UNIVERSITI PUTRA MALAYSIA

EFFECTIVENESS OF GROUP COGNITIVE BEHAVIOUR THERAPY AND CONTRIBUTION OF POSITIVE AUTOMATIC THOUGHTS IN TREATING DEPRESSION

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FPSK(p) 2016 30

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By

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Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

May 2016

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

EFFECTIVENESS OF GROUP COGNITIVE BEHAVIOUR THERAPY AND CONTRIBUTION OF POSITIVE AUTOMATIC THOUGHTS IN TREATING DEPRESSION

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May 2016

Chairman : Hjh. Firdaus Mukhtar, PhD
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Depression represents a mental health disorder that has significant repercussions into the lives of its sufferers. The disorder has been the subject of intense scrutiny both worldwide as well as in Malaysia. Efforts are constantly being made to better understand the underlying mechanisms of depression, as well as determining the effectiveness of treatment methods available.

Thus the major aims of this thesis are: a) To examine the psychometric properties and factor structure of the Bahasa Malaysia version of the Positive Automatic Thought Questionnaire (ATQ-P-BM), b) To determine the effectiveness of Group Cognitive Behaviour Therapy (GCBT) in the treatment of depression and finally, c) To examine the cognitive mechanism of change in GCBT for depression as well as the contributions of positive automatic thoughts (PAT).

In Study 1, a cross-sectional study was used to examine the psychometric properties and factor structures of the ATQ-P-BM. For Study 2 and 3, a randomized, double blind placebo controlled study design was used.

Study 1 incorporated both a general population (N=343) and clinical population, whilst Study 2 and 3 only examined the clinical population (N=171). For Study 2 and 3, participants were randomly allocated to the GCBT+TAU, Relaxation+TAU and TAU only group using a random number generator. Participants and clinical psychologists were blinded to the nature of the study. The GCBT+TAU and Relaxation+TAU received eight sessions of GCBT and relaxation training respectively, whilst the TAU only group received treatment as usual (i.e. pharmacotherapy). Trained clinical psychologists administered interventions (GCBT and Relaxation training).

For this study, negative life events, positive as well as negative automatic thoughts, depressive symptoms, dysfunctional attitudes and cohesion was measured. Further to that, effect sizes as well as reliably and clinically significant change was determined.

Results from Study 1 shows that the ATQ-P-BM endorsed a 5-factor structure model (*CMIN/df* = 3.58, *GFI*=0.88, *NFI*=0.92, *CFI* = 0.94, *RMSEA* = 0.07), as well as good psychometric properties (Study 1). In Study 2, results show that GCBT+TAU was able to elicit statistically as well as reliable and clinically significant reductions to depression symptoms. The study also showed that the GCBT+TAU obtained good effect sizes ($\eta_{partial}^2$=.58) for treatment, greater than that observed in Relaxation+TAU ($\eta_{partial}^2$=.23) and TAU only treatment group ($\eta_{partial}^2$=.006). In Study 3, data from a Malaysian populace showed support for a causal mediation model for depression. PAT were found to act as both a mediator and moderator in cognitive models for depression, thus acting as a buffer for the onset of depression.

This thesis provided evidence for the application of ATQ-P-BM as a measure of PAT in Malaysia. Results also show that the application of GCBT+TAU is an effective treatment for depression. Analysis of the mechanism of change provided insights into the cognitive changes that occur. Further to that, analysis also provided new insights into PAT regarding its contribution towards treatment and cognitive mechanism of change in GCBT for depression.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Doktor Falsafah

KEBERKESANAAN MENGGUNAKAN KOGNITIF TINGKAHLAKU BERKUMPULAN DAN SUMBANGAN FIKIRAN AUTOMATIK POSITIF DALAM RAWATAN KEMURUNGAN

Oleh

LOW JIA LIANG

Mei 2016

Pengerusi : **Hjh. Firdaus Mukhtar, PhD**
Fakulti   : **Perubatan dan Sains Kesihatan**

Kemurungan merupakan gangguan kesihatan mental yang mempunyai kesan yang besar ke dalam kehidupan pesakit itu. Gangguan yang telah menjadi subjek penelitian sengit kedua-dua di seluruh dunia dan juga di Malaysia. Usaha-usaha sentiasa dibuat untuk lebih memahami mekanisme asas kemurungan, serta menentukan keberkesanan kaedah rawatan yang sedia.

Oleh itu, matlamat utama tesis ini ialah: a) Untuk mengkaji sifat-sifat psikometrik dan struktur faktor versi Bahasa Malaysia Pemikiran Positif Selidik Automatik (ATQ-P-BM), b) Untuk menentukan keberkesanan Kumpulan Kognitif Tingkah Laku Terapi (GCBT) dalam rawatan kemurungan dan akhirnya, c) Untuk mengkaji mekanisme kognitif perubahan GCBT untuk kemurungan serta sumbangan fikiran positif automatik (PAT).

Dalam Kajian 1, kajian keratan rentas telah digunakan untuk mengkaji sifat-sifat psikometrik dan struktur faktor yang ATQ-P-BM. Untuk Kajian 2 dan 3, rawak, *double blinded,* plasebo terkawal reka bentuk kajian telah digunakan.

Kaji 1 diperbadankan kedua-dua populasi umum (N = 343) dan penduduk klinikal, manakala Kajian 2 dan 3 sahaja diperiksa penduduk klinikal (N = 171). Untuk Kajian 2 dan 3, peserta secara rawak diperuntukkan kepada GCBT + TAU, Relaksasi + TAU TAU dan hanya kumpulan melalui penjana nombor rawak. Para peserta dan pakar psikologist telah dijadikan *blinded* kepada sifat kajian. The GCBT + TAU dan Relaksasi + TAU menerima lapan sesi GCBT dan latihan relaksasi masing-masing, manakala TAU satu-satunya kumpulan menerima rawatan seperti biasa (iaitu farmakoterapi). Ahli psikologi klinikal terlatih campur tangan ditadbir (GCBT dan latihan Relaksasi).

Untuk kajian ini, peristiwa hidup negatif, fikiran automatik positif serta negatif, kepercayaan yang tidak berfungsi serta kespeaduan diuji. Selain daripada itu, *effect size* dan perubahan ketara dan *reliable* juga ditentukan.

Keputusan daripada Kajian 1 menunjukkan bahawa ATQ-P-BM meluluskan model struktur 5-faktor (CMIN / df = 3.58, GFI = 0.88, NFI = 0.92, CFI = 0.94, RMSEA = 0.07), serta ciri-ciri psikometrik yang baik (Kajian 1). Dalam Kajian 2, keputusan menunjukkan bahawa GCBT + TAU mampu untuk mendapatkan statistik serta pengurangan dipercayai dan klinikal yang ketara kepada gejala kemurungan. Kajian ini juga menunjukkan bahawa GCBT + TAU mempunyai efek saiz kesan yang baik ($\eta_{partial}^2 = 0,58$), lebih besar daripada apa yang diperhatikan dalam Relaksasi + TAU ($\eta_{partial}^2 = 0,23$) dan TAU hanya kumpulan rawatan ($\eta_{partial}^2 = 0,006$). Dalam Kajian 3, data daripada penduduk Malaysia memberikan sokongan untuk *causal mediation model* untuk kemurungan. PAT didapati bertindak sebagai *mediator* dan *moderator* untuk model kognitif kemurungan, sekali gus bertindak sebagai *buffer* untuk tercetusnya kemurungan.

Tesis ini mengemukakan bukti bagi permohonan ATQ-P-BM sebagai ukuran Pats di Malaysia. Keputusan juga menunjukkan bahawa penggunaan GCBT + TAU adalah satu rawatan berkesan untuk kemurungan. Analisis mekanisme perubahan yang diberikan maklumat mengenai perubahan kognitif yang berlaku. Lanjutan dari itu, analisis juga menyediakan pandangan baru ke Pats mengenai sumbangannya terhadap rawatan dan mekanisme kognitif perubahan GCBT untuk kemurungan.

ACKNOWLEDGEMENTS

It's been a long journey. Through many ups and downs, I've finally managed to reach this point of my studies. After 23 years of formal education and study, I now have the privilege of offering my thesis for assessment to determine if I am able to finalize my Doctoral studies.

All of this would have not been possible if not for two of the greatest teachers that I've ever had. Dr. Hjh Firdaus Mukhtar has been a great teacher, mentor and supervisor in my journey to becoming a Clinical Psychologist and now, a candidate for my PhD. She showed me the meaning of resilience and to strive to achieve the goals that I have set for myself. The second person I would like to thank is Professor Tian Oei. In the short time that I was privileged to have learned under him, my skills as a both a practitioner and researcher has improved by leaps and bounds.

