

Assessing the efficacy of a culturally adapted cognitive-behavioural internet-delivered
treatment for depression

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By

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Declaration

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Summary

Background: Depressive disorders are the principal cause of disability in the world, with an upward trend in prevalence in low and middle income countries (LMICs). Depression can be effectively treated, however, several barriers in Colombia affect people's access to treatment (e.g. cost, personal stigma, limited availability of the mental health service). Internet-delivered interventions have demonstrated efficacy in high income countries and therefore may have relevance in LMICs.

Aims: To assess the efficacy of the culturally adapted cognitive behavioural internet-delivered for depression

Method: The study used a mixed method approach utilising in study 1, the development of a systematic and theoretically informed approach, using quantitative and qualitative methods to assist in the cultural adaptation of the *Space from Depression* intervention and in study 2 a randomised control design to examine the efficacy of the culturally-adapted intervention in college students in Colombia. Study (1) involved the cultural adaptation of the *Space from Depression* cognitive-behavioural internet-delivered programme for depressive symptoms. The adaptation involved a cultural sensitivity framework (CSF), alongside an ecological validity framework (EVF) and principles from cross-cultural assessment research. This includes initial researcher/clinician adaptation and the integration of cultural assessment feedback of the programme by a panel of experts and users using the theoretically-based Cultural Relevance Questionnaire (CRQ). Study (2) consisted of the implementation of the culturally adapted intervention using a randomised controlled design. The efficacy trial included an internet-delivered cognitive behavioural therapy (iCBT) group and a waiting list (WL) control group of participants meeting eligibility criteria (mild to moderate depressive symptoms). The active condition consisted of 7 weekly modules of CBT *Space from Depression*, with post-session feedback from a trained supporter. The primary outcome included the Patient Health

Questionnaire (PHQ-9). The study also involved collection of client reported significant events and client satisfaction with the internet-delivered treatment.

Results: In study 1 the adaptation included the following stages: a) establishment of CSF, which included the incorporation of Colombian cultural expressions; b) Users' (n=5) and experts' (n=7) evaluation (EVF), based on cross-cultural assessment principles; c) cultural incorporations into the programme. The CRQ was developed and used by users and experts to evaluate the intervention. The CRQ demonstrated good reliability in the sample (Cronbach's Alpha 0.744). Qualitative analysis supported the culturally sensitive changes made to the programme, such as: personal stories and textual translations from English and these were considered ecologically valid and representative.

In study 2, 214 college students were recruited from two cities in Colombia (107 iCBT group and 107 WL control group). Repeated measures within group showed significant reductions in depressive symptoms. Linear mixed model (LMM) including fixed effects for time showed significant effects post-treatment ($t=-5.189$, $df=197.54$, $p<0.00$) and these effects were maintained into 3-months follow up ($t=4.668$, $df=39.62$, $p<0.000$). The results show that the users report positive experiences using the culturally adapted programme and satisfaction with the treatment. A noted limitation of the work is that the research attrition was high.

Conclusions: The study sought to establish a theoretically robust methodology for culturally adapting internet-delivered interventions for mental health disorders and to evaluate the efficacy of a culturally adapted internet-delivered treatment for depression in Colombia, with support. The study is a first contribution to a method for culturally adapting internet-delivered interventions and also a first to examine the efficacy of such an adapted intervention in Latin America

Publications

- Salamanca-Sanabria, A., Richards, D., Timulak, L., Castro-Camacho, L., Mojica-Perilla, M., & Parra-Villa, Y. (2018). Assessing the efficacy of a culturally adapted cognitive behavioural internet-delivered treatment for depression: protocol for a randomised controlled trial. *BMC psychiatry*, 18(1), 53.
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List of Abbreviations

CBT: Cognitive Behaviour Therapy
CAP: Culturally Adapted Psychotherapy
CAiT: Culturally adapted internet-delivered treatment
CES-D: Centre for Epidemiological Studies-Depression
CIA-R: Clinical Interview Schedule-revised
CIDI: Composite International Diagnostic Interview
CRQ: Cultural Relevance Questionnaire
CSF: Cultural sensitivity framework
DMDD: Disruptive mood dysregulation disorder
DIS: Diagnostic Interview Schedule
DSM-III: Diagnostic Statistical Manual, 3th edition
DSM-IV: Diagnostic Statistical Manual, 4th edition
DSM-5: Diagnostic Statistical Manual, 5th edition
EVF: Ecological Validity Framework
GAD-7: General Anxiety Disorder, 7-item
HICs: High-income countries
HAT: Helpful Aspects of Therapy Form
iCBT: Internet-delivered Cognitive Behavioural Therapy
ICPE: International Consortium of Psychiatric Epidemiology
LMCs: Low and Middle Income Countries
MDE: Major depression disorder
PTSD: Posttraumatic Stress Disorder
PHQ-9: Patient health questionnaire, 9-item
RCT: Randomised controlled trial
SAT: Satisfaction with Treatment
WL: Waiting-List
WHO: World Health Organisation
WMH: World Mental Health

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Chapter 1: Introduction¹

Background

Depressive disorders are the second cause of disability in the world (Ferrari, Charlson, et al., 2013) with a worldwide pooled prevalence of 4.4% (World Health Organisation, 2017); by 2020 this disorder may be the second leading cause of morbidity (Murray et al., 2012). Furthermore, high rates of prevalence of depression have been found worldwide and in various cultural groups (Bromet et al., 2011; Ferrari, Charlson, et al., 2013; Kessler et al., 2009; Kessler & Bromet, 2013; Kirmayer, Gomez-Carrillo, & Veissière, 2017), with an upward trend in prevalence in low-and middle-income countries (LMICs) (World Health Organisation, 2017). In South American countries, such as Colombia, similar high prevalence rates are reported, which are not far removed from prevalence rates found in high-income-countries (HICs) (Bromet et al., 2011; Kessler & Bromet, 2013). For instance, in the U.S., 12-month prevalence rates have been estimated to be 6.6% (Kessler et al., 2003), while in Europe they are estimated to be 8.5% (Ayuso-Mateos et al., 2001). In Colombia 12-month prevalence has been estimated between 6.6% and 10% (Gómez-Restrepo et al., 2004).

Studies have shown that Colombia reports the second highest prevalence of major depression in Latin-America after Brazil (Bromet et al., 2011; Kessler et al., 2010; Kessler & Bromet, 2013). One epidemiological report on the prevalence of mood disorders in LMICs, show that Colombia ranks first (6.9%) compared to India (5.5%), Iraq (4.1%), Nigeria (1.2%), Beijing (2.2%) and Shenzhen (4.8%) (Kessler et al., 2011). Recently, the Colombian

¹ The introduction includes sections of a published paper by the author (AS). Salamanca-Sanabria, A., Richards, D., Timulak, L., Castro-Camacho, L., Mojica-Perilla, M., & Parra-Villa, Y. (2018). Assessing the efficacy of a culturally adapted cognitive behavioural Internet-delivered treatment for depression: protocol for a randomised controlled trial. *BMC Psychiatry*, 18(1), 53.

National Mental Health Survey (2015) estimated point prevalence of mild to moderate depressive symptoms at 15.6% and severe depressive symptoms at 4.2% of adults.

Depressive symptoms are commonly reported in general populations and also among college students (Rotenstein et al., 2016; Sargent, Crocker, & Luhtanen, 2006). Depressive symptoms can go undiagnosed and untreated; and no treatment access may be associated with developing a depressive disorder (Ghio, Gotelli, Marcenaro, Amore, & Natta, 2014). Cross-cultural studies show high rates of depressive symptoms among students (Crittenden, Fugita, Bae, Lamug, & Un, 1992; Dyrbye, Thomas, & Shanafelt, 2006).

Depressive disorders have shown to be more frequent among college students in comparison to the general population (Cuijpers et al., 2016). For instance, a systematic review shows a weighted mean prevalence of depression symptoms in college students of 30.6% (Ibrahim, Kelly, Adams, & Glazebrook, 2013). These rates are comparable to reports from Latin America (Cova Solar et al., 2007; Melo-Carrillo, Van Oudenhove, & Lopez-Avila, 2012; Morales et al., 2013; Nogueira-Martins, Neto, Macedo, Cítero, & Mari, 2004). In Colombia one study reported high prevalence of depression symptoms (30%) in students (Arrivillaga-Quintero, Cortés-García, Goicochea-Jiménez, & Lozano-Ortiz, 2004). Another recent study showed 36.2% prevalence of depression symptoms in a college sample (Richards & Salamanca-Sanabria, 2014). Several variables have been associated with vulnerability of college students to depression: changes in lifestyle related to poor sleep habits, eating disorders, economic stressors and family problems (Beiter et al., 2015; Ibrahim et al., 2013).

