



# A feasibility open trial of guided Internet-delivered cognitive behavioural therapy for anxiety and depression amongst Arab Australians



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## ABSTRACT

The present study examined the preliminary efficacy and acceptability of a culturally modified therapist-guided cognitive behaviour therapy (CBT) treatment for Arab Australians, aged 18 years and over with symptoms of depression and anxiety. To facilitate ease of use, the treatment was delivered via the Internet (Internet CBT; iCBT). Eleven participants with at least mild symptoms of depression (Patient Health Questionnaire 9-item (PHQ-9) total scores > 4) or anxiety (Generalised Anxiety Disorder 7-item (GAD-7) total scores > 4) accessed the online Arab Wellbeing Course, which consisted of five online lessons delivered over 8 weeks. Measures of depression, anxiety, distress and disability were gathered at pre-treatment, post-treatment and 3-month follow-up. Data were analysed using mixed-linear model analyses. Ninety-one percent (10/11) of participants completed the five lessons over 8 weeks, with 10/11 providing post-treatment and 3-month follow-up data. Participants improved significantly across all outcome measures, with large within-group effect sizes based on estimated marginal means (Cohen's *d*) at post-treatment ( $d = 1.08$  to  $1.74$ ) and 3-month follow-up ( $d = 1.53$  to  $2.00$ ). The therapist spent an average of 90.72 min ( $SD = 28.98$ ) in contact, in total, with participants during the trial. Participants rated the Arab Wellbeing Course as acceptable. Caution is needed in interpreting the results of the current study given the small sample size employed, raising questions about the impact of levels of acculturation and the absence of a control group. However, the results are encouraging and indicate that, with minor modifications, western psychological interventions have the potential to be of benefit to English speaking Arab immigrants.

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## 1. Introduction

Anxiety and major depressive disorders occur in approximately one in five Australians over a 12-month period (Slade et al., 2009) and similar rates of disorders have generally been found across cultures (Kessler et al., 2009), including Arab populations in Lebanon (Karam et al., 2006) and Iraq (Alhasnawi et al., 2009). In the last 15 years, the Arabic-speaking communities in Australia (*Arab Australians*) have grown by about 50% (Australian Bureau of Statistics, 2006, 2011) and are now the sixth largest group of immigrants to Australia (Australian Bureau of Statistics, 2011). A recent study examining mental health service use amongst Arab Australians ( $n = 251$ ) found that 32% of the sample had elevated levels of psychological distress, only 18% of whom reported seeking treatment from a mental health professional (Kayrouz et al., 2014). Barriers to treatment included low mental health literacy, lack of time and the shame associated with seeking mental health treatment

(Kayrouz et al., 2014). However, 90% reported they would be willing to try a psychological treatment for symptoms of anxiety and depression. Culturally adapted psychotherapy offers one way to address barriers and reduce psychological distress.

A key question, however, is whether or how to adapt psychological treatments for immigrant populations, such as Arab Australians and other culturally and linguistically diverse communities (CALD). Cultural adaptation has been defined as “the systematic modification of an evidence-based treatment or intervention protocol to consider language, culture, and context in such a way that it is compatible with the client's cultural patterns, meanings, and values” (Bernal et al., 2009, p. 362). Importantly, increasing the compatibility between a psychological treatment protocol and a client's value and meaning base is thought to enhance an individual's engagement with treatment. Improved engagement is likely to result in increased exposure to and use of the treatment materials, which, in turn, could result in increased therapeutic benefit. Consistent with this, a recent meta-analysis reported that culturally adapted psychotherapy was more efficacious than unadapted psychotherapy (Benish et al., 2011) for CALD populations. Unfortunately, however, this meta-analysis did not include any studies focussed on Arab immigrants.

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Another important issue is whether cultural adaptation is possible for heterogeneous immigrant groups, which comprise of multiple smaller identifiable groups with their own experiences, beliefs and values, such as Arab immigrants. The Arab world is defined as the countries where Arabic is the national language and consists of 22 countries and territories across North Africa and the Middle East. Mohit (2001) argues that, while meaningful heterogeneity does exist, there are also unifying characteristics across the Middle East beyond language, such as the role of religion, which unifies many Arabs in their conceptualisation of mental illness.