Special mention also goes to all the members in my supervisory committee as well as the fantastic staff and nurses as UPM FPSK and Hospital Kajang. I would also like to give thanks to my friends, in particular my fellow PhD fellow Jamilah Hanum for being, a colleague, a sounding board and most importantly a friend on this journey to obtaining our PhD.

Finally, I would like to give thanks to my family, for their support and understanding throughout the many years. My parents for their support and encouragement over these many years. And finally to my wife, whom without her I would have given my journey up a long time ago. She's been my most consistent cheerleader, and her love and strength has helped me get to where I am right now. Also, to our most recent addition, our little Jody, who joined our little brood at the tail end of my journey. I hope I can do you proud!

I certify that a Thesis Examination Committee has met on 05 May 2016 to conduct the final examination of Low Jia Liang on his thesis entitled "Effectiveness of Group Cognitive Behaviour Therapy and Contribution of Positive Automatic Thoughts in Treating Depression" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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Declaration by graduate student

I hereby confirm that:
- this thesis is my original work;
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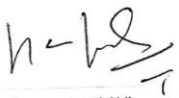
This is to confirm that:
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LIST OF ABBREVIATIONS

ACER	Addenbrooke Cognitive Examination-Revised
AIC	Akaike's Information Criterion
APA	American Psychological Association
ATQ-Malay	Automatic Thought Questionnaire-Malay
ATQ-P	Positive Automatic Thought Questionnaire
ATQ-P-BM	Bahasa Malaysia version of the Positive Automatic Thoughts Questionnaire
ATQ-R	Automatic Thought Questionnaire-Revised
BDI-Malay	Beck Depression Inventory-Malay
BSI	Brief Symptom Inventory
CBT	Cognitive Behaviour Therapy
CDRS-R	Children's Depression Rating Scale-Revised
CES-D	Centre for Epidemiological Studies-Depression
CFA	Confirmatory factor analysis
CFI	Comparative Fit Index
DAS-Malay	Dysfunctional Attitudes Scale-Malay
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text-Revised
DSQ	Defence Style Questionnaire
EPDS	Edinburgh Postnatal Depression Scale
FACT-B	Functional Assessment of Cancer Therapy-Breast
GCBT	Group Cognitive Behaviour Therapy
GDS	Geriatric Depression Scale
GFI	Goodness-of-fit Index
HADS	Hospital Anxiety and Depression Scale
HDRS	Hamilton Depression Rating Scales
IPH	Institute of Public Health
LEI	Life Event Inventory
MADRS	Montgomery Ausberg Rating Scale for Depression
MINI	Mini International Neuropsychiatric Interview
NAT	Negative Automatic Thoughts
NFI	Normed Fit Indices

NMRR	National Medical Research Registry
PAT	Positive Automatic Thoughts
PHQ-9	Patient Health Questionnaire
PSS	Perceived Stress Scale
RMSEA	Root Mean Square Error Approximation Index
RSE	Rosenberg Self-Esteem Scale
SES	Self-Esteem Scale
SF12	Short Form-12
SRAS	Self-Rating Anxiety Scale
SWB	Subjective Well-Being
TAU	Treatment as Usual
UPM	Universiti Putra Malaysia
VAS	Visual Analogue Scale
WHO	World Health Organization
WHOQOL-BREF	World Health Organization Quality of Life-Brief Version

CHAPTER 1

INTRODUCTION

1.1   Background

The theory and treatment of depression have experienced major changes in the past 40 years (Oei, Bullbeck & Campbell (2006). Two major developments that have emerged include the treatment of depression via medication as well as Cognitive Behaviour Therapy or CBT. Baased on Beck's cognitive thesory of depression, depression is the result of an interaction between an individual's cognitive vulnerability and an experienced stressor (Beck, Rush, Shaw & Emery, 1979). Regardless of treatment modality, depression remains one of the most debilitating mental health disorders in the world today which can result in many significant and negative side effects.

1.1.1   Prevalence of Depression

Major Depressive Disorder or depression, represents one of the most commonly diagnosed mood disorders in the world today, with up to 350 million individuals suffering from it (World Health Organization, 2013). Depression has been the subject of intense scrutiny in the West (e.g. Westen & Morrison, 2001), as well as in Non-Western cultures (e.g. Sangalang & Gee, 2012).

Studies suggest that the lifetime prevalence rates for depression worldwide are between 10% to 15% (Lepine & Briley, 2011). Their results also show that up to 85.4% of depressed patients in non-developed countries (e.g. Colombia & Ukraine) do not receive any treatment (Lepine & Briley, 2011). This statistic is only slightly improved in developed countries (e.g. France & Germany), where up to 50.3% do not receive sufficient treatment for depression to adequately reduce their symptoms to a non-clinical level (Lepine & Briley, 2011).

Further to that, depression brings with it substantial risk for relapse (WHO, 2013). Individuals who have experienced an episode of depression are 35% more likely to suffer from a relapse in the next 15 years of their lives (WHO, 2013). This suggests that the biggest predictor of relapse is a prior diagnosis of major depression (Hardeveld, Spijker, De Graaf, Nolen, & Beekman, 2009).

There also appears to be gender differences, where females are twice as likely to suffer from it (Grigoriadis & Robinson, 2007). This gender ratio is replicated across both developed and non-developed countries (WHO, 2013). However, this gender difference appears to be reducing as a result of the overall development worldwide in terms of education and finance (Seedat et al., 2009).

One of the most severe consequences of depression is suicide, where up to 1 million depressed individuals commit suicide annually as a result of depression (WHO, 2013). A meta-analysis conducted showed that individuals suffering from mood disorders such as depression had 8.6% higher chance of committing suicide compared to non-depressed populations (Bostwick & Pankratz, 2000). Mirroring aforementioned gender ratios, twice as many females attempted suicide as a result of depression (Bostwick & Pankratz, 2000). A review by Osby and colleagues (2001) showed that males were 20.9 times more likely, and females 27 times more likely to attempt suicide.

1.1.2   Prevalence of Depression in Malaysia

Malaysia as well is not exempt from the effects of depression. Lifetime prevalence rates suggests that between 4.9% and 17.1% of the population are at risk of suffering from depression (Institute of Public Health, 2011). Recent numbers lend support to these figures, where up to 10.3% of the population are at risk of suffering from depression in their lifetimes (Kader Maideen, Mohd Sidik, Rampal, & Mukhtar, 2014). The World Health Organization (2013) also predicts that the current rates of depression in developing countries stand to rise up to 20% of the population by the year 2020.

Making matters worse, Malaysians who have suffered from depression are up to 80% more likely to suffer from a relapse in their lifetime (IPH, 2011). Similar to statistics worldwide (WHO, 2013), depression is twice as likely to afflict Malaysian females compared to males (Kader Maideen et al., 2014). Studies also suggest that individuals in the 16-24 years of age bracket are more likely to suffer from depression (Kader Maideen et al., 2014).

Taken together, depression represents a real and significant problem which plagues the worlds' population. Given that the prevalence rates of depression appear to be escalating in the last decade, it is important for a thorough investigation of depression be had in a Malaysian context in terms of its aetiology and its prognosis, be conducted. Subsequently, these studies would then contribute towards the development and validation of effective treatment methods so that patients suffering from depression would be able to obtain effective treatment.

1.2   Symptoms of Depression

Depression is classified by the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000) as a mood disorder where one experiences periods of excessive sadness or significant loss in pleasure that lasts for two weeks or more (See Table 1.1 for detailed symptoms). Depression is diagnosed with the presence of the aforementioned symptoms, with a combination of five or more of the following symptoms; significant weight loss or gain, disturbances in sleep (i.e. insomnia or hypersomnia), psychomotor agitation or retardation, fatigue, feeling of worthlessness or excessive guilt nearly every day, diminished ability to think of focus, and finally, recurrent suicidal ideations, (DSM-IV-TR, 2000). Along with these symptoms, it is also important to note that a diagnosis of

depression is given when it causes substantial social and occupational disruption to the individual (DSM-IV-TR, 2000), thereby eliciting significant disruptions into one's quality of life.