The high prevalence reported is a justification for implementing interventions for depression in Colombia. However, in Colombia there are barriers for accessing mental health treatments, such as cost and personal stigma, which prevent people from accessing the

treatments they need (Ministry of Health, 2015; Richards & Salamanca, 2014). Recently, a World Mental Health survey reports that only 6.7% of college students received treatment for their mental health disorder in lower-middle/low income countries (Auerbach et al., 2016). In Colombia, the majority (85-95%) of individuals with mental health problems do not access or cannot access services they require or need (Ministry of Social Protection, 2012), and additionally the population with mental health problems does not have adequate insurance coverage (Ministry of Health, 2015; Rodriguez, 2007). The Colombian National Mental Health Survey (2015) shows that about 50% of the population reports that personal stigma is one of the principal causes of not accessing a mental health service in Colombia, followed by geographical location and limited service availability (Ministry of Health, 2015).

Despite the necessity to implement psychological interventions for depression in Latin America, there are few studies in this field (Cuijpers, Karyotaki, Reijnders, Purgato, & Barbui, 2018). More so, treatments are mostly pharmacological, and evidence-based psychological treatments are rarely used. Furthermore, most of the treatments LMICs are implemented without considering cultural context; very little research has investigated culturally adapted treatments (Vally & Maggott, 2015), while there is even less research in internet-delivered treatments (Arjadi, Nauta, Chowdhary, & Bockting, 2015; Martínez, Rojas, Martínez, Lara, & Pérez, 2018). Internet delivered psychological treatments may be a suitable alternative to make evidence-based treatments available, especially when nearly 56% of the population in Colombia use the internet (Ministry of Communications and Information Technology, 2015).

Psychological treatment of depression

Depressive symptoms can be effectively treated with psychotherapy and/or pharmacotherapy (Cuijpers, Andersson, Donker, & van Straten, 2011; Cuijpers, Sijbrandij, et al., 2013; Karyotaki, Smit, Beurs, et al., 2016; Karyotaki, Smit, Henningsen, et al., 2016). Psychological treatments for depression have shown better outcomes in comparison to waiting list or placebo and combined treatment is more effective than pharmacotherapy alone (Cuijpers, Sijbrandij, et al., 2013; Cuijpers, van Straten, Andersson, & van Oppen, 2008). Boumparis, Karyotaki, Kleiboer, Hofmann, and Cuijpers (2016) found that psychological treatments can enhance positive affect and decrease negative affect in depression, contributing to better outcomes. A recent meta-analysis showed that Cognitive Behaviour Therapy (CBT) has been extensively researched and it has been demonstrated to be effective for depression (Cuijpers, Berking, et al., 2013a).

Low-intensity internet-delivered treatment usually is based on cognitive-behavioural principles. It involves self or semi-guidance and uses Cognitive Behavioural therapy (CBT) techniques that are typically used in face-to-face therapy here delivered using text, pictures, animations, audio files and videos (Ritterband & Thorndike, 2006; Titov, 2011). This type of intervention is highly structured, it involves psychoeducation, activities and supplementary resources, such as a supporter contact via asynchronous message (National Institute for Health and Clinical Excellence, 2009).

Internet-delivered interventions have an established empirical base for major depression (Hedman, Ljótsson, & Lindefors, 2012) and sub-threshold depression (Spek et al., 2007). They are also used as maintenance treatments (Ebert et al., 2015; Ebert, Tarnowski, Gollwitzer, Sieland, & Berking, 2013; Richards & Richardson, 2012). For instance, a systematic review of computer-based interventions for depression with supporter found a

medium-to-large effect size ($d=0.78$ - $d=0.58$), and small-to-medium effect sizes when the intervention was delivered as stand-alone self-help treatment ($d=0.25$ - $d=0.36$) for the reduction of depressive symptoms both compared with usual care (Richards & Richardson, 2012). A recent review showed how face-to-face psychotherapy and internet-delivered therapy had similar effects (Andersson, Cuijpers, Carlbring, Riper, & Hedman, 2014).

Internet-interventions for depression are available in many languages. Research from Spanish language versions including Montero-Marín et al. (2016) reported positively on the effectiveness of a CBT-based internet-delivered programme for depression. A recent four-year descriptive, naturalistic study monitoring a web-based CBT treatment developed and researched in Mexico indicated that the intervention was useful for depressive symptoms (Lara, Tiburcio, Aguilar-Abrego, & Sánchez-Solís, 2014). A feasibility study in Chile found an online treatment to be beneficial, acceptable and feasible (Espinosa et al., 2016).

For the most part, there is good availability of psychological treatments and mental health services in high income countries (HICs). Internet-delivered interventions research evidence and their implementation have been mainly developed in HICs (Schröder, Berger, Westermann, Klein, & Moritz, 2016). Whereas in LMICs most people who need mental health services do not receive any, this is known as the ‘mental health gap’. For instance, the World Health Organisation (2013) have estimated that between 76 and 85% of the people with severe mental health problems receive no treatment in LMICs. Therefore, internet interventions may be a valuable resource to reduce the treatment gap in LMICs, such as Colombia, thus ameliorating social health inequalities between regions (Latulippe, Hamel, & Giroux, 2017). Additionally, there is little knowledge of emerging internet based interventions for depression in such countries (Martínez et al., 2018). A recent systematic review found that only three articles reported results of RCTs in internet-delivered interventions for mental

health conditions in LMICs (Arjadi et al., 2015).

This study is the first contribution investigating the effectiveness of a culturally adapted cognitive-behavioural internet-delivered intervention for depression in a low-middle income country, Colombia.

Culturally adapted psychotherapy (CAP)

Low-intensity internet-delivered interventions for depression have been developed in Western high-income countries and these interventions therefore have been influenced by their specific cultural context (for example, Ireland, UK, Australia). Hence, it is important to consider how cultural context may impact on the adaptation of internet-delivered interventions for use in LMICs such as Colombia. Cultural aspects need to be taken into consideration when translating and adapting interventions to help achieve similar results to those that have been achieved in HICs (Bernal & Domenech-Rodríguez, 2012; Chu & Leino, 2017). Culturally adapted psychotherapy (CAP) is defined as a systematic change of intervention protocols through consideration of their relevance to the culture of the target population and the modification of treatment in accordance with clients' contexts and values (Bernal, Jiménez-Chafey, & Domenech-Rodríguez, 2009).

There are several reasons for considering the cultural adaptation of treatments. First, evidence suggests that cultural influences affect the diagnostic and treatment process (Canino & Alegría, 2008; Givens, Houston, Van Voorhees, Ford, & Cooper, 2007; Hall, 2001). For example, there exist cultural differences in the expression and understanding of depressive symptoms across cultures that may influence the assessment and the therapeutic process (Haroz et al., 2017; Karasz, 2005; Muñoz et al., 2005; Richards & Salamanca-Sanabria, 2014; Yusim et al., 2010). Second, research supports the effectiveness of developed treatments

based on diverse cultural groups' necessities and contexts (Bernal, Jiménez-Chafey, & Domenech-Rodríguez, 2009; Chowdhary et al., 2014; Miranda et al., 2005). Third, most outcome research of Evidence Based Treatments (EBTs) are with Caucasian samples (Bernal & Scharró-del-Río, 2001; Chu & Leino, 2017; Griner & Smith, 2006; La Roche & Christopher, 2008), therefore the treatments are not necessarily generalisable to other ethnics groups (Chu & Leino, 2017; Lau, 2006). And fourth, ethical research must be culturally sensitive regarding clinical interventions introduced culturally diverse communities, thereby optimising the potential benefits to the persons and communities (Trimble, Scharrón-del-Río, & Hill, 2012).

Studies have analysed the efficacy of Culturally Adapted Psychotherapy (CAP) in comparison to non-adapted face-to-face interventions and other control groups such as waiting list groups in adults. In the last decade, several studies explored the development and implementation of culturally sensitive treatments for depression for different ethnic groups, finding medium and large effects sizes from pre-treatment to post-treatment in face-to-face therapy (Kalibatseva & Leong, 2014). A recent meta-analysis found that the overall affect size was $g=0.67$, which indicates that culturally adapted interventions have better outcomes in comparison to other conditions (non-adapted treatment or control group) (Hall, Ibaraki, Huang, Marti, & Stice, 2016).

Some studies have considered cultural adaptation for low-intensity internet-delivered treatments. An open trial study (Kayrouz, Dear, Johnston, Gandy, et al., 2015) examined the preliminary efficacy and acceptability of a culturally modified therapist-guided CBT treatment for anxiety and depression. The results showed that participants improved significantly across all outcome measures, with large within-group effect sizes (Cohen's d) at post-treatment ($d = 1.08$ to 1.74) and 3-month follow-up ($d = 1.53$ to 2.00). Another study of

CAP (Choi et al., 2012) showed the efficacy of a cognitive behavioural internet-delivered treatment for depression with weekly telephone support. The treatment group participants reported significantly reduced depressive symptoms (Cohen's $d=0.93$) up to 3-months after treatment compared to a control group. Furthermore, Ince, Cuijpers, van 't Hof, et al. (2013) in a randomised control trial demonstrated reductions in depression symptoms in participants using the culturally adapted internet-based, self-help problem-solving intervention, yielding a moderate effect size (Cohen's $d=0.50$) post-treatment.