For example, while modern Arab psychiatry has adopted the etiopathogenesis model of mental illness based on the DSM model (Carnevali and Masillo, 2007–2008), there remains a dominant Arab model of distress and mental health associated with supernatural processes and religion. For this reason, religion plays a critical role in the mental health of individuals, families and communities (Nassar-McMillan and Hakim-Larson, 2003), with life stressors often being viewed as a test of faith (Abu-Ras and Abu-Bader, 2009). For many Arab Muslims and Christians, severe distress and mental health is believed to be caused by the possession of jinn (i.e., spiritual beings) or the devil, respectively. Thus, mental illness may arise as a result of 'weak faith' and can be viewed as a form of punishment from God (Al-Krenawi and Graham, 2000). Based on this model, many Arabs avoid treatment based on the fear that divulging their story may result in a stigmatising label of 'majnun' (i.e., being 'crazy') and a person of 'weak faith', which may jeopardise the individual and their family's standing in the community.

Contemporary Western psychological treatment models, such as cognitive behavioural therapy (CBT), may potentially help to reduce stigma by virtue of their focus on current issues, and their emphasis on the use of practical skills for managing symptoms of distress, anxiety and depression. Such models are also compatible with Arab treatment preferences, which include that treatment is short-term, directive and does not require divulging of one's story (Al-Krenawi and Graham, 2000). Consistent with this, two trials have explored the efficacy of CBT amongst Arab people with post-traumatic stress disorder and reported positive outcomes (Stenmark et al., 2013; Wagner et al., 2012). Further, there is emerging evidence that Arabs are becoming more open to mental health treatment (Al-Krenawi, 2002; Al-Krenawi et al., 2009; Al-Krenawi and Graham, 2011; Kayrouz et al., 2014). Thus, there is good reason to believe that certain contemporary Western psychological treatments are potentially suitable for Arab individuals with anxiety and depression and there is some encouraging evidence to support this.

Recent developments in methods of delivering psychological treatments, such as the use of Internet-delivered CBT (iCBT), provide another opportunity to increase treatment seeking by Arab people, by offering privacy and increased anonymity (Andersson and Titov, 2014; Titov, 2007, 2011). One example of an iCBT intervention is the Wellbeing Course; a five-lesson online transdiagnostic treatment targeting symptoms of anxiety and depression and based on CBT (Titov et al., 2013). The Wellbeing Course is a structured skills-based course that focuses on teaching practical evidence-based psychological skills (e.g., realistic thinking, assertiveness, behavioural activation and graded exposure) that assist in the management of symptoms of anxiety and depression. Psychotherapeutic change is believed to occur when people learn, practice and adopt adaptive cognitive and behavioural habits that promote emotional wellbeing (Titov et al., 2012, 2013). This course has been evaluated in several clinical trials (Kirkpatrick et al., 2013; Titov et al., 2013, 2014) and is now used at an Australian national treatment service, the *MindSpot Clinic*, [www.mindspot.org.au](http://www.mindspot.org.au).

The present study aims to examine the feasibility and efficacy of a culturally adapted version of the Wellbeing Course, the Arab Wellbeing Course, to treat symptoms of anxiety and depression amongst Arab Australians. This intervention was administered via the Internet for several reasons, including to reduce barriers to accessing treatment associated

with stigma, and the increased flexibility and convenience associated with this mode of administration. Because of the absence of previous research exploring the efficacy of CBT treatment for Arab people experiencing depression or anxiety, an open-trial design was considered ethically appropriate.

## 2. Methods

### 2.1. Design and hypotheses

A single-group open-trial design was utilised to examine the feasibility, acceptability and preliminary efficacy of the culturally modified iCBT Arab Wellbeing Course for Arab Australian consumers. A sample size of 15 was determined as sufficient (one-tailed test, power at 80%, and alpha at .05) to detect within-group Cohen's *d* effect size of .70; the minimum likely effect based on previous studies employing the Wellbeing Course (Titov et al., 2013). This study was approved by the Human Research Ethics Committee of Macquarie University, Sydney, Australia, and registered as a clinical trial with the Australian New Zealand Clinical Trials Registry, ACTRN12163001329752.

It was hypothesised that (1) Arab Australians would show a statistically and clinically significant reduction in the symptoms of depression, anxiety, distress and disability; and (2) Arab Australians would rate the course as worthwhile and would recommend the course to a friend or family member.