1.3 Treatment of Depression

1.3.1 General Trends for Treatment

1.3.1.1 Treatment of Depression

Pharmacotherapy and psychotherapy (Sadock, Sadock, & Ruiz, 2009; Warman, Grant, Sullivan, Caroff, & Beck, 2005) remain at the forefront of depression treatment due to its proven treatment efficacy (WHO, 2013). This is supported by the American Psychological Association (APA) (2013), who's guidelines suggest the use of both pharmacotherapy and psychotherapy as primary treatments for depression.

or religious treatments are widespread (Chee & Taha, 2004). For example, it is common for patients suffering from depression to seek the teachings of religious leaders or obtain traditional cures from 'bomohs or sinsehs' (i.e. indigenous cultural leaders) when the symptoms of depression first manifests itself (Haque, 2008). Oftentimes, these symptoms of depression are interpreted as 'gangguan' (i.e. Spiritual disturbances) or the result of supernatural influences (Razali, Khan & Hasanah, 1996). Traditional treatment methods would focus on engaging in traditional healers to seek treatment to perceived supernatural influences (Razali, Khan & Hasanah, 1996). Furthermore, seeking help from mental health professionals have been commonly stigmatized by society (Chee & Taha, 2014). This in itself serves as a deterrent for many to seek for help in times of personal crises. However, this mind set appears to be slowly changing and becoming more easily accepted (Azizan, Razali, & Pillai, 2013).

1.3.2.2 Pharmacotherapy in Malaysia

In Malaysia, similar practices are observed with regards to depression treatment. The Malaysian Ministry of Health recommends the use of pharmacotherapy as a frontline treatment for depression (Malaysia Ministry of Health, 2007). In practice, pharmacotherapy remains one of the most widely used treatment methods amongst mental health professionals (Deva, 2004). Studies have been done to examine the effects of medication on the treatment of depression, using medication such as Escitalopram, Sertraline, Fluoxetine, and Mirtzapine (e.g. Azhar, Norjan, & Zubaidah, 2007).

Table 1.1 : Diagnostic criteria in the DSM-IV-TR for Major Depressive Disorder

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.
  1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g. feels sad, empty, hopeless) or observation made by others (e.g., appears tearful).
  2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation).
  3. Significant weight loss when not dieting or weight gain (e.g. a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day.
  4. Insomnia or hypersomnia nearly every day
  5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).
  6. Fatigue or loss of energy nearly every day.
  7. Feelings of worthlessness or excessive or inappropriate guilt (Which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).
  8. Diminished ability to think or concentrate, or indecisiveness nearly every day (either by subjective account or as observed by others).
  9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.
B. The symptoms cause clinically significant distress or impairment in social, occupation or other important areas of functioning
C. The episode is not attributable to the physiological effects of a substance or to another medical condition.
D. The occurrence of the major depressive episode is not better explained by schizoaffective disorder, schizophrenia, schizophreniform disorder, delusional disorder or other specified and unspecified schizophrenia spectrum and other psychotic disorders.
E. There has never been a manic episode or a hypomanic episode.

Studies have shown that a combination of both pharmacotherapy and psychotherapy (e.g. Cognitive Behaviour Therapy) often gives the best results in the treatment of depression (e.g. Hofmann et al., 2012; Shelton, Osuntokun, Heinloth, & Corya, 2010). In the past, these combination treatments have also shown better long-term maintenance of treatment gains and relapse prevention (Mukhtar, 2007).

It is interesting to note however, that few experimental studies pertaining to the effectiveness of pharmacotherapy in Malaysia have been conducted in a review conducted by Mukhtar and Oei (2011b). A large proportion of studies conducted thus far typically utilize single case study designs or other designs that reduces the significance of results obtained (e.g. Ng et al., 2006).

1.3.3   Psychotherapy

1.3.3.1   Psychotherapy for Depression

There exist many different psychotherapeutic treatment methods available such as psychodynamic psychotherapy and interpersonal therapy. Cognitive Behaviour Therapy or CBT represents one of the most widely researched treatments for depression (e.g. Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012).

1.3.3.1.1 Cognitive Behaviour Therapy

Cognitive Behaviour Therapy (CBT) was developed from the cognitive theory developed by Beck and colleagues (1979), which focuses on the role that negative automatic thoughts play. It is suggested that negative automatic thoughts that occur as a result of one's dysfunctional core beliefs would result in depressive symptoms (Beck et al., 1979). CBT thus focuses on identifying and modifying these negative automatic thoughts to reduce symptoms of depression as well as its associated behaviours (Beck, 1995) (See Figure 1.1)

CBT has been adapted for use amongst a host of different cultures as well, recording success in the treatment of depression (e.g. Iwamasa, Hsia, & Hinton, 2006; Jiménez Chafey, Bernal, & Rosselló, 2009). For example, CBT techniques have not only effectively used in Western cultures (Iddon & Grant, 2013), but also amongst Asian cultures such as China (Qiu et al., 2013) and Indonesia (Lubis et al., 2013).
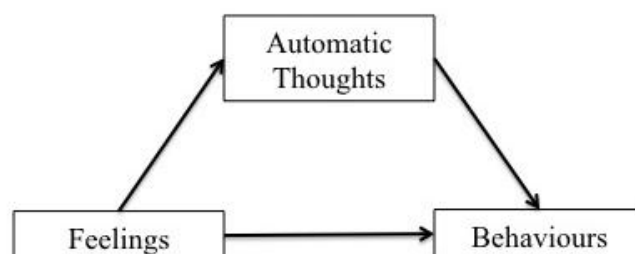
Figure 1.1 : Beck's Cognitive Theory of Depression

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1.3.3.2   Psychotherapy in Malaysia

Similar to worldwide trends, there exists many different psychotherapy treatments for depression. For example, religious psychotherapy (e.g. Ting and Ng, 2012) as well as psychodynamic therapy (e.g. Haque, 2005) are some examples of the different psychotherapy methods utilized. However, similar to World Health Organization (2013) recommendations, CBT is fast becoming a recognized treatment method for depression (e.g. Deva, 2004). This is recognized in the Clinical Practice Guidelines in Malaysia (Malaysian Ministry of Health, 2007), who proposes the use of CBT alongside pharmacotherapy in the treatment of depression.

At present, there is clearly a substantial paucity of research pertaining to the effectiveness of CBT in the treatment of depression locally (Mukhtar, Oei, & Mohd Yaacob, 2011). However, the studies that have been done thus far show that CBT can be an effective treatment method for depression (e.g. Mukhtar and Oei, 2011). CBT has also been found to be successful when adapted to better fit local socio-cultural needs. For example, the study done by Razali and colleagues (1998) as well as by Ting and Ng (2012) incorporated religious practices into CBT treatment, and positive treatment gains were found in the treatment for depression. This is because Malaysia is considered as a multiracial and multi-religious culture.

Alongside the scarcity of research, Malaysia also suffers from a substantial dearth in mental health resources, in particular, a lack of competently trained mental health professionals. Unfortunately, this acts as effective natural barrier to effective treatment for depression (Deva, 2004). One way to overcome this limitation would be to utilize a group based approach to CBT.

1.3.4   Group Cognitive Behaviour Therapy (GCBT)

1.3.4.1   GCBT for Depression

Whilst CBT has found significant success in the treatment of depression on an individual setting (e.g. Jiménez Chafey, Bernal, & Rosselló, 2009), CBT has also been successfully applied in group settings as well (Oei & Dingle, 2008). Group CBT or GCBT represents the administration of CBT techniques within a group setting. GCBT has been found to be as effective as individual CBT in the treatment of depression (Oei & Dingle, 2008). Further to that, GCBT has also been successfully been adapted for use amongst a diverse range of cultures and populations such as Sweden (e.g. Hedman et al., 2010), Australia (e.g. Kwon et al., 2003) as well as in Indonesia (e.g. Lubis et al., 2013).

One important aspect that is unique to group based interventions is the concept of cohesion, or the interaction between group members (Furlong & Oei, 2002). Cohesion has been described as an integral aspect of group settings (Burlingame, Fuhriman, & Johnson, 2001), where the interaction between group members aids the healing process

(Yalom, 1995). This unique interaction allows participants in a group the opportunity to better explore their dysfunctional thoughts and behaviours amongst themselves, and subsequently modify them (Furlong & Oei, 2002). Moreover, it is also possible that higher functioning members could act as mentors to other members, further facilitating the healing process (Oei & Dingle, 2008). This means that benefits are garnered from the presence and contribution of other members of the group than merely relying on the CBT therapist's expertise alone. Thus it is possible that GCBT would benefit from both CBT as well as cohesion to elicit positive treatment gains for patients with depression.

Thus, it would appear that GCBT can be considered as a viable treatment modality for depression (Oei & Dingle, 2008). It is also possible that GCBT can offer a more efficient use of resources, where up to 10 patients suffering from depression can receive care simultaneously (e.g. Oei & Dingle, 2008). This would be ideal for cultures with limited access to mental health professionals. However, in a meta-analysis done by Tucker and Oei (2007) would suggest that the benefits of GCBT may not be as clear cut as intuitively thought. Therefore, analysis within unique cultures would need to be done to ensure the benefits of GCBT in maximizing local resources.