A recent review and meta-analysis on cultural adaptation of minimally guided interventions for common mental disorders, which included e-mental health delivered interventions and bibliotherapy, found that insufficient details on the methodologies used for cultural adaptation were reported. However, these studies showed an increase in effect size of 0.117 ($P=0.04$), or a 14% rise in pooled efficacy when the intervention is culturally adapted in comparison to non-adapted intervention or no treatment (Harper-Shehadeh, Heim, Chowdhary, Maercker, & Albanese, 2016). Despite the outcomes showing positive post-treatment results, more research is required to develop interventions that incorporate systematic approaches to culturally adapting an intervention, especially as the processes for culturally adapting interventions have not been systematic and clearly or fully described in previous research.

There are about eleven models, approaches or frameworks to develop culturally adapted psychotherapy that have been described in the literature (Bernal & Domenech-Rodríguez, 2012; Chu & Leino, 2017; Kalibatseva & Leong, 2014) but limited studies have considered their use. Some of the most researched frameworks involve the cultural sensitivity framework (CSF), which has two dimensions, top-down adaptations (e.g., observable culture characteristics by the research team are adapted and/or modified in the intervention) and

bottom-up adaptations (e.g., cultural, social, historical, environmental and psychological aspects are considered into the treatment), that indicate varying degrees of integration of culture in psychotherapy (Resnicow, Soler, Braithwaite, Ahluwalia, & Butler, 2000). Another framework extensively researched is the ecological validity framework (EVF) that refers to a process that allows generalisation of assumptions derived from research situations to other environments and considers dimensions such as language, persons, metaphors, concepts, contexts, methods, and goals (Bernal & Sáez-Santiago, 2006).

Recently, Helms (2015) proposed to include in CAP principles from cross-cultural assessment research (i.e., functional equivalence, conceptual equivalence, linguistic equivalence) which involve an ethnicity concept. Ethnicity is defined as the values, beliefs, customs and traditions transmitted from generation to generation that are socialised and learned by the members of an ethnic cultural group (Helms, 2015). Ethnicity, involves an understanding of cultural differences in depression, which is essential for tailoring interventions to a target population.

These approaches have been considered and extended in this study as a contribution to a systematic method to culturally adapted an internet-delivered interventions. The current study is one of the first contributions in disseminating evidence-base-treatment in Latin-America (and LMICs). The research design, methodology and study framework can be transferred to other similar studies with diverse populations.

Theoretical framework and design

Aims and Hypothesis

The current study sought to examine the acceptability and efficacy of a culturally adapted cognitive behavioural internet-delivered intervention in Colombia - South America. In line with other studies in high-income countries (HICs), and using an already established intervention, the hypothesis was that the culturally adapted *Space from Depression* programme would be efficacious, with significant changes within the treatment group and differences post-treatment between the active treatment and the waiting list control group. The research was divided into two studies, study 1 systematically assist in the cultural adaptation of the *Space from Depression* intervention, and study 2 is a randomised control design to examine the efficacy of the culturally-adapted intervention. The objectives of these studies are described below.

Specific objectives

Study 1

(a) To adapt the internet-delivered treatment *Space from Depression* programme for college students in Colombia.

To make a preliminary cultural adaptation of the online programme *Space from Depression* to the target population.

To assess the initial cultural adaptation of the programme through a panel of experts and members of the community.

To incorporate the suggestions made by the evaluators into the programme.

Study 2

(b) To evaluate the efficacy of the culturally adapted *Space from Depression* programme.

To assess the effects of *Space from Depression* programme in depression and anxiety between groups and within group.

To analyse what events participants find helpful and hindering in the internet-delivered treatment for depression.

To establish participants' satisfaction with the internet-delivered treatment for depression.

The current study is based on the multiculturalism approach, which represents the forth force in psychotherapy after three earlier theoretical forces of humanism, behaviourism, and psychodynamic (Pedersen, 2013). Multiculturalism is defined by Fowers and Richardson (1996, p. 609) as a social-intellectual movement that promotes the value of diversity as a core principle and insists that all cultural groups be treated with respect and as equals. Multiculturalism as a forth force combines universalism and relativism to explain behaviour in terms of common-ground universals that are shared across cultures. Psychotherapy approaches have been developed from specific cultural perspectives and theories and procedures have developed from and for specific sectors of the society (Smith, 2005). The multiculturalism approach challenge contemporary theories and models of psychotherapy to incorporate a broader perspective for diverse cultural and linguistic groups (Bernal & Domenech-Rodríguez, 2012).

Cultural context is part of human behaviour that gives a culture-centred perspective, which provides a “fourth force” in psychotherapy. Culture-centred perspective allows a broader view of psychodynamic, humanistic and behaviourism, which is not intended to displace or compete with the other psychological perspectives, but rather to complement them regarding cultural contexts (Pedersen, 2013). A culture-centred perspective introduces a

paradigm for psychology, which emphasises understanding and description more than measuring, counting, or predicting. In this line, psychotherapy has a broad view of clients, regarding and respecting their cultural context, values and preferences. The American Psychological Association (2003) argues that psychologists have to recognise that they are influenced by different contexts such as history, socio-political circumstances and ecology.

This research also is based on the Cognitive Behavioural Therapy (CBT) model, which is based on the underlying theoretical rationale in which mental disorders and psychological distress are maintained by cognitive factors (Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012). CBT focuses on how dysfunctional thoughts effect current behaviour and functioning (Cuijpers, Berking, et al., 2013a; Cuijpers et al., 2008). Based on the cognitive triad model proposed by Beck, negative views or believes of themselves, the world and their future are critical to develop depression (Slavik & Croake, 2006). The CBT model for depression proposes that latent dysfunctional schemas are characterised by negative content. Situations or information processing are triggers that can activate cognitions and corresponding patterns that serve to precipitate depression. Schemas are not necessarily negative, but are considered dysfunctional when they contain information to reinforce a rigid and negative view of themselves, the world and their future (Beck, 2011).

Dysfunctional cognitions in depression are usually conceptualized in terms of a hierarchical model of generality, with automatic thoughts at the most superficial level, dysfunctional attitudes at an intermediate level, and cognitive schemas (or core beliefs) at the deepest level (Clak & Beck, 1999). The treatment consists of cognitive restructuring, in which using cognitive techniques, clients learn to gather evidence that is disconfirming their schema and by doing to understand, on a rational level, that their schema is false (Beck, 2011). There are two main types of CBT, the first puts a special emphasis on cognitive

restructuring and the second includes this component plus behavioural activation, social skills training, relaxation and development of coping skills (Cuijpers, Berking, et al., 2013b; Cuijpers et al., 2008).

This study considered an internet-delivered version of CBT for depression programme, which consists of behavioural activation, cognitive restructuring, and challenging of maladaptive thoughts (Salamanca-Sanabria et al., 2018). The current study delivers a treatment that follows the theoretical principles of CBT. This includes working through cognitive modules and behavioural components. The specific content in both online delivery modes aims to help people change negative thinking and unhelpful behaviour. Appropriate delivery of CBT online interventions have demonstrated efficacy in HICs, however culturally adapted internet-delivered treatments (CAiT) for depression are still limited

Finally, this research address supports the efficacy of an evidence-based iCBT achieved in HICs in different populations, especially in a LMICs, such as Colombia. The study is a mixed method approach utilising in study 1 quantitative and qualitative methods to assist in the cultural adaptation of the *Space from Depression* programme intervention and in study 2 a randomised control design to examine the efficacy of the culturally-adapted intervention. Study 2 also examines helpful and hindering aspects of treatment (HAT) and the Satisfaction with the treatment (SAT). The outcomes could be generalised to adult students' population. The research has some limitations such as the study is not including an official depression diagnosis of participants. However it includes well established measures of symptoms of depression.

Overview of Chapters

Chapter 2 Cultural differences in depression and its treatment

This chapter describes the classification of depressive disorders, and the epidemiology of depression worldwide, prevalence of depression across-cultures, prevalence in South-America and in college students. Also, evidence-based treatments for depression, specifically Cognitive Behavioural Therapy (CBT) and low-intensity internet-delivered interventions for depression are described.

Chapter 3 culturally adapted psychotherapy

The aim of this chapter is to outline theoretical approaches to cultural adaptation of evidence-based internet-delivered treatments. This chapter begins with an historical overview of culturally adapted interventions. Thereafter, the chapter describes conceptualizations and theoretical approaches used for developing culturally-adapted psychotherapy (CAP). The chapter presents a research background of CAP in Latin-America, and includes a systematic review of culturally adapted internet-delivered treatment (CAiT) for depression.

Chapter 4 Method

The chapter describes the method used for study 1 and 2, including, participants' demographics, sampling procedures, data collections and ethical standards. The sample size and power calculation are also considered for the RCT. Instruments employed in those studies are described, their psychometric measures detailed.

Study 1 involves the culturally adapted psychotherapy method. Study 2 assessing the efficacy of the culturally-adapted intervention for depression. The programme *Space from Depression* is described and also the procedure to recruit the participants, including the randomisation also the analysis carried out in each instrument. The methodology assessing

helpful and hindering aspects of treatment (HAT) as well as Satisfaction with the treatment (SAT) is presented.