### 2.2. Participants

Interested adults applied online through a clinical research website ([www.ecentreclinic.org](http://www.ecentreclinic.org)), which provides information about anxiety and depression and conducts clinical research concerning Internet-delivered treatment. Two phases of recruitment occurred from 7 January 2013 to 4 March 2013 (Phase 1) and 22 April to 16 June 2013 (Phase 2). Details about the study were circulated to participants who expressed interest in future research in a previous online survey (Kayrouz et al., 2014), the research clinic website and social media accounts of the research clinic. Additional promotion of the study was provided during an interview with the lead author published in an Arabic newspaper, personal correspondence between the lead author and more than 100 organisations providing services to Arab Australians, to over 100 Arabic-speaking health providers, and to spiritual leaders of an Arabic-speaking background in Australia.

Over the two recruitment phases, six participants in Phase 1 and five participants in Phase 2 provided informed consent and volunteered to participate. Inclusion criteria were (1) living in Australia; (2) overseas-born or Australian-born person who self-identified as being of Arabic ancestry; (3) between the ages of 18 and 70; (4) having reliable Internet access; (5) not receiving CBT elsewhere; (6) no history of a psychotic condition; (7) a Patient Health Questionnaire 9-item (PHQ-9) score > 4 or a Generalised Anxiety Disorder 7-item (GAD-7) score > 4 indicating at least mild depressive or anxiety symptoms, but not currently experiencing very severe depression (defined as a total score  $\geq 23$  or a score = 3 on question 9 of the PHQ-9) (Kroenke et al., 2001); (8) if taking medication for anxiety or depression, having been on a stable dose for at least 1 month. Participants who met the inclusion criteria were administered the Mini International Neuropsychiatric Interview Version 5.0.0 (MINI) (Sheehan et al., 1998) to determine if they met diagnostic criteria for an anxiety disorder or depression.

Of the 16 participants who applied to participate, 11 were eligible with 3 participants excluded for incomplete applications, one participant excluded for experiencing very severe depression (i.e., defined as a total score  $\geq 23$  on the PHQ-9) and the other for being outside the age range (see Fig. 1). The sample had a mean age of 33.6 years ( $SD = 8.99$ ; range = 24–50) and was comprised of more females ( $n = 8$ , 73%) than males. The majority of participants were married ( $n = 7$ , 64%), with the remainder single ( $n = 3$ , 27%) or separated

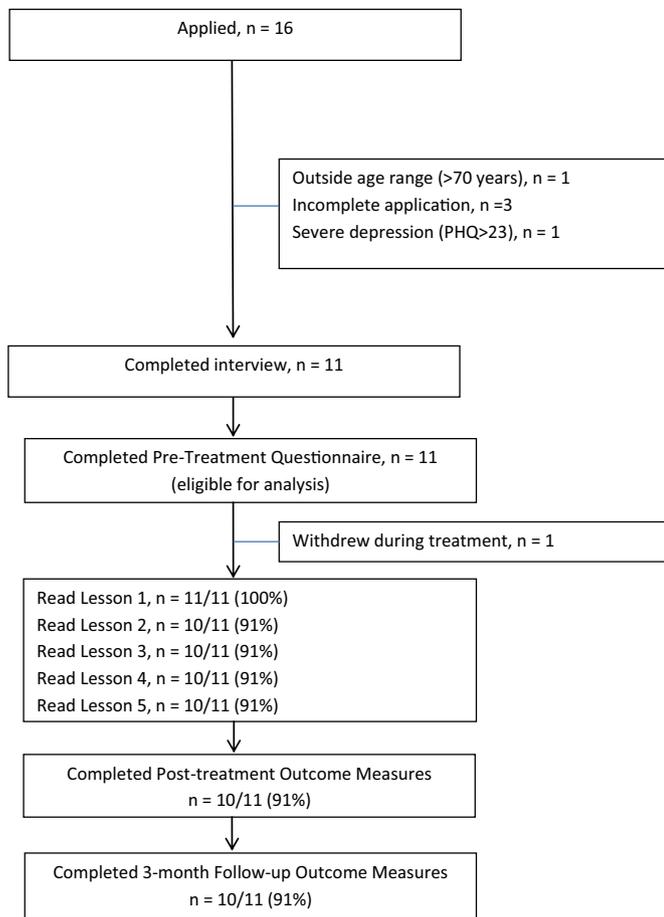


Fig. 1. Participant flow.