1.3.4.2 GCBT in Malaysia

Thus far, GCBT has not been widely used in Malaysia. Only one study has been conducted in the last decade on the effectiveness of GCBT in the treatment of depression in Malaysia, showing favourable results (Mukhtar, Oei, & Mohd Yaacob, 2006). However, the study only examined patients from the Malay ethnicity (Mukhtar et al., 2006). Their exclusion criteria exempted patients from the other major ethnicities in Malaysia, thus limiting the generalizability of the results obtained. However, this local study does provide significant preliminary support for the use of GCBT to maximize the mental health services available in Malaysia. Further study would need to be done to examine if GCBT can be effective when applied to the Malaysian populace as a whole.

However, before GCBT can be applied at large, it is vital to examine the underlying mechanisms of change that occur during the onset and treatment of depression because prior to this, no other study has attempted to do so. Scrutiny into this would allow us to determine if GCBT is indeed able to elicit changes to the mechanisms that would contribute to positive treatment outcomes.

1.4 Mechanism of Change for Depression

Although the effectiveness of CBT has already long been established worldwide as aforementioned, it is interesting that no consensus has been reached regarding what exactly makes it work. In an earlier review of literature examining mechanisms of change, Whisman (1993) suggested that cognitive changes are negatively correlated with depression symptoms. Simply put, this suggests that reductions in negative cognitions would result in lower depressive symptoms.

More recent reviews would suggest that cognitions act as a mediator between CBT treatment and depression treatment (Garratt, Ingram, Rand, & Sawalani, 2007). Thus, the treatment effect of CBT would be explained by the changes in negative cognitions that occur. Specifically, CBT would reduce the frequency of negative cognitions, thereby reducing depressive symptoms (Oei et al., 2014).

1.4.1   Negative Automatic Thoughts and Depression

Cognitive theories of depression have largely focussed on the contributions of negative automatic thoughts (NAT) and dysfunctional beliefs towards the development of depression (Hope, Burns, Hayes, Herbert, & Warner, 2007). When faced with a negative life event, an individual's dysfunctional beliefs would act as a filter from which an individual views an event. Because of this negative filter, NAT are generated which would in turn elicit depressive symptoms (Beck, 1995). Research on NAT and dysfunctional beliefs remain a focus till today (e.g. Oei, McAlinden, & Crwuys, 2014) and still contribute significantly towards the understanding of depression.

1.4.2   Positive Automatic Thoughts and Depression

It is interesting to note however, that positive automatic thoughts (PAT) have not garnered the same amount of exposure as NAT (Calvete & Connor-Smith, 2005). Given the significant impact of NAT, it is possible that PAT could also play an important role.

The examination of PAT is in line with the movements in modern psychology trends towards positive psychology (e.g. Joseph, 2006; Karwoski, Garratt, & Ilardi, 2006). Positive psychology focuses on encouraging positive cognitions and emotions to aid in the treatment of mental health disorders such as depression (Seligman & Csikszentmihalyi, 2006). CBT on the other hand, focuses on the identification and modification of NAT (Beck, 1995). Whilst the focus of the two ideologies are opposing, it has been suggested however, that elements of positive psychology, can be used to supplement CBT techniques. In particular, Seligman and Csikszentmihalyi (2006) suggests positive psychology can be use to aid in preventing relapse of depression.

Given the possible beneficial contributions of PAT, it is an aspect worth exploring further. Suggestions from previous studies postulate that PAT can play a significant and direct role in both the development (i.e. acting as a buffer against depression) (Ingram, Atkinson, Slater, Saccuzzo, & Garfin, 1990a) and treatment (i.e. encouraging relapse prevention) (e.g. Forsyth, Poppe, Nash, Alarcon, & Kung, 2010) of depression. Thus far, the application of PAT amongst a clinical population has been done once before with patients suffering from panic disorder (Casey, Oei & Newcombe 2004).

However, there is evidence to suggest that PAT have the potential to contribute significantly to the onset and treatment of depression (e.g Burgess & Haaga, 1994). For

example, it was suggested that PAT are inversely correlated to depressive symptoms (Ingram & Wisnicki, 1988). Thus, it would be possible that a decrease in PAT could be indicative of emotional distress (Ingram et al., 1990d).It was suggested that an increase in PAT would weaken the relationship between negative life events and depression (Lightsey, 1994b). PAT were also postulated to act as a buffer against depressive symptoms (Lightsey, 1994a). Hence, it would appear that PAT act in a contrary manner to NAT. Whilst NAT would positively mediate the onset of depression, PAT could negatively mediate the onset of depression given a negative life event. Simply put, individuals with higher frequencies of PAT would be more resilient towards depression.

It appears that the majority of the studies are correlational in nature, examining the relationship between PAT and depression. Overall, the findings suggest that higher frequencies of PAT were correlated with lower depressive symptoms (e.g. Kim & Kim, 2010; Lightsey, 1994b). To the extent of the author's knowledge, only one experimental study examining the changes in PAT in the treatment of depression has been done. Forsyth and colleagues (2010) reported significant changes in positive cognitions concurrent to when depression severity was reduced among in-patients (*N*=487). Psychiatric nurses were asked to implement cognitive behavioural therapy to psychiatric in-patients who had an average length of stay of around 5.9 days. One hour daily sessions were conducted and the patients were assessed using the ATQ, Positive Automatic Thought Questionnaire (ATQ-P) and Beck Depression Inventory-II (BDI), before and after intervention. Their study showed that patients who experienced a decline in their depressive symptoms also experienced a significant increase in their positive cognitions ($p=.001$). This suggests that positive cognitions are in fact inversely correlated with depression scores (Forsyth et al., 2010). This would then further imply that positive cognitions could play a similar role to that of negative automatic thoughts in determining the severity and progression of depression. For instance, where an increase in the frequency of NAT would correlate with higher depressive symptoms, an increase in positive automatic thoughts would correlate with lower frequencies of depressive symptoms instead.

However, several limitations are identified, first of which being the lack of a control group. Without a control group, it would be impossible to determine if treatment gains were spontaneous or due to CBT knowledge gained. Further to that, the study procedures described using a CBT education program, and it is unclear if this was a treatment program, or merely an awareness (or prevention?) program. Their study also did not report effect sizes of treatments, as well as clinical and reliably changes. It would be important if this fact could be ascertained and validated in order to lend confidence to treatment outcomes.

Taken together, there appears to be several significant gaps in the current literature for PAT. Thus far, there has been only one experimental study, examining PAT in the treatment of depression. Unlike NAT, studies on PAT and depression have primarily been correlational studies. Thus, it is vital that experimental studies examining the contributions of PAT in the treatment of depression be conducted. Doing so would provide insights and offer suggestions for refinements into the treatment process to better enhance interventions for depression.

Doing so would help to further expand on the wealth of literature on CBT. Subsequently, it would be useful to understand the role that PAT contribute to aid in treatment management. For example, if positive automatic thoughts were to truly mediate the relationship between treatment and depression, modifications to treatment methods to enhance the frequency of positive automatic thoughts would be beneficial. However, before this can be done, it is vital that a validated and psychometrically sound measure for PAT be obtained amongst a local population.

1.4.2.1 Positive Automatic Thought Questionnaire

Examination of past literature shows that there are two measures for PAT that have been frequently used. The first is the Revised Automatic Thought Questionnaire (ATQ-R), a 10-item subscale adapted from the original Automatic Thought Questionnaire (Kendall, Howard, & Hays, 1989). The second alternative is the Positive Automatic Thought Questionnaire (ATQ-P) (Ingram & Wisnicki, 1988). It would appear that the ATQ-P is the more commonly used measure for PAT (e.g. Boelen, 2007; Burgess & Haaga, 1994; Calvete & Connor-Smith, 2005; Ingram, Slater, Atkinson, & Scott, 1990; Forsyth et al., 2010; Ingram, Atkinson, Slater, Saccuzzo, & Garfin, 1990c; Ingram, Kendall, Siegle, Guarino, & McLaughlin, 1995).