Chapter 5 Results

This chapter describes the outcomes from all of the phases in study 1, which involves a description of how the cultural adaptation of the programme was initially established (phase a). Also, quantitative and qualitative analysis from the Cultural Relevance Questionnaire (CRQ) (Phase b) are reported. Finally, the analysis includes a description of the modifications incorporated into the programme *Space from Depression* based on the feedback from the CRQ (phase c).

Study 2 assesses the efficacy of the culturally-adapted intervention for depression. Sociodemographic variables (e.g., gender and age) and also demographic differences and clinical characteristics in the groups were described. Repeated measures (PHQ-9, GAD7) on each participant over time are analysed.

Outcomes from Helpful and hindering aspects of treatment (HAT) and Satisfaction with the treatment (SAT) were described.

Chapter 5 Discussion

The chapter discusses the results obtained in study 1 and study 2, discusses it in the context of an existing literature and outlines implications for the theory, practice and research. Limitations are also discussed.

Chapter 2: Cultural differences in depression and its treatment

Introduction

Depressive symptoms are commonly reported in general populations and also among college students (Rotenstein et al., 2016). Depressive disorders are the second leading cause of disability worldwide (Ferrari, Charlson, et al., 2013) and they are a major focus of concern in global mental health, with epidemiological surveys indicating high prevalence rates of depression across-cultures (Bromet et al., 2011; Ferrari, Charlson, et al., 2013; Kessler et al., 2009; Kessler & Bromet, 2013; Kirmayer et al., 2017). A recent report carried out by the World Health Organisation, (2017) showed that depression increased between 2005 and 2015 in low-middle-income countries (LMICs).

However the diagnostic criteria for depressive symptoms across-cultures might not be culturally sensitive (Haroz et al., 2017; Kirmayer et al., 2017). Depressive symptoms might be expressed in varied forms in other cultures (Haroz et al., 2017; Kirmayer, 2001; Simon, Goldberg, Von Korff, & Üstün, 2002). For instance, some studies have shown that cultural influences affect the diagnosis and treatment process (Canino & Alegría, 2008; Givens et al., 2007; Hall, 2001).

Psychological treatments for depression have shown better outcomes in comparison with waiting list or placebo groups, and combined treatment is more effective than pharmacotherapy alone (Cuijpers, Sijbrandij, et al., 2013; Cuijpers et al., 2008). There are different psychotherapeutic treatments for depression, such as Cognitive Behaviour Therapy (CBT), which has been extensively researched and has been demonstrated to be effective for depression (Cuijpers, Berking, et al., 2013a). Likewise, internet-delivered interventions have an established empirical base for major depression (Hedman et al., 2012), sub-threshold

depression (Spek et al., 2007), and in maintenance treatments (Ebert et al., 2015; Ebert et al., 2013; Richards & Richardson, 2012). Internet-interventions for depression are available in many languages, however limited studies have been carried out in non-European or South American countries (Arjadi et al., 2015). Therefore, considerations of cultural differences on interventions may impact their efficacy and accessibility.

This chapter begins with the classification of depressive disorders, and the epidemiology of depression worldwide, prevalence of depression across-cultures, prevalence in South-America and in college students. Furthermore, evidence-based treatments for depression are described, specifically Cognitive Behavioural Therapy (CBT) and low-intensity internet-delivered interventions for depression. Finally, the chapter presents general conclusions about cultural differences in depression and its considerations for treatments.

Depressive disorders

Depression has been recognised as a clinical syndrome for over 2000 years. This disorder has been described by a number of ancient writers under the classification of “melancholia”. Aristaeus described being melancholic as “sad, dismayed, and sleepless”. After that both Plutarch in the second century A.D and Pinel at the beginning of the nineteenth century continue to describe melancholy similarly to modern textbook descriptions of depression. Cardinal signs and symptoms are used as a diagnostic criteria for depression: disturbed mood (sad, dismayed futile); self-castigations (“the accursed, hatred of the gods); self-debasing behaviour; wishing to die; physical and vegetative symptoms (e.g. agitation, loss of appetite and weight, sleeplessness) and delusions. Currently, depression is also defined in terms of a specific alteration in mood (e.g. sadness, loneliness, apathy), that includes a negative self-concept associated with self-reproaches and self-blame, regressive and self-punitive wishes: desire to escape, hide or die, vegetative changes (e.g. anorexia, insomnia,

loss of libido), and a change in activity level (retardation or agitation) (Beck and Alford (2009).

Historically, mood disorders have been considered as organic and reactive, and have also been defined in terms of “psychotic” and “neurotic”, as described in the Diagnostic and Statistical Manual of Mental Disorders first and second edition (DSM-I and DSM-II) (Richards, 2011). The Diagnostic and Statistical Manual of Mental Disorders—Third Edition (DSM-III) describes mood disorders as a constellation of symptoms with specific durations. Treatment for depression aimed at reducing or treating symptoms entirely, is something which in most cases is not attainable. In 1980 long term studies started to describe the course of depression, utilising the criteria contained in the DSM IV (Spitzer, Williams, & Skodol, 1980), which is described below.

The American Psychiatric Association (APA) categorises mood disorders in four types: (a) depressive disorders (unipolar disorders); (b) Major depressive disorder (two weeks of depressed mood or loss of interest); (c) Dysthymic (two years of low-level depressed mood); and (d) Bipolar disorders (at least one episode of mania or a hypomania)(APA, 2000).

Current classification of mood disorders

Mood is defined a spectrum of feelings from elation and happiness at one extreme, to sadness and unhappiness at the other (Beck & Alford, 2009). Depressive disorders are characterised by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration (World Health Organisation, 2017).

Currently, the Diagnostic and Statistical Manual of Mental Disorders fifth edition (DSM-5) categorises depressive disorders in three types: (a) disruptive mood dysregulation, (b) major depressive disorder and (c) persistent depressive disorder (dysthymia). DSM-V has separated depressive bipolar disorder in another category, which is explicitly reserved for episodic presentations of bipolar symptoms (APA, 2013).

Disruptive mood dysregulation disorder (DMDD) is a new disorder for DSM-5, which is characterised by a chronic, severe persistent irritability. DMDD has two clinical manifestations, (a) frequent outbursts of temper (three times per week during a 1 year period); (b) persistent irritability or angry mood. The onset of the disorder can be as young as 6 years of age, and further into adulthood (APA, 2013). DMDD is common among children and youth presenting to pediatric mental health clinics (APA, 2013; Copeland, Shanahan, Egger, Angold, & Costello, 2014). However, increasingly research has found this disorder in Adults (Copeland et al., 2014).

Major Depressive Disorder (MDD) is characterised by nine symptoms (a) depressive mood most of the day reported by the client or observation made by others (feeling sad, empty, hopeless); (b) diminished interest or pleasure in all or almost all activities; (c) significant weight loss or weight gain or a decrease or increase in appetite; (d) insomnia or hypersomnia; (e) psychomotor agitation or retardation; (f) fatigue or loss of energy; (g) feelings of worthlessness or excessive guilt; (h) diminished ability to concentrate and (i) recurrent thoughts of death (suicidal ideation or suicide attempt) (APA, 2013). The symptoms need to be present for a duration of two weeks almost every day. Depending on the number and severity of symptoms, a depressive episode can be characterised as mild, moderate or severe (World Health Organisation, 2017).

Mild depression is characterised by constant sadness and a loss of interest in usual activities, where the person is functional in daily life, accompanied by sleep and concentration difficulties. Moderate depression is described as a constant sadness and loss of interest in activities; the person has some difficulties dealing with daily life, including trouble concentrating and suicidal ideation. Severe depression is characterised by overwhelming and constant feelings of sadness with the person losing functionality in their daily life. The person can lose touch with reality and may present with a strong vulnerability to harm or take one's life (Ferrari, Charlson, et al., 2013).

Major Depressive Episode (MDE) is defined as having at least four symptoms for a given period of time, fully symptomatic (Boland, Keller, Gotlib, & Hammen, 2002). The symptoms may include, depressive mood or loss of interest or pleasure in all daily activities. This is combined with a difference in appetite, weight, or sleep patterns, psychomotor agitation or retardation, difficulty thinking or concentrating, lack energy, suicidal ideation or plans or attempts to commit suicide (APA, 2013).

Finally, Chronic Depressive Disorder (CDD) defined in DSM-5 by symptoms over the last 2 years CDD and is categorised into 4 symptoms, (1) persistent MDE that becomes chronic, (2) intermittent MDE with the current episode of CDD, (3) with dysthymic symptoms, and (4) with intermittent major depressive episodes (MDE) without a current episode of CDD. CDD can be classified as mild, moderate and severe (American Psychiatric Association, 2013). The current ICD-10 classification does not include a chronic course of MDD as DSM-5 (Jobst et al., 2016). Chronic Depressive Disorder combines all subtypes of depression into one diagnosis. Chronic depression (CD) can be divided into 4 subtypes: Dysthymic disorder; chronic major disorder, double depression (MDD superimposed on a dysthymic disorder), recurrent MDD with incomplete recovery between episodes (Jobst et al.,

2016). Studies have estimated that about 20 to 30% of MDD have a chronic course and 47% of patients in mental health centres have CDD (Angst, Gamma, Rössler, Ajdacic, & Klein, 2009; Jobst et al., 2016).