( $n = 1, 9\%$ ). Seventy-three per cent of the sample ( $n = 8$ ) had attained at least a bachelor's degree, and 18% ( $n = 2$ ) attained a trade certificate/apprentice or other certificate. Six of the eleven participants (55%) reported they were in full-time or part-time employment, 3/11 (27%) were performing home duties, 1/11 (9%) unemployed and 1/11 (9%) reported not being able to work because of disability. All participants reported residing in New South Wales. The sample reported a mean weekly Internet usage of 15.6 h ( $SD = 14.22$ ; range = 3–40). Five participants (45%) reported having had previous mental health treatment and one (9%) reported taking medication related to their symptoms. Four (36%) of the 11 participants met criteria for a principal diagnosis of a current major depressive disorder, 3/11 (27%) met criteria for a principal diagnosis of generalised anxiety disorder and 4/11 did not meet criteria for an anxiety or depressive disorder. Of the 7 participants who met criteria for a mental health disorder, six participants met criteria for a comorbid diagnosis of a major depressive and anxiety disorders.

## 2.3. Questionnaire measures

### 2.3.1. Primary measures

**2.3.1.1. Patient Health Questionnaire—9-item (PHQ-9; Kroenke et al., 2001).** The PHQ-9 is a nine-item measure of the symptoms and severity of depression. It has a clinical cutoff score of 10 that predicts a DSM-IV diagnosis of depression with higher PHQ-9 scores indicating greater symptom severity. Internal consistency of the questionnaire is high ( $\alpha = .74-.89$ ) (Kroenke et al., 2001), and the questionnaire has good clinical sensitivity to change (Titov et al., 2011). Cronbach's alpha in the present study was excellent ( $\alpha = .91$ ).

**2.3.1.2. Generalised Anxiety Disorder—7-item scale (GAD-7; Spitzer et al., 2006).** The GAD-7 is a brief seven-item screening questionnaire that has been found to be sensitive to generalised anxiety disorder, social phobia and panic disorder, with higher scores indicating greater symptom severity (Lowe et al., 2008). Internal consistency of the GAD-7 scale is good ( $\alpha = .79-.91$ ). GAD-7 has good convergent and divergent validity with other anxiety and disability scales (Dear et al., 2011; Kroenke et al., 2010). A clinical cutoff score of 8 indicates a diagnosis of anxiety disorder (Dear et al., 2011; Lowe et al., 2008; Richards and Suckling, 2009). In the present study, Cronbach's  $\alpha = .94$ .

### 2.3.2. Secondary measures

**2.3.2.1. Kessler 10-item scale (K-10; Kessler et al., 2002).** The K-10 is a ten-item measure of general psychological distress with total scores  $\geq 22$  associated with a diagnosis of anxiety and depressive disorders (Andrews and Slade, 2001). In the present sample, Cronbach's alpha was high ( $\alpha = .94$ ).

**2.3.2.2. Sheehan Disability Scales (SDS; Sheehan, 1983).** The SDS is a three-item scale measuring functional impairment in the following domains: (1) work and studies, (2) social life and (3) family life and home responsibilities. The SDS has been found to have high internal consistency of .89 (Leon et al., 1997). In the present study, Cronbach's  $\alpha = .86$ .

**2.3.2.3. Mini International Neuropsychiatric Interview Version 5.0.0 (MINI; Sheehan et al., 1998).** The MINI is a diagnostic interview that assesses the presence of Axis-I disorders using DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition) (American Psychiatric Association, 2000) diagnostic criteria. The MINI has excellent inter-rater reliability, ranging from .88 to 1.00 (Lecrubier et al., 1997), and adequate concurrent validity with the Composite International Diagnostic Interview (CIDI; World Health Organization, 1990).

Participants were administered all primary and secondary questionnaires at pre-treatment, post-treatment and at 3-month follow-up, except for the MINI, which was administered at pre-treatment. The PHQ-9 was also administered weekly to monitor safety and progress of each participant.

### 2.3.3. Additional measures

At pre-treatment participants were also asked why they chose to apply for Internet treatment by selecting from a list of options (e.g., no need to travel, privacy and anonymity) or to provide their own reason.

At post-treatment acceptability of the course was assessed by asking two questions. Questions required a 'yes' or 'no' response. The questions were as follows: (1) Would you recommend this course to a friend or family member also experiencing stress or low mood?; and (2) Was it worth your time doing this course?

## 2.4. Intervention

The Wellbeing Course is currently written in English (with future Arabic translation forecasted) and in addition to the five lessons comprises of: (a) a summary of each lesson with homework to apply the skills taught in that lesson, (b) automated e-mails that encourage adherence and reinforce progress, (c) a secure e-mail system for communication between the therapist and participant, (d) additional online resources about skills not described in the lessons, including communication, assertiveness, and sleep hygiene skills, and (e) stories about people who have recovered from anxiety and depression. Table 1 shows the structure and content of lessons, the timeline of releasing additional resources and the changes made to the content in the Arab Wellbeing Course.