The ATQ-P was first suggested by Ingram and Wisnicki (1988). The ATQ-P examines the frequency of one's PAT via a set of 30-items (Ingram et al., 1995), and has been found to have good internal consistency (Cronbach α=.94), test-retest reliability (Baldree, Ingram, & Saccuzzo, 1991) and good discordant validity (Burgess & Haaga, 1994; Ingram & Wisnicki, 1988). Good discriminant validity was also found by Ingram and colleagues (1995), where the ATQ-P was able to distinguish between clinically and non-clinically depressed individuals. Finally, the study done by Burgess and Haaga (1994) showed that the ATQ-P was inversely correlated with depressive symptoms suggesting that an increase in positive automatic thoughts would indicate lower frequency in depressive symptoms. As such, the strong psychometric properties reported above would suggest that the ATQ-P can be an effective measure for the assessment of PAT in a reliable manner.

Further analysis by Ingram and Wisnicki (1988) found that the ATQ-P fit well into a four-factor model. They showed that after discarding eight items, the remaining 22 items were distributed amongst four factors, the 'positive daily functioning', 'positive self-evaluation', 'others evaluation of self' and 'positive future expectations' factors. Later studies supported this finding, where good model fit was found with the original four factors (Bryant & Baxter, 1997). This suggests that PAT consists of four different facets, where each facet describes different ways in which positive cognition can operate.

1.4.2.2 Validating a Translated ATQ-P

At this juncture, the ATQ-P has only been translated and validated only one time into the Dutch language (Boelen, 2007). Their study examined a total of 257 participants going through bereavement and grief, who were recruited via advertisements. Participants were asked to complete a series of measures which included the Dutch version of the Automatic Thought Questionnaire-Positive, the Life Orientation Test, the Inventory for Complicated Grief and finally the Depression and Anxiety portions of the Symptom Checklist (Boelen, 2007).

Boelen's (2007) study found good internal consistency (α=.88) and moderate test-retest reliability (r=.60). Further examination of the various subscales also showed good internal consistency with the ATQ-P as a whole ('Positive daily functioning', r=.88, 'Positive self-evaluation', r=.85, 'Others evaluation of self', r=.78, 'Positive future expectations', r=.80, 'Positive social functioning', r=.85). They also found good discriminative validity for their version of the ATQ-P. More interestingly however, they found that instead of the original four factors, their data fit a five factor model better, with the addition of the 'Positive social functioning' factor. Their study also reported good index of fit (x^2/df=2.25, CFI=.92, TLI=.90, RMSEA=.07, AIC=556.12). They found that their Dutch version of the ATQ-P had good internal consistency (Cronbach α=0.94), good test-retest reliability (.81), good discriminant and convergent validity.

Their study showed that not only was the ATQ-P a valid measure for PAT, but the Dutch version showed good psychometric properties comparable to that of the original ATQ-P. However, given that an additional factor was elicited suggests that since no consistent factor structure for the ATQ-P has been determined, it is vital that prior to its use, it ought to be properly validated for a local populace. Also, the few studies that have been conducted limit the generalizability of the factor structure and interpretations, precipitating the need to further study the ATQ-P in other cultures.

1.5 Adaptations Across Cultures

Various aspects of the current thesis such as the examining the effectiveness of CBT and GCBT has been explored in previous studies in Malaysia. For example, the application of GCBT in the treatment of depression (e.g. Mukhtar et al., 2011) and cognitive mechanism of change in GCBT for depression (e.g. Oei et al., 2014) has shown the replicability of results in different cultures. Whilst these findings have been shown to be robust across many cultures, however, these results may not be transferrable when applied amongst a specific local population.

This is due to the fact that there exists significant cultural differences, particularly when comparing Western and Non-Western cultures (Markus & Kitayama, 1991). Western cultures are described as more individualistic where relationships occur with a focus on the individuals (Markus & Kitayama, 2003). Asian cultures on the other hand are typically more focussed on the collective group and the relationship that an individual has with their community (Markus & Kitayama, 2003). These differences serves to

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highlight the notion that concepts and ideologies established in Western cultures may not be easily applicable amongst non-Western ones. Further to that, cultural differences may also change the way individuals experience disorders and disabilities. It is suggested that non-Western patients may experience psychological distress in more psychosomatic ways, compared to their Western counterparts (Parker, Cheah, & Roy, 2001). For example, individuals suffering from depression would describe themselves as having a "heavy feeling in their chests" (e.g. Deva, 2004).

Taken together, the significant differences between cultures would suggest the need to ensure that the adaptations of Western developed models or techniques be properly validated within local cultures. This is to ensure that the concepts established prior remain applicable amongst the varied cultures. Doing so would ensure that treatment effectiveness can remain despite being transferred from one culture to another.

1.6 Thesis aims

This thesis aims to bring together different aspects that have yet to be examined together here in Malaysia. The general aim is to conduct research that would contribute positively towards the understanding and treatment of depression. With this in mind, three broad research questions were asked, a) Would the application of Group Cognitive Behaviour Therapy be effective in the treatment of depression? And if so, b) What are the underlying mechanisms of change? And finally c) How would positive automatic thoughts (PAT) contribute to the mechanism of change and treatment?

Specifically, this thesis aimed to answer these questions, by a) Conducting an experimental study to validate the Bahasa Malaysia version of the Positive Automatic Thought Questionnaire, b) Examining the effectiveness of Group CBT with Treatment as usual (GCBT+TAU) and finally, c) Examining the cognitive mechanism of change in GCBT for depression that influences treatment gains observed given the current data.

1.7 Hypothesis

1. The Bahasa Malaysia version of the Positive Automatic Thought Questionnaire would have good psychometric properties and factor structures.
2. GCBT+TAU would experience significant reductions to depressive symptoms from pre-treatment, to mid-treatment, to post-treatment and finally at follow-up (1 and 6 months) compared to Relaxation+TAU and TAU only control groups.
3. GCBT+TAU would experience significant reductions to negative automatic thoughts from pre-treatment, to mid-treatment, to post-treatment and finally at follow-up (1 and 6 months) compared to Relaxation+TAU and TAU only control groups.
4. GCBT+TAU would experience significant increases to positive automatic thoughts from pre-treatment, to mid-treatment, to post-treatment and finally at follow-up (1 and 6 months) compared to Relaxation+TAU and TAU only control groups.

5. GCBT+TAU would experience significant reductions to dysfunctional beliefs from pre-treatment, to mid-treatment, to post-treatment and finally at follow-up (1 and 6 months) compared to Relaxation+TAU and TAU only control groups.

6. GCBT+TAU would experience significant increases to cohesion from pre-treatment, to mid-treatment, to post-treatment and finally at follow-up (1 and 6 months) compared to Relaxation+TAU and TAU only control groups.

7. Cohesion scores would be significantly different when compared between participants in the GCBT+TAU and Relaxation+TAU training group.

8. PAT change scores would have a positive significant relationship with NAT, dysfunctional beliefs and depression change scores.

9. NAT would mediate the relationship between negative life events and with depression symptoms in the GCBT+TAU treatment group.

10. PAT would mediate the relationship between negative life events and with depression symptoms in the GCBT+TAU treatment group.

11. PAT would moderate the relationship between NAT and depression symptoms in the GCBT+TAU treatment group.

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REFERENCES

Abela, J. R. Z., & D'Alessandro, D. U. (2010). Beck's cognitive theory of depression: A test of the diathesis-stress and causal mediation components. *British Journal of Clinical Psychology, 41(2)*, 111–128. doi:10.1348/014466502163912

Aguilera, A., Garza, M. J., & Muñoz, R. F. (2010). Group cognitive-behavioral therapy for depression in Spanish: culture-sensitive manualized treatment in practice. *Journal of Clinical Psychology, 66(8)*, 857–867. doi:10.1002/jclp.20706

American Psychological Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders Text Revised (4th Ed.).* Arlington, VA: American Psychiatric Publishing. doi:10.1176/appi.books

Azhar, M. Z., Norjan, K., & Zubaidah, J. (2007). Comparison of Different Antidepressants and Psychotherapy in the Short-term Treatment of Depression. M*alaysian Journal of Psychiatry, 16(2)*.

Azizan, C. R., Razali, A., & Pillai, R. (2013). Promoting positive mental health among students in Malaysia. *Psychology and Behavioural Sciences, 2,* 73–82. doi:10.11648/j.pbs.20130202.18

Baldree, B. F., Ingram, R. E., & Saccuzzo, D. P. (1991). Cross-validation and social desirability bias in automatic positive cognition. *Presented at the Annual Meeting of the American Psychological Association*, San Francisco.

Beck, A. T. (1991). Cognitive therapy: A 30-year retrospective. *American Psychologist, 46(4)*, 368.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive Therapy of Depression. New York*: The 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*, 53–63.

Beck, J. S. (1995). *Cognitive Therapy: Basics and Beyond.* New York, NY: The Guilford Press.

