co-occurrence of depression and alcohol misuse happens at rates greater than chance and results in a clinical presentation that is more difficult, time consuming, and costly to treat than when either condition occurs in isolation. Traditionally, depression and alcohol use disorders have been treated separately by specialist services which focus on mental health or substance abuse problems. It is increasingly clear however, that the co-occurrence of depression and alcohol misuse requires specific treatment strategies designed to address both problem areas. The broad aim of this thesis was to investigate psychological treatment options for people with co-occurring alcohol misuse and depression. Specifically an integrated approach which assists the client to draw connections between their two problem areas was compared to single-focused interventions in the short- and long-term in Paper 1 and Paper 2 respectively.

The relevance of individual factors, such as cognitive functioning, to treatment response in people with co-occurring alcohol misuse and depression was also explored. People with either one of these conditions have been shown to experience cognitive impairments, particularly in the domains of memory and executive functioning, yet little is known about the cognitive impact of their co-occurrence. Paper 4 presents a systematic review of the published cross-sectional descriptions of neuropsychological test performance of this group. The review aimed to describe the cognitive profile of people with this comorbidity and identify any gaps in the literature. Paper 3 and Paper 5 describe the neuropsychological test performance of people with co-occurring alcohol misuse and depression, and identified the cognitive functions which might predict early and post-treatment change in depressive symptoms and alcohol misuse. Paper 6 describes the long-term neuropsychological follow-up of the sample described in Paper 3 and Paper 5. The study aimed to describe the pattern of cognitive recovery in the context of reduction in depressive symptoms and alcohol use, and also to identify any predictors of cognitive improvement.

The final chapter of this thesis synthesises the main findings of the preceding six chapters and draws together the clinical implications to formulate psychological assessment and treatment recommendations for people with co-occurring alcohol misuse and depression. The findings of this thesis suggest that people with these co-occurring conditions can and do benefit
from evidence based psychological interventions such as motivational interviewing and cognitive behaviour therapy. Furthermore, despite their hazardous use of alcohol and depressive symptoms, they appeared to be functioning in the average range cognitively. Indeed any impairment was not sufficient to preclude use of psychological treatment strategies. Taken together, the results of this research add to the accumulated body of knowledge in this area and support the use of psychological interventions to address both depression and alcohol misuse in people with these highly prevalent and damaging problems.
Synopsis

This ‘thesis by publication’ is composed of an introduction, six papers presented as stand-alone manuscripts, and a final concluding chapter discussing the contribution and implications of this research. All of the papers in this thesis describe facets of co-occurring alcohol misuse and depression, including one systematic review of the literature and five papers from the DAISI (Depression and Alcohol Integrated and Single-focused Interventions) study, a randomised controlled trial (RCT) of psychological interventions for co-occurring depression and alcohol misuse. At the time of submission, five papers have been published or accepted for publication in peer-reviewed journals and the remaining paper is under review. A synopsis of the thesis follows.

The Introduction (Chapter 1) describes the presentation and prevalence of depression and alcohol use disorders, as well as the nature of their co-occurrence. It summarises the history of treating these conditions independently in a siloed treatment model and evidence for the need for interventions that address both depressive and alcohol use problems. The introduction also highlights the role of individual characteristics, notably cognitive functioning, which may be implicated in response to psychological interventions.