The Arab Wellbeing Course retained the core therapeutic components of the Wellbeing Course, maintaining the use of key concepts and descriptions of skills. However, modifications were made to make the course more culturally appropriate. For example, key words were transliterated into Arabic from English (e.g., not shameful (*la khajela, mukhjil*) and symptoms (*3arada*)). Case examples and educational stories were made more relevant to the target population by changing images, names and demographic characteristics of case examples. The case example and educational stories were also edited to reflect common experiences for Arab Australians, including tensions of bicultural identity for Australian-born Arabs and the difficulties associated with the loss of recognition of skill and identity associated with migration from an Arab-speaking country to Australia (see Table 1).

Modification of the content of the Course was based on feedback from members of the Arab community. First, professional translators (EN and LK) aided in the transliteration of the key mental health words. Second, the lead author conducted a literature review on acculturation and Arabs, combined with feedback from members of the Arabic-speaking community through various focus groups and an online survey (Kayrouz et al., 2014) to inform some of key themes depicted in the case examples and educational stories.

## 2.5. Therapist

The lead author provided clinical support via telephone and e-mail to all participants across the two phases and is an experienced bilingual counsellor who has worked with the Arabic-speaking community for over 15 years. Consistent with other iCBT studies, the therapist aimed to keep clinical contact to approximately 10 min per participant unless their clinical presentation indicated more time was required. During each contact the therapist aimed to reinforce progress, summarise key skills of the course, normalise commonly experienced difficulties during treatment and encourage continued engagement. The therapist was supervised by BFD during scheduled weekly meetings and as required. A secure log of contact was kept that included progress notes and contact time.

## 2.6. Statistical methods

All analyses were conducted with SPSS version 22 and the statistical assumptions were first confirmed before analysis. A mixed-effect model repeated measure (MMRM) approach with an unstructured covariance structure and using maximum likelihood estimation was identified as

**Table 1**

Structure and content of lessons, the timeline of releasing additional resources and content of the relevant cultural modifications made in the Arab Wellbeing Course.

Lesson	Wellbeing Course content	Modifications made to content	Modifications made to images
1	Education about the prevalence, symptoms and treatment of depression and anxiety, including an explanation about the functional relationship between symptoms. (Additional resources for Lesson 1: In Case of Emergency, Frequently Asked Questions, Step by Step Guide, Problem Solving and Good Sleep Guide)	(1) Key mental health words were transliterated in Arabic (e.g., not shameful ( <i>la khajela, mukhjil</i> ); symptoms ( <i>3arada</i> ); normal ( <i>tabi3an</i> ) and health ( <i>sahee</i> ). (2) Included monotheistic definition of spiritual health (e.g., a trusting relationship with God). (3) Arab names were used in case examples and educational stories across all lessons. (4) The male case example was of an engineer who sought refuge to Australia due to war in his country and the challenges he faced adjusting to life in Australia working as a cleaner (i.e., loss of recognition of previous expertise and identity). (5) The female case example was of an Australian-born Arab who expressed confusion about ethnic identity, feeling torn between two cultures. (6) Educational stories were similar; however, the contexts were changed. For example, in the male story, he reported grieving the loss of not being able to travel back home, and for the female story, family conflict between mother and aunt was included.	Arab portraits were used in case examples and educational stories across all lessons. Otherwise, all other images from the original Wellbeing Course were retained.
2	Basic principles of cognitive therapy, including strategies for monitoring and challenging thoughts. (Additional resources for Lesson 2: Managing Beliefs and Mental Skills)	(1) Based on the collectivistic nature of Arab cultures, the male case example included the thought that 'I was respected in the community' in the step of examining thoughts. (2) In the male educational stories, seeking advice from an elder brother rather than friend was included.	One image was changed that depicted two male and two female Arab individuals in discussion.
3	Instructions about skills for helping manage physical symptoms including de-arousal strategies and scheduling activities. (Additional resources for Lesson 3: Worry Time, Communication Skills)	(1) In becoming active, visiting family rather than friends was included for the male case example. (2) In the male educational story, a common greeting <i>Salam Al laykum</i> used amongst Muslims and the calling of cousins to go fishing as an example of being active were included.	
4	Education and guidelines about behavioural activation. Education and guidelines about practising graded exposure. (Additional resources for Lesson 4: Assertiveness Communication)	(1) Male case example challenged his unrealistic expectations that he had failed in Australia working as a cleaner. (2) In his graded exposure tasks, meeting at his local Arab community was included as a task and ranked as 'very hard', to indicate the perceived loss of face that he feels working as a cleaner and not an engineer, so he avoids the community.	
5	Information about relapse prevention and constructing relapse prevention plans.	(1) Case examples for both males and females regarding relapse were the same, except for the male where family functions was included as risk for relapse. (2) Educational story for the male remained the same as the standard. For the female, resolution of being torn between Aunt and mother because of family conflict was resolved.	