In this section mood disorders based on the DSM were described. Major depressive disorder and dysthymia have been studied in epidemiological reports, which are presented below.

Epidemiology of depression

Depressive disorders are associated with a loss of health, and are the second leading cause of disability worldwide (Ferrari, Charlson, et al., 2013; Üstün, Ayuso-Mateos, Chatterji, Mathers, & Murray, 2004). Recent analysis carried out on disability between the years of 1990 and 2010, shows that the global years lived with disability (YLDs) for MDD was 8.2% (5.9%–10.8%), and 1.4% (0.9%–2.0%) for dysthymia. Global disability adjusted life years (DALYs) were 2.5% for MDD and 0.5% for dysthymia (Ferrari, Charlson, et al., 2013).

Significant gender differences in depression have been found in several studies; for instance, the burden of depressive disorder is higher in women than men (5.5% and 3.2%, respectively) (Ferrari, Charlson, et al., 2013). A recent systematic review and meta-analysis of the common disorder in 59 countries found a lifetime prevalence of mood and anxiety disorders displaying a higher prevalence in women (14.0%) than men (7.3%) (Steel et al., 2014). In addition, MDD rates vary by age, peaking in older adulthood: more than 7.5% in females aged 55-74 years, and more than 5.5% among males (World Health Organisation, 2017).

Epidemiological data reveals high prevalence rates of depression worldwide (Ferrari, Charlson, et al., 2013; Haroz et al., 2017). A systematic review of the epidemiological global burden of depression in 53 countries, found that the pooled point prevalence of depressive disorders calculated from studies that used DSM or ICD diagnostic criteria, was 3.8% (95% CI: 3.1; 4.6). The global point prevalence of MMD was 4.4% (298 million cases) and dysthymia was 1.8% (106 million cases) (Ferrari, Charlson, et al., 2013).

Another systematic review on the global variation of prevalence and incidence of MDD found that a global point prevalence of MDD was 4.7% (4.4–5.0%) and the pooled annual incidence was 3.0% (2.4–3.8), with methodological differences adjusted to identify accurate variances in the global distribution (Ferrari, Somerville, et al., 2013). Furthermore, the authors reported that the prevalence of MDD had increased over time. This pattern has also been observed by the World Health Organisation (2017). According to their records, it is estimated that the number of people living with depression globally has increased by 18.4% between 2005 and 2015. Furthermore, the global burden of depressive disorders has increased by 37.5% between 1990 and 2010.

Nonetheless, studies show that major depression is a commonly occurring disorder in all countries where epidemiological surveys have been carried out (Kessler & Bromet, 2013). The reports presented in this section provide different global estimations of MDD and its relationship with global disability. Global MDD showed the highest prevalence compared to dysthymia, and those depressive disorders have increased throughout the years.

Prevalence of depression across cultures

Estimates on the prevalence of depression vary across countries, mainly as a result of the location and methodological design of the research (Kessler & Bromet, 2013). Lower

educational achievement, high rates of teenage pregnancy, marital disruption, and unemployment have all been reported as risk factors for the onset and increased severity of a wide range of secondary disorders, as well as posing a risk for premature mortality (Kessler & Bromet, 2013). Several studies have investigated risk factors associated with the development of depression, including gender (a greater portion of females than males are affected) and age (depression is most frequently found in middle-aged people) (Steel et al., 2014).

The majority of epidemiological studies have assessed populations from Western countries. For instance, in the US and Europe, 12-month prevalence rate have been estimated between 8.5% and 9.5% of the population, respectively (Ayuso-Mateos et al., 2001; Kessler, Chiu, Demler, & Walters, 2005). However, due to limited studies, cross-cultural reliability and validity are unclear (Ferrari, Somerville, et al., 2013). Evidence suggests that DSM/ICD diagnostic criteria are not sensitive to cross-cultural presentations of MDD (Simon 2002, Wang 2007, Bromet, 2011).

Cultural differences have been found in the estimations of the prevalence of Major Depressive Episode MDE (Bromet et al., 2011). The first cross-national comparison of a major depression survey that was administered using the Diagnostic Interview Schedule (DIS) and used the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders DSM-III to define depression symptoms in these surveys. The study revealed that lifetime prevalence estimates of MDE ranged from 1.5 cases in Taiwan to 19.0 cases in Beirut per 100 adults. The annual prevalence rates ranged from 0.8% (Taiwan) to 5.8% (New Zealand) (Weissman et al., 1996).

Subsequently, a cross-national comparison study was administrated by the World Health Organisation (WHO) using the Composite International Diagnostic Interview (CIDI)

for DSM-III-R and DSM-IV (Kessler et al., 1998). This study was the first large-scale survey to administer the CIDI in a national population in the U.S. The modified CIDI showed higher scores in mood and anxiety disorders, for instance, MDE increased from 4.4% to 4.9%.

A study based on the modified CIDI in 10 countries found lifetime prevalence estimates of MDE ranging from 3.0% (Japan) to 16.9% (U.S.), with midpoints at 8.3% in Canada. In Latin America estimates for MDE were 8.1%, in Mexico, 9.0% in Chile and 12.6% in Brazil respectively (Andrade et al., 2003). More recently, Moussavi et al. (2007) used the WHO World Health Survey across 60 countries with the International Classification of disease (ICD-10). The study found that twelve months prevalence for depressive episode alone was 3.2%, and the average between 9.3% and 23.0% of participants with chronic physical disease had a comorbid depression. The authors found that cultural differences across countries do not affect the influence of depression on overall physical health. In another report, WHO CIDI version 3.0 based on DSM-IV, estimates 12-month of DSM-IV MDE in 18 World Mental Health (WMH) countries ranged from 2.2% (Japan) to 10.4% (Brazil) (Kessler & Üstün, 2004).

The World Mental Health (WMH) survey results show that the average 12-month prevalence of depression in high-income countries (HICs) was 5.5% and 5.9% in low-middle-income countries (LMICs). Furthermore, on average, the estimated lifetime prevalence of depression in the WMH surveys was higher in HICs (14.6%) than in LMICs (11.1%). Indeed, the four lowest lifetime prevalence estimates (<10%) were in low-to-middle-income countries (Pondicherry, Mexico, Shenzhen, South Africa). On the other hand, Brazil (Sao Paulo) was an exception, because it had high rates of depression, which were comparable with the four high-income countries (France, the Netherlands, New Zealand, the United States) with the highest rates (>18%) (Kessler & Bromet, 2013). Additionally, different reports show that Brazil has

the highest prevalence of depression in comparison to other countries around the world (Bromet et al., 2011; Razzouk, Zorzetto, Dubugras, Gerolin, & de Jesus Mari, 2007; Simon et al., 2002).

Recently, a systematic review of MDE found that the prevalence rates from South America, South Asia and Africa/ Middle East were statistically higher than Western Europe. Likewise, the study found a 1.8% point prevalence of depression in developed countries and a 2.6% prevalence in developing countries (Ferrari, Somerville, et al., 2013). Furthermore, Ferrari, Somerville, et al. (2013) found a higher prevalence of MDD in developing regions compared with developed regions based on World Mental Health (WMH) surveys, that include South America and Southern Asia.

Moreover, one study showed that 12-month and lifetime prevalence of MDE as estimated by the World Mental Health (WMH) surveys was significantly lower on average in surveys carried out in high-income than in surveys in LMICs (Kessler & Bromet, 2013). In another report a 12-month prevalence of MDE was 5.5% in developed countries and 5.9% in developing countries (Kessler et al., 2010). However, the proportion of depression rated as severely debilitating in HICs was higher (65.8%) compared to LMICs (52.0%) using the Sheehan disability scale (Kessler et al., 2011).

Cross cultural reports on the prevalence of depression are limited. Only six studies have been reviewed between 1998 and 2013; these studies supported cultural variations in MDE. The differences in MDD and MDE may be defined by symptoms of depression based on the CIDI (Kessler & Bromet, 2013).

Overall, Japan and China (Asia) have the lowest prevalence of MDE. Likewise, reports have supported that the prevalence of depression in LMICs has increased in recent years. However, HICs have a high rate of disability associated with depression compared with LMICs. More studies examining prevalence rates of depression across cultures are needed in order to better understand the various patterns per country and thus provide more suitable interventions.

Prevalence of depression in South America

The majority of epidemiological reports have been conducted in Western countries (e.g. United States and countries of the European Region). Few studies have estimated the prevalence of depression in LMICs, including South-America (Castilla-Puentes et al., 2008). However, while there are no epidemiological reports published on depression in Belize, Guatemala, El Salvador, Nicaragua, Panamá, Bolivia, Guyana, Paraguay and Suriname, there are a limited number of studies examining prevalence of depression in six countries in South America (Brazil, Chile, Colombia, México and Argentina) (Castilla-Puentes et al., 2008). These studies have used a structured interview based on DSM or ICD diagnostic criteria.