Blais, M. A., Malone, J. C., Stein, M. B., Slavin-Mulford, J., O'Keefe, S. M., Renna, M., & Sinclair, S. J. (2013). Treatment as usual (TAU) for depression: A comparison of psychotherapy, pharmacotherapy, and combined treatment at a large academic medical center. *Psychotherapy: Theory, Research, Practice, Training, 50(1),* 110–118. doi:10.1037/a0031385

Boelen, P. A. (2007). Psychometric Properties of the Dutch version of the Automatic Thoughts Questionnaire – Positive (ATQ – P). *Cognitive Behaviour Therapy, 36(1),* 23–33. doi:10.1080/16506070600874315

Bostwick, J. M., & Pankratz, V. S. (2000). Affective disorders and suicide risk: A reexamination. *The American Journal of Psychiatry, 157,* 1925–1932.

Brewin, C. R. (1989). Cognitive change processes in psychotherapy. *Psychological Review, 96(3),* 379.

Bryant, F. B., & Baxter, W. J. (1997). The structure of positive and negative automatic

cognition. *Cognitions and Emotions, 11,* 225–258.

Burgess, E., & Haaga, D. A. F. (1994). The positive automatic thoughts questionnaire (ATQ-P) and the automatic thoughts questionnaire—Revised (ATQ-RP): Equivalent measures of positive thinking? *Cognitive Therapy and Research, 18(1),* 15–23. doi:10.1007/BF02359392

Burlingame, G. M., Fuhriman, A., & Johnson, J. E. (2001). Cohesion in group psychotherapy. *Psychotherapy: Theory, Research, Practice, Training, 38(4),* 373.

Byrne, B. (2001). *Structural equation modeling with AMOS: Basic concepts, applications and programming.* New Jersey: Lawrence Erlbaum Associates.

Calvete, E., & Connor-Smith, J. K. (2005). Automatic Thoughts and Psychological Symptoms: A Cross-Cultural Comparison of American and Spanish Students. *Cognitive Therapy and Research, 29(2),* 201–217. doi:10.1007/s10608-005-3165-2

Casey, L. M., Oei, T. P. S., & Newcombe, P. A. (2004). An integrated cognitive model of panic disorder: The role of positive and negative cognitions. *Clinical Psychology Review, 24(5),* 529–555. doi:10.1016/j.cpr.2004.01.005

Chee, K. Y., & Taha, A. B. (2004). Referral for psychiatric consultation in a state General Hospital. *International Medical Journal, 11,* 25–27.

Coleman, D., Cole, D., & Wuest, L. (2009). Cognitive and psychodynamic mechanisms of change in treated and untreated depression. *Journal of Clinical Psychology, 66(3),* 215–228. doi:10.1002/jclp.20645

Costello, A. B., & Osborne, J. W. (2005). Best Practices in Exploratory Factor Analysis: Four Recommendations for Getting the Most from Your Analysis. P*ractical Assessment, Research & Evaluation, 10,* 1–8.

Cramer, H., Salisbury, C., Conrad, J., Eldred, J., & Araya, R. (2011). Group cognitive behavioural therapy for women with depression: pilot and feasibility study for a randomized controlled trial using mixed methods. *BMC Psychiatry, 11(1),* 82. doi:10.1001/jama.289.23.3117

Cochrane, R., & Robertson, A. (1973). The Life Events Inventory: A measure of the relative severity of psychosocial stressors. *Journal of Psychosomatic Research*, *17*, 135–139.

DeRubeis, R. J., Evans, M. D., Hollon, S. D., Garvey, M. J., Grove, W. M., & Tuason, V. B. (1990). How does cognitive therapy work? Cognitive change and symptom change in cognitive therapy and pharmacotherapy for depression. *Journal of Consulting and Clinical Psychology, 58(6),* 862.

Deva, P. (2004). Malaysia mental health country profile. *International Review of Psychiatry, 16(1-2),* 167–176. doi:10.1080/09540260310001635203

Dobson, K. S., & Breiter, H. J. (Eds.). (1983). Cognitive Assessment of Depression: Reliability and Validity of Three Measures. *Journal of Abnormal Psychology, 92,* 107–109.

Forsyth, D. M., Poppe, K., Nash, V., Alarcon, R. D., & Kung, S. (2010). Measuring Changes in Negative and Positive Thinking in Patients with Depression.

Perspectives in Psychiatric Care, 46(4), 257–265. doi:10.1111/j.1744-6163.2010.00253.x

Furlong, M., & Oei, T. P. S. (2002). Changes to automatic thoughts and dysfunctional attitudes in group CBT for depression. *Behavioural and Cognitive Psychotherapy, 30(03).* doi:10.1017/S1352465802003107

Garratt, G., Ingram, R. E., Rand, K. L., & Sawalani, G. (2007). Cognitive processes in cognitive therapy: Evaluation of the mechanisms of change in the treatment of depression. *Clinical Psychology: Science and Practice, 14(3),* 224–239.

Grigoriadis, S., & Robinson, G. E. (2007). Gender Issues in Depression. *Annals of Clinical Psychiatry, 19(4),* 247–255. doi:10.1080/10401230701653294

Gupta, S. K. (2011). Intention-to-treat. *Perspectives in Clinical Research*, *2*, 109–112.

Haque, A. (2005). Mental health concepts and program development in Malaysia. *Journal of Mental Health, 14(2),* 183–195. doi:10.1080/09638230500059997

Hambridge, J. A., Turner, A., & Baker, A. L. (2009). BraveHeart begins: pilot results of group cognitive behaviour therapy for depression and anxiety in cardiac patients. *Australasian Psychiatry, 43(12),* 1171–1177.

Hardeveld, F., Spijker, J., De Graaf, R., Nolen, W. A., & Beekman, A. T. F. (2009). Prevalence and predictors of recurrence of major depressive disorder in the adult population. *Acta Psychiatrica Scandinavica, 122(3),* 184–191. doi:10.1111/j.1600-0447.2009.01519.x

Hedman, E., Ljótsson, B., Andersson, E., Rück, C., Andersson, G., & Lindefors, N. (2010). Effectiveness and Cost Offset Analysis of Group CBT for Hypochondriasis Delivered in a Psychiatric Setting: An Open Trial. *Cognitive Behaviour Therapy, 39(4),* 239–250. doi:10.1080/16506073.2010.496460

Hofmann, S. G., Asnaani, A., Vonk, I. J. J., Sawyer, A. T., & 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

Hope, D. A., Burns, J. A., Hayes, S. A., Herbert, J. D., & Warner, M. D. (2007). Automatic Thoughts and Cognitive Restructuring in Cognitive Behavioral Group Therapy for Social Anxiety Disorder. *Cognitive Therapy and Research, 34(1),* 1–12. doi:10.1007/s10608-007-9147-9

Hornsey, M. J., Olsen, S., Barlow, F. K., & Oei, T. P. S. (2012). Testing a single-item visual analogue scale as a proxy for cohesiveness in group psychotherapy. *Group Dynamics: Theory, Research, and Practice, 16(1),* 80–90. doi:10.1037/a0024545

Hunter, S. B., Paddock, S. M., Zhou, A., Watkins, K. E., & Hepner, K. A. (2012). Do Client Attributes Moderate the Effectiveness of a Group Cognitive Behavioral Therapy for Depression in Addiction Treatment? *The Journal of Behavioral Health Services & Research, 40(1),* 57–70. doi:10.1007/s11414-012-9289-8

Iddon, J. L., & Grant, L. (2013). Behavioural and Cognitive Treatment Interventions in Depression: An analysis of the Evidence Base. *Open Journal of Depression, 02(02),* 11–15. doi:10.4236/ojd.2013.22003

Ingram, R. E., Atkinson, J. H., Slater, M. A., Saccuzzo, D. P., & Garfin, S. R. (1990a). Negative and positive cognition in depressed and nondepressed chronic-pain patients. *Health Psychology, 9(3),* 300.

Ingram, R. E., Slater, M. A., Atkinson, J. H., & Scott, W. (1990b). Positive automatic cognition in major affective disorder. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 2(2),* 209.

Ingram, R. E., & Wisnicki, K. S. (1988). Assessment of positive automatic cognition. *Journal of Consulting and Clinical Psychology, 56(6),* 898.

Ingram, R. E., Atkinson, J. H., Slater, M. A., Saccuzzo, D. P., & Garfin, S. R. (1990c). Negative and positive cognition in depressed and nondepressed chronic-pain patients. *Health Psychology, 9(3),* 300.