the best way to analyse the clinical outcomes at post-treatment and 3-month follow-up. MMRM is a special case of the mixed-linear model approach and allows for variation between participants and non-independence amongst observations while also providing unbiased estimates in the case of missing data, under the assumption that data are missing at random. Effect sizes (Cohen's *d*) were calculated based on the pooled standard deviation for both those who provided data (i.e., completers) and using the estimated marginal means derived from the mixed-linear models analyses.

Based on dissemination studies (Richards and Suckling, 2009), an index of clinical significant remission and deterioration was calculated. The remission index was defined as the proportion of participants who at pre-treatment scored at or above the clinical cutoffs on the PHQ-9 ( $\geq 10$ ) and GAD-7 ( $\geq 8$ ), and then subsequently below these clinical cutoffs at post-treatment and 3-month follow-up (Richards and Suckling, 2009). Deterioration was defined as an increase by five or more points on the PHQ-9 or GAD-7 at post-treatment or follow-up, compared to pre-treatment (Richards and Suckling, 2009). Importantly, in these analyses, the last available data (i.e., last observation-carried-forward; LOCF) was carried forward for participants who did not complete post-treatment or follow-up questionnaires to provide a conservative estimate of remission. All analyses were performed in SPSS version 21.0 (SPSS, Inc., Chicago, IL).

### 3. Results

#### 3.1. Adherence and attrition

Ten of eleven (91%) participants completed the Course, which was defined as reading all five lessons within the 8-week period. Ten of eleven (91%) participants provided post-treatment and 3-month follow-up data on primary and secondary measures. Nine of eleven (82%) participants provided treatment satisfaction data collected at post-treatment and 3-month follow-up. Fig. 1 shows participant flow including adherence and attrition rates.

#### 3.2. Outcomes and effect sizes

The outcomes and effect sizes of the trial are displayed in Table 2. The mixed-linear models analyses revealed significant main effects for Time on all measures: PHQ-9 ( $F_{2, 10.48} = 8.063, p = .008$ ), GAD-7 ( $F_{2, 10.54} = 12.46, p = .002$ ), SDS ( $F_{2, 10.43} = 11.93, p = .002$ ) and K-10 ( $F_{2, 10.58} = 10.96, p = .003$ ). Pairwise comparisons revealed that PHQ-9, GAD-7, SDS and K-10 scores were significantly lower at post-treatment and 3-month follow-up than at pre-treatment (all  $p < .024$ ). There were no significant differences, however, on any measures between post-treatment and 3-month follow-up ( $p > .05$ ).

Large pre-treatment to post-treatment and pre-treatment to 3-month follow-up effect sizes were found on all measures, using both completer and estimated marginal means (completers: Cohen's  $d = .94$  to 1.86; estimated marginal means;  $d = 1.08$  to 2.00), indicating improvements were sustained.

#### 3.3. Clinical significance

Table 3 displays the clinically significant remission and recovery rates on the PHQ-9 and GAD-7. For the PHQ-9, of the 6/11 (54.54%) participants who scored above the cutoff at pre-treatment, none (0/11) remained above this cutoff at post-treatment or 3-month follow-up. Five of 11 (45.45%) and 6/11 (54.54%) participants made a 50% or greater improvement on the PHQ-9 at post-treatment and 3-month follow-up, respectively. For the GAD-7, of the 6/11 (54.54%) participants who scored above the cutoff at pre-treatment, 3/11 (27.27%) remained above this cutoff at post-treatment, and no participants (0%) remained above this cutoff at 3-month follow-up. Five of 11 (45.45%) and 7/11

(63.63%) participants made a 50% or greater improvement on the GAD-7 at post-treatment and 3-month follow-up, respectively.

#### 3.4. Deterioration

At post-treatment and 3-month follow-up, none of the 11 participants obtained PHQ-9 or GAD-7 scores five or more points higher compared to pre-treatment.