Paper one (Chapter 2), “Randomized controlled trial of cognitive-behavioural therapy for coexisting depression and alcohol problems: Short-term outcome” (Baker, Kavanagh, et al., 2009), presents the protocol and post-treatment outcomes from the DAISI RCT of motivational interviewing and cognitive behaviour therapy (MICBT) interventions for people with co-occurring alcohol misuse and depression. The recruitment, inclusion and exclusion criteria, outcome measures and the four treatment arms of the study are described. Results are discussed in the context of three orthogonal contrasts comparing treatment duration (one session vs. ten sessions), treatment integration (integrated vs. single-focused), and clinical focus (depression-focused vs. alcohol-focused). Participants reported significant reductions in depressive symptoms and alcohol use after randomisation to one of the ten-session treatments, with an additional benefit for reduction in drinking in the integrated intervention. This paper has been published in Addiction.
Paper two (Chapter 2), “Randomized controlled trial of MICBT for co-existing alcohol misuse and depression: Outcomes to 36-months” (Baker et al., 2014), describes the extended follow-up of the DAISI sample at 18-weeks, 6-, 12-, 24-, and 36-months post-baseline. Comparison of treatment duration suggested that ten-session interventions were more effective than the brief (one-session) intervention at reducing depression and improving general functioning in the long-term and at reducing alcohol intake in the short-term. The comparison of treatment integration showed that the integrated intervention was as effective as the single-focused. Finally the alcohol-focused intervention was as effective as the depression-focused intervention at reducing depressive symptoms and more effective at reducing alcohol consumption. The implications of these findings for treatments selection are discussed. This paper has been published in the Journal of Substance Abuse Treatment.

Paper three (Chapter 3), “Neurocognitive profiles of people with comorbid depression and alcohol use: Implications for psychological interventions” (Hunt, Baker, Michie, & Kavanagh, 2009), introduces the dimension of cognitive functioning as a potential predictor of depression and alcohol symptom reduction in the DAISI RCT. In the context of well-established cognitive impairments arising from singly-occurring depression and alcohol use disorders, a need was identified to clarify the cognitive corollaries of the co-occurring presentation of these two problems. This paper describes the baseline neuropsychological assessment battery and protocols in detail. The baseline cognitive functioning of the sample was found to be in the normal range. Other outcomes presented are the relationship between symptom severity and cognitive impairment, and the role of neuropsychological test performance as a predictor of change in depression and alcohol misuse. This paper has been published in Addictive Behaviors.

Paper four (Chapter 4), “Systematic review of neurocognition in people with co-occurring alcohol misuse and depression” (Hunt, Kay-Lambkin, Baker, & Michie, 2015), presents the results of a systematic review of cross-sectional descriptions of the relationship between cognitive functioning and co-occurring alcohol misuse and depression. The review highlights how few studies have examined the cognitive functioning of people with this comorbidity (other psychiatric illnesses and substance abuse disorders were exclusionary criteria), with only six studies identified. Results suggested that, consistent with the results of Chapter 3, the co-occurrence of alcohol misuse and depression does not amplify the cognitive impairments that
could be expected as a result of depression or alcohol misuse alone. Identified avenues for future research include a) longitudinal follow-up of cognitive functioning in this group as no such studies were identified; and b) a need for more studies with direct comparison between the cognitive functioning of comorbid and singly-occurring depression and alcohol misuse. This paper has been accepted for publication in the Journal of Affective Disorders.

**Paper five** (Chapter 5), “Cognitive function and stage of change in early symptom change among people with co-occurring depression and alcohol misuse” (submitted), examines the factors which predict change in depressive symptoms and alcohol use in the period between baseline assessment and the first treatment session. Results suggested that both cognitive functioning and motivation to change were implicated in early reduction in alcohol consumption but not reduction in depression. The way in which an assessment of alcohol use can stimulate behaviour change and the importance of considering cognitive functioning and motivation to change are discussed. This paper has been submitted to the Journal of Affective Disorders.

**Paper six** (Chapter 6), “Change in neurocognition in people with co-occurring alcohol misuse and depression:12-month follow-up” (Hunt, Baker, Michie, & Kay-Lambkin, 2014), provides the first published description of long-term follow-up of cognitive functioning in a sample with co-occurring alcohol misuse and depression. The focus of this paper is on cognitive recovery in the context of change in depression and alcohol use. Results suggest that alleviation of depressive symptoms results in improved memory and executive functioning, while change in alcohol use quantity and frequency did not predict cognitive improvement. This paper has been published in the Journal of Addiction Research and Therapy.

The **Discussion** chapter (Chapter 7) synthesises the thesis findings and acknowledges strengths and weaknesses of the included papers. Suggested assessment and intervention pathways for people with co-occurring alcohol misuse and depression presenting to traditional mental health or alcohol and other drug treatment services are also outlined.