Studies have shown that the prevalence of depression in South America has similar rates to those in Europe or the U.S. (Kessler & Bromet, 2013), however there are limited data. Recent reports published on the epidemiology of depression in South America only incorporated three countries in the region: Brazil (Andrade et al., 2003; Andrade, Walters, Gentil, & Laurenti, 2002; Munhoz, Nunes, Wehrmeister, Santos, & Matijasevich, 2016), Chile (Andrade et al., 2003; Araya, Rojas, Fritsch, Acuña, & Lewis, 2001) and México (Slone et al., 2006). Consequently, there is an urgent requirement for population-based epidemiological studies on depression across countries in Latin America as the prevalence of depression remains unclear (Daray et al., 2017).

One of the first studies was conducted in 1986, indicated similar prevalence rates to reports in HICs. For instance, Argentina reports 12%, Chile 15.3%, Dominican Republic 9.8% and Peru 11%. (Garcia-Alvarez, 1986). A report from Argentina, Brazil, Chile, Colombia and Mexico found the prevalence of MDD was 30% among emergency department patients. Through the use of the Centre for Epidemiological Studies-Depression (CES-D) and DSM-IV-base interviews, MDD symptoms were measured in Chile (35%), Colombia (34%), Brazil (30%), Argentina (26%) and Mexico (23%). Similarly, MDD patients reported twice the amount of health problems compared to non-depressed people. This difference was not found to be sensitive to race/ethnicity differences (Castilla-Puentes et al., 2008).

In Santiago de Chile, Chile, a study that measured depression through the use of Clinical Interview Schedule-revised (CIA-R), reported a 5.5% point prevalence for MDE (Araya et al., 2001). Depression has also been assessed in four different Chilean cities by the international consortium of psychiatric Epidemiology (ICPE) with CIDI, and has reported an average point prevalence of 3.3% for MDE (Andrade et al., 2003). The ICPE also measured depression in Sao Paulo, Brazil, and reported a point prevalence of 3.9% (Andrade et al., 2003).

An epidemiological study conducted in four representative cities of Mexico (Mexican city, Oaxaca, Hermosillo and Merida) found that prevalence of MDD overall was 12.8% using CIDI. A single episode of MDE was 8.7%, recurrent MDD in the last 6 months was 4.6% and MDD in the last 12 months was 6.1%. The authors also found that MDE varied by location. This led to the speculation that variability depends on the characteristics of the cities that present the highest prevalence of depression, which are, at the same time, the cities with

higher levels of poverty (Slone et al., 2006). The results cannot be generalised due to the fact they do not include rural areas.

Recently, Munhoz et al. (2016) used the Patient Health Questionnaire -9 items (PHQ-9) in a population-based study of depression symptoms in Brazil, and reported that 13.2% of the individuals presented with mild depression, 4.8% with moderate depression, 2.1% with moderately-severe depression, and 1.0% with severe depression. The prevalence of positive screening for depression was 4.1% (95% CI: 3.8-4.4%). Age is also considered a risk factor for more severe depression for people from urban areas and individuals aged either 40-59 years or 80 years or over. Likewise, depression was most prevalent in the Southern region and lowest in the Northern region. A recent systematic review and meta-analysis in Brazil found that the pooled prevalence of depression was 8%, and that the prevalence of depressive symptoms ranged from 5% to 28% (Silva, Galvao, Martins, & Pereira, 2014). These findings are similar to a study conducted by Ferrari (2013), where prevalence of depression was reported at 4.7% (95% CI: 4.4-50%).

A recent study conducted in the Southern Cone of Latin America using the PHQ-9 reported that the overall prevalence of depression amongst adults aged between 35-74 was 14.6%. These adults represented a sample of the general population of four cities. However, the study found geographical variability (Marcos Paz, Argentina (5.6%), Bariloche, Argentina (9.5%), Temulco Chile (18.1%) and Pando-Barros Blancos, Uruguay (18.2%). Additionally, the authors found a prevalence of 10.7% for mild depressive symptoms, 8.0% for moderate depressive symptoms and 3.5% for severe depressive symptoms (Daray et al., 2017).

All the studies included here have similarities with epidemiological reports in HICs, even the same factors have been found to be associated with depression (i.e. sex, age, urban areas, among others).

Prevalence of depression in Colombia

Colombia has experienced the longest armed conflict in South America (60 years), leaving thousands of displaced people; an estimated 10% of the population. A recent study found high levels of PTSD, anxiety and depression in a sample of displaced adults in Colombia (Richards et al., 2011). Colombians have been repeatedly exposed to violence and forced displacement, and as such mental health disorders are a pertinent condition to explore within this population (displaced or not). Unfortunately, there are very few epidemiological reports.

Some studies show that Colombia reports the second highest prevalence of major depression in Latin-America after Brazil (Bromet et al., 2011; Kessler et al., 2010; Kessler & Bromet, 2013). An epidemiological report on the prevalence of mood disorders in low-lower middle income countries using CIDI, ranks Colombia first (6.9%) compared with India (5.5%), Iraq (4.1%), Nigeria (1.2%), Beijing (2.2%), Shenzhen (4.8%) (Kessler et al., 2011). These results are not generalisable, as the present information report was generated from urban areas in Colombia.

However, some studies show that prevalence of depression in Colombia has similar rates to those found in high-income countries, for instance, 12-month prevalence is between 6.2% and 12.1% (Bromet et al., 2011; Demyttenaere et al., 2004; Gómez-Restrepo et al., 2004; Kohn et al., 2005; Posada-Villa, Aguilar-Gaxiola, Magaña, & Gómez, 2004).

The Colombian National Mental Health Survey (2015) has estimated a point prevalence of mild to moderate depressive symptoms at 15.6% and severe depressive symptoms at 4.2% of adults (Ministry of Health, 2015). In Colombia, the majority (85-95%) of individuals with mental health problems do not access or cannot access services they require or need (Ministry of Social Protection, 2012), while the majority of the population with mental health problems does not have adequate insurance coverage (Ministry of Health, 2015; Rodriguez, 2007). The Colombian National Mental Health Survey (2015) shows that about 50% of the population reports that personal stigma is one of the principal causes of not accessing a mental health service in Colombia, followed by distance geographical location and limited service availability (Ministry of Health, 2015).

Prevalence of depression in Colombia shows similar rates to that of HICs. However, more studies are urgently needed in order to recognise the mental health issues in this population.

Prevalence of depression in college students

Depressive disorders have been shown to be more frequent among college students in comparison with the general population (Cuijpers et al., 2015). For instance, a systematic review shows a weighted mean prevalence of depression symptoms in college students of 30.6% (Ibrahim et al., 2013). Specifically, there is a high prevalence of depression among medical students (Dyrbye et al., 2006). A recent systematic review and meta-analysis from 167 cross-sectional studies and 16 longitudinal studies, found that the overall pooled crude prevalence of depression or depressive symptoms was 27.2% (Rotenstein et al., 2016). A WMH survey between college students in 21 countries reports a twelve month prevalence of mood disorders (6.0-9.9%) and MDD (4.5-7.7%) (Auerbach et al., 2016).

Several variables have been associated with the vulnerability of college students to depression: changes in lifestyle related to poor sleep habits, eating disorders, economic stressors and family problems (Beiter et al., 2015; Ibrahim et al., 2013). In spite of the high rates of depression within the college population, research studies and treatment have received little attention (Cuijpers et al., 2015). Recently, a WMH survey reports that only 16.4% of students received treatment for their mental disorder, whereas in lower-middle/low income countries it was reported at 6.7% (Auerbach et al., 2016).

Studies in Latin America show similar rates of depression in students compared with high income countries. Studies have reported rates of depressive symptoms between 30% and 56% (Cova Solar et al., 2007; Melo-Carrillo et al., 2012; Morales et al., 2013; Nogueira-Martins et al., 2004). In Colombia one study reported high levels of depression (30%) in students (Arrivillaga-Quintero et al., 2004). Another shows high levels of depression and stress (56.6%) in a student sample in Colombia (Falla, Marcela, & Sanabria Ferrand, 2006; Vergara, Cárdenas, & Martínez, 2013). More recently, further research has reported high levels of mild (56%), moderate (25%) and severe (3,6%) depression (Ramírez, 2012), and another recent study showed a 36.2% prevalence of depressive symptoms in a university sample (Richards & Salamanca-Sanabria, 2014).

Furthermore, similar variables associated with risk factors in college students in high income countries have been identified in Colombia, such as being a woman, having a previous diagnosis of depression, suicidal ideation and/or intent, any recent significant loss, or a family history of depression or alcoholism (Richards & Salamanca-Sanabria, 2014). Unfortunately, a small minority of college students across in LMICs receive adequate treatment for their mental disorders, therefore accessibility of psychological interventions must be increased in these populations (Auerbach et al., 2016).

Cultural differences and depression

Cross-cultural epidemiological research has confirmed that depression occurs worldwide (Kessler & Bromet, 2013). However, studies examining differences in both diagnosis and treatment are scarce (Givens et al., 2007) and a limited number of studies have analysed cultural differences in mental health (Haroz et al., 2017; Karasz, 2005). Research has shown that differences in depression rates represent problems with definition and measurement, which do not capture the current diagnostic criteria, and diagnostic instruments do not reflect the experience of depression worldwide (Haroz et al., 2017; Simon et al., 2002).