Ingram, R. E., Kendall, P. C., Siegle, G., Guarino, J., & McLaughlin, S. C. (1995). Psychometric properties of the Positive Automatic Thoughts Questionnaire. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 7(4),* 495.

Ingram, R. E., Slater, M. A., Atkinson, J. H., & Scott, W. (1990d). Positive automatic cognition in major affective disorder. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 2(2),* 209.

Institute for Public Health. (2011). *National Health and Morbidity Survey 2011: Non Communicable Diseases, (Volume II),* Malaysian Ministry of Health.

Iwamasa, G. Y., Hsia, C., & Hinton, D. (2006). Cognitive-Behavioral Therapy with Asian Americans.

Jiménez Chafey, M. I., Bernal, G., & Rosselló, J. (2009). Clinical case study: CBT for depression in a Puerto Rican adolescent: challenges and variability in treatment response. *Depression and Anxiety, 26(1),* 98–103. doi:10.1002/da.20457

Joseph, S. (2006). Measurement in Depression: Positive Psychology and the Statistical Bipolarity of Depression and Happiness. *Measurement, 3,* 156–187.

Kader Maideen, S. F., Mohd Sidik, S., Rampal, L., & Mukhtar, F. (2014). Prevalence, Associated Factors and Predictors of Depression among Adults in the Community of Selangor, Malaysia. *PLoS ONE, 9(4),* e95395.

Karwoski, L., Garratt, G. M., & Ilardi, S. S. (2006). On the integration of cognitive-behavioral therapy for depression and positive psychology. *Journal of Cognitive Psychotherapy, 20(2),* 159–170.

Kendall, P. C., Howard, B. L., & Hays, R. C. (1989). Self-referent speech and psychopathology: The balance of positive and negative thinking. *Cognitive Therapy and Research, 13,* 583–598.

Kim, B.-N., & Kim, J.-H. (2010). Positive and Negative Automatic Thought in Bipolar and Unipolar Depression (pp. 1–3). *Presented at the American Psychological Association 2010 Convention Presentation.*

Koutra, A., Katsiadrami, A., & Diakogiannis, G. (2010). The effect of group psychological counselling in Greek university students' anxiety, depression, and self-esteem. *European Journal of Psychotherapy & Counselling, 12(2),*

101–111. doi:10.1080/13642537.2010.482733

Kwon, S.-M., & Oei, T. P. S. (1994). The roles of two levels of cognitions in the development, maintenance and treatment of depression. *Clinical Psychology Review, 14,* 331–358.

Kwon, S.-M., & Oei, T. P. S. (2003). Cognitive change processes in a group cognitive behavior therapy of depression. *Journal of Behavior Therapy and Experimental Psychiatry, 34(1),* 73–85. doi:10.1016/S0005-7916(03)00021-1

Lepine, J.-P., & Briley, M. (2011). The increasing burden of depression. *Neuropsychiatric Disease and Treatment, 7(1)*, 3.

Leung, S. S., Lee, A. M., Chiang, V. C., Lam, S. K., Kuen, Y. W., & Wong, D. F. (2013). Culturally sensitive, preventive antenatal group cognitive-behavioural therapy for Chinese women with depression. *International Journal of Nursing Practice, 19,* 28–37. doi:10.1111/ijn.12021

Lightsey, O. R. (1994a). "Thinking positive" as a stress buffer: The role of positive automatic cognitions in depression and happiness. *Journal of Counseling Psychology, 41(3),* 325.

Lightsey, O. R., Jr. (1994b). Positive automatic cognitions as moderators of the negative life event-dysphoria relationship. *Cognitive Therapy and Research, 18(4),* 353–365.

Lorentzen, S., Sexton, H. C., & Høglend, P. (2004). Therapeutic alliance, cohesion and outcome in a long-term analytic group. A preliminary study. *Nordic Journal of Psychiatry, 58(1),* 33–40. doi:10.1080/08039480310000770

Lubis, D. U., Jaya, E. S., Arjadi, R., Hanum, L., Astri, K., & Putri, M. D. D. (2013). Preliminary Study on the Effectiveness of Short Group Cognitive Behavioral Therapy (GCBT) on Indonesian Older Adults. *PLoS ONE, 8(2),* e57198. doi:10.1371/journal.pone.0057198.t006

Malaysia Ministry of Health. (2007). *Clinical Practice Guidelines: Management of Major Depressive Disorder* (pp. 1–58). Putrajaya: Ministry of Health Malaysia.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98(2),* 224.

Markus, H. R., & Kitayama, S. (2003). Culture, self, and the reality of the social. *Psychological Inquiry, 14(3-4),* 277–283.

Mayr, S., Erdfelder, E., Buchner, A., & Franz, F. (2007). A Short Tutorial of G Power. *Tutorials in Quantitative Methods for Psychology, 3,* 9.

McDonald, R. P., & Ho, M. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods*, 7, 64–82.

Mukhtar, F. (2007). *Testing a Group Cognitive Behaviour Therapy for Depression in Malaysia* (Doctor of Philosophy (Clinical Psychology). University of Queensland.

Mukhtar, F., & Oei, T. P. (2008). Exploratory and confirmatory factor validation and psychometric properties of the Beck Depression Inventory for Malays (BDI-Malay) in Malaysia. *Malaysian Journal of Psychiatry, 17(1).*

Mukhtar, F., & Oei, T. P. (2011a). *Terapi Kognitif Tingkah Laku bagi Rawatan Kemurungan.* Serdang, Malaysia: Universiti Putra Malaysia Press.

Mukhtar, F., & Oei, T. P. S. (2011b). A Review on Assessment and Treatment for Depression in Malaysia. *Depression Research and Treatment, 2011(1),* 1–8. doi:10.1046/j.1440-1614.2000.00701.x

Mukhtar, F., Khaiyom, J. H. A., & Low, J. L. (2013). *Jom Relaks!* Kajang, Selangor: Aras Mega Sdn. Bhd.

Mukhtar, F., Oei, T. P. S., & Mohd Yaacob, M. J. (2006). *The efficacy of group Cognitive Behaviour Therapy (GCBT) for major depressive disorders in Malaysia* (pp. 1–17). Presented at the 1st Asian CBT Conference, Hong Kong.

Mukhtar, F., Oei, T. P. S., & Mohd Yaacob, M. J. (2011). Effectiveness of group cognitive behaviour therapy augmentation in reducing negative cognitions in the treatment of depression in Malaysia. *ASEAN Journal of Psychiatry, 12(1).*

Ng, C. H., Norman, T. R., Naing, K. O., Schweitzer, I., Kwong, W. H. B. & Agnes, K. S. (2006). A comparative study of Sertraline dosages, plasma concentrations, efficacy and adverse reactions in Chinese versus Caucasian patients. *International Clinical Psychopharmacology, 21,* 87–92.

Nance, D. C. (2012). Pains, Joys, and Secrets: Nurse-Led Group Therapy for Older Adults with Depression. *Issues in Mental Health Nursing, 33(2),* 89–95. doi:10.3109/01612840.2011.624258

Oei, T. P. S., & Dingle, G. (2008). The effectiveness of group cognitive behaviour therapy for unipolar depressive disorders. *Journal of Affective Disorders, 107(1-3),* 5–21. doi:10.1016/j.jad.2007.07.018

Oei, T. P. S., Bullbeck, K., & Campbell, J. M. (2006). Cognitive change process during group cognitive behaviour therapy for depression. *Journal of Affective Disorders, 92(2-3),* 231–241. doi:10.1016/j.jad.2006.02.004

Oei, T. P. S., Goh, Y. W., & Kwon, S.-M. (1996). A cross-cultural study of the integrated cognitive model of depression. *Current Psychology of Cognition, 15,* 265–281.

Oei, T. P. S., McAlinden, N., & Crwuys, T. (2014). Exploring Mechanisms of Change: The Relationships Between Cognitions, Symptoms, and Quality of Life Over the Course of Group Cognitive-Behaviour Therapy. *Journal of Affective Disorders, 168,* 72-77.

Oei, T. P., & Free, M. L. (1995). Do cognitive behaviour therapies validate cognitive models of mood disorders? A review of the empirical evidence. *International Journal of Psychology, 30(2),* 145–180.

Oei, T. P., & Mukhtar, F. (2008). Exploratory and confirmatory factor validation and psychometric properties of the Automatic Thoughts Questionnaire for Malays (ATQ-Malay) in Malaysia. H*ong Kong Journal of Psychiatry, 18(3),* 92–100.

Osby, U., Brandt, L., Correia, N., Ekbom, A., & Sparén, P. (2001). Excess mortality in bipolar and unipolar disorder in Sweden. *Archives of General Psychiatry, 58,* 844–850.