#### 3.5. Acceptability

Nine of 11 respondents provided data to assess the acceptability of the course. All responding participants (100%) reported it was 'worth their time doing the course', and 8/9 (89%) participants reported they would 'recommend this course to a friend or family member with anxiety or depression'.

#### 3.6. Contact

The mean total therapist time per participant over the 8-week course was 90.72 min ( $SD = 28.98$ ), which comprised an average of 58.2 min ( $SD = 32.93$ ) and 32.5 min ( $SD = 30.80$ ) per participant for telephone calls and secure private e-mails, respectively. An additional average of 24.91 min ( $SD = 10.71$ ) per participant was required for administrative purposes including the screening telephone call at recruitment. The therapist made an average of 8.5 telephone calls ( $SD = 2.25$ ; range = 4 to 11) and an average of 4.5 e-mails to participants ( $SD = 1.63$ ; range = 2 to 8) during the course.

#### 3.7. Treatment seeking

Participants reported that they chose Internet-delivered treatment because there is no need to travel (8/11; 73%), privacy and anonymity (5/11; 45%), they did not believe their symptoms were severe enough to warrant face-to-face treatment (5/11; 45%), time constraints to attend face-to-face services (3/11; 27%), costs of face-to-face treatment (3/11; 27%) and stigma (1/11; 9%).

## 4. Discussion

Large numbers of Arab people have immigrated to western countries, but little is known about whether Arab people respond to psychological treatments developed in the western world. The primary aims of the present study were to examine the preliminary efficacy and acceptability of the Arab Wellbeing Course, a culturally modified transdiagnostic iCBT program, for symptoms of anxiety and depression in Arab Australians. It was hypothesised that participants would show statistically and clinically significant reduction in symptoms of depression, anxiety, distress and disability and that they would rate the course as worthwhile and recommend the program to a friend or family member. These hypotheses were supported.

Overall, the results from this preliminary trial are encouraging. Large within-group effect sizes were found on the primary and secondary outcome measures including a measure of disability, indicating that improvements generalised to other domains. These large effects were maintained and were reflected in high levels of remission and recovery. Treatment adherence and participation satisfaction were high. These high rates were achieved with minimal therapist input ( $M = 90.72$  min;  $SD = 28.98$ ), highlighting the potential cost-effectiveness of this approach.

These results are consistent with those observed in evaluations of the Wellbeing Course amongst the general Australian population (Titov et al., 2012, 2013). This outcome suggests that interventions, such as the Wellbeing Course, which was developed for a general population, could potentially undergo relatively minor modifications for use with other cultural groups and produce comparable results in

**Table 2**Observed and estimated means, standard deviations, confidence intervals and effect sizes (Cohen's *d*) for the overall sample.

	Observed means			Estimated means			Effect sizes (based on estimated means)		
	Pre	Post	3-month follow-up	Pre-treatment	Post-treatment	3-month follow-up	Within-group pre-post	Pre-treatment to 3-month follow-up	Post-treatment to 3-month follow-up
PHQ-9	11.71 (6.35)	3.80 (2.49)	3.00 (2.24)	11.73 (6.06)	3.69 (2.43)	3.36 (2.44)	1.74 (.70–2.65)	1.81 (.76–2.72)	.14 (–.71 – .97)
GAD-7	9.91 (5.59)	5.11 (3.38)	3.11 (2.32)	9.91 (5.33)	5.12 (3.36)	3.57 (2.47)	1.08 (.14–1.92)	1.53 (.53–2.41)	.53 (–.34 to 1.35)
SDS	24.45 (12.46)	8.70 (5.91)	6.44 (6.75)	24.46 (11.88)	8.73 (5.88)	6.97 (6.65)	1.68 (.65–2.58)	1.82 (.77–2.73)	.28 (–.57 to 1.11)
K10	29.18 (9.08)	18.40 (4.99)	14.89 (3.76)	29.18 (8.65)	18.40 (4.97)	15.59 (4.17)	1.53 (.53–2.41)	2.00 (.91–2.94)	.61 (–.26 to 1.44)

Note. Standard deviations and 95% confidence intervals are shown in parentheses. Pre: pre-treatment, Post: post-treatment; Follow-up: 3-month follow-up; PHQ-9: Patient Health Questionnaire 9-Item; GAD-7: Generalised Anxiety Disorder 7-Item; SDS: Sheehan Disability Scale; K10: Kessler 10-item.