Traditionally, depressive symptoms have been conceptualised by Western European clinicians. However, depressive symptoms might be expressed in varied forms in other cultures (Haroz et al., 2017; Kirmayer, 2001; Simon et al., 2002). Cultural differences challenge the definition and diagnosis of psychological disorders, which might be insufficiently appreciated in research (Parker, Gladstone, & Chee, 2001). Therefore, studies in this area are necessary to create culturally sensitive interventions (Haroz et al., 2017; Hwang, Myers, Abe-Kim, & Ting, 2008).

Emotions are universal and are related to social interactions across cultures, which may influence how depression is expressed (Kirmayer, 2001). For instance, depression is related to the response of a loss of significant interpersonal relationships, social status, or incentives (Haroz et al., 2017; Kirmayer, 2001; Kirmayer et al., 2017). In this way, culture involves a deep understanding of mental health (Kirmayer, 2001). Behavioural patterns in different cultures can provide tolerance for specific emotions, and it also provides strategies for coping with depressive symptoms. For example, China has the lowest reported prevalence

of depression and studies have theorised that they have a tendency to express depression through somatic symptoms (Parker et al., 2001; Ryder et al., 2008).

Culture and mental health have a complex relationship; culture has relevance for aetiology, the course of mental health conditions, and mental health treatment. Hwang et al. (2008) have developed a model to explain cultural influences on mental health, which posits that culture has deep components that affect illness prognosis. These components are: (a) the prevalence of mental health disorders, (b) aetiology and course, (c) phenomenology/expression, (d) diagnostic and assessment, (e) coping styles and help-seeking, (d) treatment and intervention. This model allows us to understand the influences of cause, treatment and psychopathology.

There are different examples of cultural domains; and there is evidence that suggests that there are differences in expressing depression across cultures. For instance, Asian people identify depression in social and moral terms (Parker et al., 2001). Also, studies suggest that Americans have depression connotations of a loss or lack of personal strength or fortitude (Kimaster, 2001). These connotations facilitate the tendency to deny or minimise the emotions in favour of more socially acceptable somatic symptoms. Some studies have shown that people from Africa, South America and Asia express depression through somatic symptoms (e.g. pain, digestive problems) and Americans and Europeans express depression using cognitive factors (e.g. beliefs, thoughts) (Parker et al., 2001; Richards & Salamanca-Sanabria, 2014; Yusim et al., 2010). However, somatization is an ambiguous symptom, and it is not necessarily a characteristic of a specific ethno-cultural group (García-Campayo, Lobo, Pérez-echeverría, & Campos, 1998; Kirmayer, 2001; Ryder et al., 2008; Simon, VonKorff, Piccinelli, Fullerton, & Ormel, 1999). A study shows that about 80% of respondents from fourteen countries across 5 continents connect somatic symptoms with depression. The study

found that the most common somatic symptoms of depression around the world were musculoskeletal pain and fatigue (Simon et al., 1999).

There are several somatic symptoms that are nonspecific manifestations of depression. DSM-IV includes culture-related syndromes that coexist with, or are otherwise related to depression and anxiety (Kirmayer, 2001). DSM-5 replaced the term “culture-bound syndrome” with three newer terms: cultural syndromes, cultural idioms of distress and cultural explanations (American Psychiatric Association, 2013). Cultural idioms have been found in different cultural groups for depression and anxiety (See Table 1).

Table 1

Culture-related Syndromes related to anxiety and depression

Cultural idioms of distress related to depression and anxiety
Agoraphobia (Amering et al., 1997; Capps & Ochs, 1995).
Attack of the nerves (Guarnaccia, Rivera, Franco, & Neighbors, 1996; Lewis-Fernandez, 2007; Lewis-Fernández et al., 2002).
Cardiophobia (Eifert, 1992).
Koro (Yang, Tranulis, & Freudenreich, 2009).
Kyol goeu (“wind oberlad”) (Hinton, Um, & Ba, 2001).
Semen loss (dhat, jiryan, sukra praneha, shen-k’uei) (Bhatia & Malik, 1991; Raguram, Jadhav, & Weiss, 1994; Singh, Avasthi, & Pravin, 2001).
Taijin kyofusho(Suzuki, Takei, Kawai, Minabe, & Mori, 2003).
Neurasthenia (Zheng et al., 1997).
Thinks a lot with hand on chin (Bolton, 2012)
Spirit fall (Lim, 2013)
Thinking too much (Meyer, 2014)

Source: (Haroz et al., 2017; Kirmayer, 2001).

Different studies have described culture-bound syndromes or culture-specific idioms of distress (Kirmayer & Ramstead, 2017). Attack of the nerves (*ataque de nervios*) is the most researched idiom, which signifies a form of panic attack among Latinos (Lewis-Fernandez, 2007). It is characterised by feeling out control, and is generally associated with family problems (Hwang et al., 2008). DSM-IV describes the symptoms as trembling, uncontrollable shouting or crying, somatic feelings of heat rising through the chest up to one's head, dissociative experiences, seizure-like fainting episodes, and aggressive behaviour (Dziegielewski, 2010). Authors have distinguished *ataque de nervios* from panic, which includes a more rapid onset of attack, being preceded by an upsetting event in one's life, and greater fears of losing control, going crazy, depersonalization, sweating, and dizziness (Lewis-Fernandez, 2007; Lewis-Fernández et al., 2002).

Another culture-bound syndrome that has been widely researched is *neurasthenia* or *shenjing shuairuo*, which is a Chinese form of depression. The aetiology of neurasthenia is described as a decrease in vital energy (Schwartz, 2002). It is characterised by physical and mental fatigue, dizziness, headaches, other types of pain, sleep disturbances, inefficient thinking and poor concentration (Hwang et al., 2008). An epidemiological study of Chinese Americans in Los Angeles found that 78% of those diagnosed with neurasthenia did not meet the criteria for major depression or an anxiety disorder, yielding a neurasthenia prevalence rate that was as high as that of major depression (Zheng et al., 1997).

A recent systematic review of qualitative studies of depression across-cultures (Haroz et al., 2017), identified 138 studies, which reported on multiple samples and nationalities. The research found that features of depression with the highest frequencies are not included in the

DSM-V (e.g. asocial insolation/loneliness, anger, excessive crying, general pain and headaches).

The research found that regions with the highest frequency of *depressed mood/sadness* are located in Western, non-indigenous populations, for example: Middle Eastern (71.4%), North African (85.7%) and Sub-Saharan African (73.1%) populations. The symptom of *fatigue/loss of energy* had the highest relative frequency in Latin America (71.4%) and East Asia (85.7%). Problems with sleep were found to be highest in South Asia (76.0%), and Southeast Asia has the highest rates of *Depressed mood/sadness* (80.0%). Haroz et al. (2017) distributed the highest frequency symptoms by region (See Table 2).

Table 2

The highest frequency of depressive symptoms by region.

Wester non- indigenou s	Latin America	Middle East	East Asia	South Asia	Southeast Asia	Sub- Saharan Africa
Depressed mood	Fatigue	Depressed mood	Fatigue	Sleep	Issues with	Depressed
Social	Depressed	Social	Worthless	Fatigue	heart*	mood
insolation/ loneliness	Mood	insolation/ loneliness*	ness/guilt	Depressed	Depressed	Weight/Ap
*	Crying*	Fatigue	Sleep	mood	mood	petite
Fatigue	Loss of	Sleep/	Loss of	Weight/Ap	Sleep	Fatigue
Sleep	interest	general	interest	petite	Social	Social
Loss of	Social	pain*	Weight/Ap	Issues with	insolation/lo	insolation/l
interest	insolation/ loneliness*		petite & suicide	heart/head aches*	neliness* Thinking too much*	oneliness*

Source: Haroz et al. (2017)

*Non-diagnostic symptoms of depression in DSM-V

Understanding how depressive symptoms are presented by region facilitates the assessment, diagnosis and can affect the adherence to treatment. Studies have shown that

emotional reactions can change in some cultures, and may elicit negative responses (e.g. the person may be perceived as crazy, weak or lazy); by contrast, a somatic expression of distress may elicit empathy or support from others (Hwang et al., 2008). Therefore, somatic symptoms are generally more socially accepted in many cultures.

A recent review shows that DSM-5 includes 11 diagnostic features of depression across regions and symptoms. However, four symptoms that were frequently identified by Haroz et al. (2017) are not in DSM-5, these are: social isolation, loneliness, anger, crying, and diffuse pain (Kirmayer et al., 2017). These symptoms may have variations; for instance, loneliness has been associated more with depressive symptoms than with social isolation. Furthermore, social isolation can be the cause or the consequence of depression (Matthews et al., 2016). In the same way, anger is a manifestation of distress across-cultures, and sadness and crying have to be evaluated under social contexts (Kirmayer et al., 2017). Therefore, depressive symptoms in different cultures have to be considered carefully, and it is relevant to analyse the context in how they are presented.