Parker, G., Cheah, Y.-C., & Roy, K. (2001). Do the Chinese somatize depression? A

cross-cultural study. *Social Psychiatry and Psychiatric Epidemiology, 36(6),* 287–293.

Pössel, P., & Knopf, K. (2010). Bridging the Gaps: An Attempt to Integrate Three Major Cognitive Depression Models. *Cognitive Therapy and Research, 35(4),* 342–358. doi:10.1007/s10608-010-9325-z

Qiu, J., Chen, W., Gao, X., Xu, Y., Tong, H., & Yang, M. (2013). A randomized controlled trial of group cognitive behavioral therapy for Chinese breast cancer patients with major depression. *Journal of Psychosomatic Obstetrics & Gynecology, 34(2),* 60–67. doi:10.3109/0167482X.2013.766791

Raubenheimer, J. (2004). An item selection procedure to maximize scale reliability and validity. *SA Journal of Industrial Psychology, 30(4),* p. 59–64.

Razali, S. M., Hasanah, C. I., Aminah, K., & Subramaniam, M. (1998). Religious-sociocultural psychotherapy in patients with anxiety and depression. *Australasian Psychiatry, 32(6),* 867–872.

Reilly, L. C., Ciesla, J. A., Felton, J. W., Weitlauf, A. S., & Anderson, N. L. (2012). Cognitive vulnerability to depression: A comparison of the weakest link, keystone and additive models. *Cognition & Emotion, 26(3),* 521–533. doi:10.1080/02699931.2011.595776

Robins, C. J., & Block, P. (1988). Personal vulnerability, life events, and depressive symptoms: A test of a specific interactional model. *Journal of Personality and Social Psychology*, *54*(5), 847.

Sadock, B. J., Sadock, V. A., & Ruiz, P. (Eds.). (2009). *Kaplan and Saddock's Comprehensive Textbook of Psychiatry.* Philadelphia: Wolter Kluwer Health.

Sangalang, C. C., & Gee, G. C. (2012). Depression and Anxiety among Asian Americans: The Effects of Social Support and Strain. *Social Work, 57(1),* 49–60.

Seedat, S., Scott, K. M., Angermeyer, M. C., Berglund, P., Bromet, E. J., Brugha, T. S., et al. (2009). Cross-national associations between gender and mental disorders in the World Health Organization World Mental Health Surveys. *Archives of General Psychiatry, 66(7),* 785–795.

Seligman, M. E. P., & Csikszentmihalyi, M. (2006). Positive Psychology. *American Psychologist, 11.*

Shelton, R. C., Osuntokun, O., Heinloth, A. N., & Corya, S. A. (2010). Therapeutic options for treatment-resistant depression. *CNS Drugs, 24(2),* 131–161.

Shiraishi, S., Sugamura, G., & Koshikawa, F. (2007). Japanese-Specific Positive Automatic Thoughts Affecting Depressive States (pp. 1–4). *Presented at the American Psychological Association 2007.*

Straub, J., Koelch, M., Fegert, J., Plener, P., Gonzalez-Aracil, I., Voit, A., & Sproeber, N. (2013). Innovations in Practice: MICHI, a brief cognitive-behavioural group therapy for adolescents with depression - a pilot study of feasibility in an inpatient setting. *Child and Adolescent Mental Health.* doi:10.1111/j.1475-3588.2012.00678.x

Thomas, R. E., Grimshaw, J. M., Mollison, J., McClinton, S., McIntosh, E., Deans, H.,

& Repper, J. (2003). Cluster randomized trial of a guideline-based open access urological investigation service. *Family Practice*, *20*. http://doi.org/10.1093/fampra/cmg605

Ting, R. S.-K., & Ng, A. L. O. (2012). Use of Religious Resources in Psychotherapy from a Tradition-Sensitive Approach: Cases from Chinese in Malaysia. *Pastoral Psychology, 61(5-6),* 941–957.

Tucker, M., & Oei, T. P. S. (2007). Is Group More Cost Effective than Individual Cognitive Behaviour Therapy? The Evidence is not Solid Yet. *Behavioural and Cognitive Psychotherapy, 35(01),* 77. doi:10.1017/S1352465806003134

Vierron, E., & Giraudeau, B. (2006). Sample size calculation for multicenter randomized trial: Taking the center effect into account. *Contemporary Clinical Trials*, *28*(4).

Warman, D. M., Grant, P., Sullivan, K., Caroff, S., & Beck, A. T. (2005). Individual and Group Cognitive-Behavioral Therapy for Psychotic Disorders: A Pilot Investigation. *Journal of Psychiatric Practice, 11,* 1–8.

Weissman, A., & Beck, A. T. (1978). Development and validation of the Dysfunctional Attitude Scale: A preliminary investigation. *Presented at the Meeting of the Association for the Advancement of Behaviour Therapy, Chicago.*

Westen, D., & Morrison, K. (2001). A multidimensional meta-analysis of treatments for depression, panic, and generalized anxiety disorder: An empirical examination of the status of empirically supported therapies. *Journal of Consulting and Clinical Psychology, 69(6)*, 875–899. doi:10.1037//0022-006X.69.6.875

Whisman, M. A. (1993). Mediators and moderators of change in cognitive therapy of depression. *Psychological Bulletin, 114(2),* 248.

Wilkinson, P., Alder, N., Juszczak, E., Matthews, H., Merritt, C., Montgomery, H., et al. (2009). A pilot randomized controlled trial of a brief cognitive behavioural group intervention to reduce recurrence rates in late life depression. *International Journal of Geriatric Psychiatry, 24(1), 68–75.* doi:10.1002/gps.2076

Wong, F. K. D. (2009). A Six-Month Follow-Up Study of Cognitive–Behavioural Treatment Groups for Chinese People with Depression in Hong Kong. B*ehaviour Change, 26(02),* 130–140.

World Health Organization. (2013). *World health statistics 2013.*

Wuthrich, V. M., & Rapee, R. M. (2013). Randomised controlled trial of group cognitive behavioural therapy for comorbid anxiety and depression in older adults. *Behaviour Research and Therapy, 51(12),* 779–786. doi:10.1016/j.brat.2013.09.002

Yalom, I. (1995). *The Theory and Practice of Group Psychotherapy (4 ed.).* New York, NY: Basic Books.

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Upon graduation, the student began working as a consultant clinical psychologists at several private psychological centres in the Klang Valley region. He then started his own centre, The Mind Psychological Services and Training in Jaya One, where he functions till today as Director and Clinical Psychologist.

He started his PhD at the Faculty of Medicine, Psychiatric Department in Psychological Medicine in 2010. During his PhD study, he was awarded the first prize in the Five Minute Thesis Competition.

LIST OF PUBLICATIONS

Low, J. L. (2015). *Professional Practice in Malaysia: Application of Group CBT in the treatment of Depression*. Presentation, Pinoy PACERS Mid-Year Conference (Cebu, Philippines).

Low, J. L., Mukhtar, F., Ibrahim, N., Sidek, S. M. & Oei, T. P. S. (*In Submission).* Effectiveness of Group Cognitive Behaviour Therapy Compared to Relaxation Training and Treatment as Usual for the Management of Unipolar Depression in Malaysia: A Randomized Controlled Trial. *Journal of Behavioural Therapy*

Low, J. L., Mukhtar, F., Ibrahim, N., Sidek, S. M. & Oei, T. P. S. (*In Submission).* The utility of the Automatic Thought Questionnaire-Positive in Malaysia (ATQ-P-BM). *International Journal of Clinical & Health Psychology.*

Low, J. L., Mukhtar, F., Ibrahim, N., Sidek, S. M. & Oei, T. P. S. (2013). *Does having positive thoughts and being in control of your thoughts help reduce depression?: An extended pilot study on group CBT for Major Depressive Disorder.* Poster presented at the 4th Asian Cognitive Behavioural Therapy Association Conference, Tokyo Heisei University, August, Tokyo, Japan.

Low, J. L., Mukhtar, F., Ibrahim, N., Sidek, S. M. & Oei, T. P. S. (2013). *The reliability and validity of the Bahasa Malaysia Version of the Automatic Thought Questionnaire-Positive (ATQ-P).* Presentation at the 7th World Congress of Behavioural and Cognitive Therapies 2016, Peru.

Low, J. L. & Ng, W. S. (2011). *Personality-vulnerability factors and depression: The moderating effect of Congruency Hypothesis*. Poster presented at the 3rd Asian Cognitive Behavioral Therapy Association Conference, St. Mary's Hospital, July, Seoul, South Korea.

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