that target population. The limits of generalisability are likely to be defined by acculturation variables such as an immigrant's familiarity with the English language and culture, their ethnic identity and their level of biculturalism, that is, their ability to integrate into host culture and retain the values of their culture (Yoon et al., 2013). Careful and systematic research is required to determine the extent to which materials will need to be modified, and in what way, to make them suitable for different cultural groups. However, these results are consistent with an emerging body of work that has evaluated modified versions of CBT interventions developed for western populations with other cultural groups (Choi et al., 2012; Wagner et al., 2012). This literature provides preliminary support for the position that, with respect to principles of psychological treatment, people of different cultures are more similar than different and may therefore benefit from similar treatment strategies. Notwithstanding the limitations of an open-trial design, the present study extends these results by demonstrating that relatively minor modifications can be sufficient to make interventions acceptable to a targeted culturally and linguistically diverse (CALD) group. Importantly, should such modified interventions be effective in self-guided formats (e.g., Titov et al., 2012, 2013), the potential for improving access to psychological treatments for CALD communities is considerable.

The present study was not designed to explore whether the modifications made to the Wellbeing Course were actually required and whether similar results would be obtained with the target population using the original version of the Wellbeing Course. This is an important question that has considerable implications for the dissemination of psychological treatment materials into routine care. Unfortunately, to date, there are no reported studies in the iCBT literature comparing culturally adapted with non-adapted Internet-delivered interventions or examining the issue of when cultural adaptation may be or may not be important. This is an important issue for future research.

In addition to reporting the intervention to be acceptable, participants also reported several advantages of Internet-delivered treatments. These included convenience, privacy and anonymity, and perceived suitability for treating a relatively mild level of symptoms. These findings are encouraging and highlight the potential of Internet-delivered treatment in offering anonymity and flexibility and addressing some of the common barriers (i.e. mental health literacy, lack of time and shame) reported amongst some Arab Australians (Kayrouz et al., 2014).

Limitations of this study include the following: first, the absence of a control group means it is not possible to determine effect of the treatment beyond that of spontaneous remission. Second, the small sample

size limits the extent to which the results can be generalised and means that significant caution is needed in interpreting the results of the trial beyond conclusions about the general feasibility of iCBT for Arab Australians. Third, the relatively high educational level of the sample limits the extent to which the results can be generalised to those with lower levels of educational attainment. Fourth, due to the moderate level of symptom severity of the sample, it is unclear how effective the course would be for those with more severe symptoms of anxiety or depression. Fifth, the level of acculturation was not measured raising questions about the extent to which acculturation may moderate treatment outcomes. However, a large randomised controlled trial is planned, which will address several of these issues. Sixth, the psychometric properties of many of the measures employed in the current study have not been examined amongst Arab Australians and, consequently, some caution is needed. However, it is important to note that there is evidence of the reliability and validity of the K-10 and PHQ-9, which was employed in the present study, for the Moroccan and Turkish Dutch (Fassaert et al., 2009) and Saudis (Becker et al., 2002), respectively. Future research would benefit from further and broad psychometric examination of these measures in Arab Australians as well as other cultural and ethnic groups more broadly. Finally, the Wellbeing Course was not provided in Arabic. Although we do not envisage that the language of presentation would have a significant effect on clinical outcomes, providing the material was appropriately translated; this can only be established via a dedicated clinical trial of the Arab Wellbeing Course provided in Arabic and some caution is needed until such a trial is completed.

The Arab Wellbeing Course resulted in large improvements on measures of anxiety, depression, stress and disability at post-treatment, which were sustained at 3-month follow-up. Moreover, the treatment was rated as acceptable to participants. These results were similar to previous findings of iCBT obtained with the general Australian population. These preliminary results indicate that this intervention has potential as a treatment tool for Arab Australians with symptoms of anxiety and depression.

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**Table 3**

Proportion of participants above cutoff scores of clinical significance (remission) and proportion demonstrating at least 50% reduction in pre-treatment scores (recovery).

	Pre-treatment	Post-treatment	3-month follow-up	
	≥Clinical cutoff	≥Clinical cutoff	≥50% improvement	≥50% improvement
PHQ-9	6/11 (54.55%)	0/11 (0.00%)	5/11 (45.45%)	6/11 (54.54%)
GAD-7	6/11 (54.55%)	3/11 (27.27%)	5/11 (45.45%)	7/11 (63.63%)

Note. Intention-to-treat model was employed with last-observation being carried forward if follow-up data were not available. The clinical cutoff utilised for the PHQ-9 and GAD-7 was 10 and 8 respectively.

## Conflict of interest

The authors declare that there is no conflict of interest.

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