DSM-5 has adopted cultural relativism in which mental disorders are defined in relation to cultural, social, and familiar norms and values (Castillo & Guo, 2016). DSM-5 has included a cultural formulation interview (CFI) to improve clinician's interpretative abilities and diagnosis assessment and treatment (Aggarwal, Nicasio, DeSilva, Boiler, & Lewis-Fernández, 2013). The CFI consists of a core 16-items questionnaire supplemented by 12 modules, based on four domains: 1. Cultural identity, 2. Cultural explanations of illness, 3. Cultural levels of psychosocial support and functioning, and 4. Cultural elements of the patients' physician relationship that includes a fifth domain with information on the diagnosis and treatment (Aggarwal et al., 2013; Kayrouz, Senediak, & Laube, 2017; Lewis-Fernández et al., 2014). For instance, a recent case report in Australia used the DSM-5's CFI protocol to

support the assessment and intervention for an Australian-Arabian client, proving to be useful in understanding an exploratory model of mental illness on terms of diagnosis and intervention (i.e. spiritual possession)(Kayrouz et al., 2017). This tool has been utilised with immigrants and refugees with post-traumatic stress disorder, adjustment disorder or stress conditions, research has shown that 49% of psychotic diagnosis were re-diagnosed as non-psychotic after using CFI –based assessment (Lewis-Fernández et al., 2014).

Cultural differences in depression are described in this section. The evidence suggests that DSM-5 diagnostic criteria are restricted in assessing diverse populations, however, the CFI may help contribute with the refinement of the evaluation of mental health disorders. However, limited studies have been conducted in this area.

Cultural differences in psychotherapeutic treatment of depression

Studies in psychotherapy for depression in racial ethnic minority groups are uncommon, as most of the studies have been conducted in high-income Western countries, specifically in North America, Europe and Australia (Cuijpers et al., 2018; Burçin Ünlü Ince, Riper, van 't Hof, & Cuijpers, 2014). The evidence for the effectiveness of psychological treatments is often obtained from studies conducted on white middle-income populations (Miranda, Nakamura, & Bernal, 2003). Studies have shown that ethnic minority groups only seek a mental health intervention, when their symptoms are in the severe range, and they often drop out of treatment prematurely (Trujillo, 2008).

The evidence suggests that people from LMICs with a depressive disorder do not receive treatment, where only between 7 and 21% of patients are treated (Cuijpers et al., 2018). A meta-analysis of treatment for depression in ethnic minorities in HICs found that the mean effect size of RCTs was ($g=0.50$) (Burçin Ünlü Ince et al., 2014). In LMICs, where

studies have been conducted, the effectiveness of psychological interventions for depression has been established (Cuijpers et al., 2018).

A recent meta-analysis on psychological treatment for depression (N= 35) in LMICs found that only three studies were carried out in South America (Brazil, Chile and Mexico) (Cuijpers et al., 2018). The authors found that the treatments conducted in non-Western countries were even more effective than in Western countries ($g=1.10$; 95% CI: 0.91-1.30). Specifically, the effect sizes were high in the Middle East, North-Africa, and in South Asia. Even studies conducted in LMICs obtained higher effect sizes than HICs. The results from this meta-analysis challenge the idea that psychological treatments conducted with diverse populations or non-Western countries are a less effective. Cultural context would seem to have a minor role in the effectiveness of psychotherapy (Burçin Ünlü Ince et al., 2014).

However, cultural barriers in mental health services have been found to exist, for example, studies have shown that often clinicians lack cultural awareness of their patients (Taylor & Lurie, 2004), which plays a role in the patient-provider relationship, and can affect treatment delivery. Therefore, a therapist's role involves a sufficient understanding of the client's point of view and preferences to negotiate the interpretations of the diagnosis and treatment (Kirmayer, 2001).

For instance, studies have analysed the influences of ambiguity tolerance and its association with counselling (Lowndes & Hanley, 2010; Wong, Beutler, & Zane, 2007). Findings suggest that Asian clients tend to have less tolerance for ambiguity and prefer structured counselling sessions with practical and immediate solutions to their problems (Wong et al., 2007). Additionally, Asian people prefer a therapist to employ a directive rather than a non-directive approach, and expect the therapist to play an active role in providing

suggestions and advice in the counselling process (Wong, 2008; Wong et al., 2007). In this way, CBT seems a compatible intervention for Asian population. A randomised control study into the treatment of using CBT for depression with Asian people found statistically significant differences with the WL control group (Wong, 2008; Zu et al., 2014).

There is little knowledge about ethnic differences in attitudes and preferences in counselling and psychotherapy. Givens et al. (2007) examined cultural preferences for depression treatment, suggesting that Hispanics may be more concerned with the side effects of antidepressants than whites and as a result, prefer counselling. Likewise, Hispanics are more likely than whites to prefer their treatment provider to be of the same gender. African Americans have a stronger desire for a provider of the same ethnicity compared with whites, Asian/pacific Islanders, Hispanics and Native Americans. African Americans, Asians/ Pacific Islanders and Hispanics had less faith in the biological aetiology of depression than whites.

Some studies have explored the cultural implications of illness experiences models of patients. The models aim to promote empathy and therapeutic alliance, by engaging the clients in the clinical process to examine beliefs about a given mental illness episode and its treatment (Aggarwal et al., 2014). For instance, the authors suggest to operationalise emotions through interviews with clients, families and community members (Kaiser, Katz, & Shaw, 1998). The engagement treatment involves undertaking clinical negotiations based on the client's point of view, which in turn affects the therapeutic alliance (Aggarwal et al., 2014). Those cultural considerations should be taken into account to guarantee the effectiveness of treatment. More studies are needed in the area to establish specific characteristics that can be related to engagement, and the alliance between therapist and client.

In summary, psychotherapy has been developed and influenced by Western countries and little is known about how culture differences affect treatment and diagnosis. The evidence suggests that psychological intervention for depression is effective in different cultural groups. However, styles and preferences in treatment may change depending of the culture and may affect the therapeutic alliance between therapist and client. Therefore, culture is a relevant component that may involve treatment engagement.

Psychological treatment of depression

Studies have found that depressive symptoms can be effectively treated with psychotherapy, pharmacotherapy, or both (Cuijpers et al., 2011; Cuijpers, Sijbrandij, et al., 2013; Karyotaki, Smit, Beurs, et al., 2016; Karyotaki, Smit, Henningsen, et al., 2016). Several studies have demonstrated that psychotherapy interventions for depressive disorders are effective in the reduction of depressive symptoms across all age groups (Krishna et al., 2013). Psychotherapy has shown better outcomes when compared with waiting list or placebo groups (Cuijpers et al., 2008). Recently, Boumparis et al. (2016) found that psychotherapy can enhance positive affect and decrease negative affect in depression. A meta-analysis found that treatments have shown a reduction in the symptoms of depression and improvement in quality of life (Cuijpers et al., 2011). The authors also found that drop-out rates are smaller in psychotherapy compared with pharmacotherapy.

Common treatments for depression includes antidepressant medication, Cognitive Therapy (CT), Cognitive Behavioural Analysis System (CAS), Cognitive Behavioural Therapy (CBT) and other forms of psychotherapy, including combined psychotherapy and medication (Renner, Arntz, Leeuw, & Huibers, 2013). A meta-analysis compared seven types of psychotherapy (cognitive-behavioural therapy, non-directive supportive treatment, behavioural activation treatment, psychodynamic treatment, problem solving therapy,

interpersonal and social skills training) for mild and moderate depression, showing that none of the treatments were equally efficacious (Cuijpers et al., 2008).

CBT is a type of psychotherapy that was specifically developed for the treatment of depression (Renner et al., 2013). CBT is the most researched form of psychotherapy (Cuijpers, Berking, et al., 2013a). CBT focuses on how dysfunctional thoughts affect current behaviour and functioning. The treatment consists of cognitive restructuring. There are two main types of CBT, the first puts special emphasis in cognitive restructuring and the second includes this component plus behavioural activation, social skills training, relaxation and development of coping skills (Cuijpers, Berking, et al., 2013a; Cuijpers et al., 2008). A meta-analysis showed CBT was significantly more effective compared with other psychotherapies for adult depression, and in long term was more effective with pharmacotherapy (Cuijpers, Berking, et al., 2013a).

A recent Meta-analysis and systematic review (Cuijpers, Cristea, Karyotaki, Reijnders, & Hollon, 2017) found a significant effect of the component emotional-regulation in cognitive behavioural therapy (CBT) compared to CBT alone. Additionally, the authors found that behavioural activation is one of the most effective components of CBT, arguing that leaving it out reduces the effects of CBT considerably.

Recently, the European Psychiatric Association (EPA) guidance on psychotherapy recommended a combination of treatment with psychotherapy and pharmacotherapy for the best outcome. Furthermore, the EPA recommends Cognitive Behavioural Analysis system of Psychotherapy (CBASP) as a first choice of psychotherapy for chronic depression, interpersonal psychotherapy (IP) as a second option, and CBT as a third choice (Jobst et al., 2016). The British National Institute for Health and Care Excellence (NICE) guidelines on

depression in adults recommends antidepressant treatment and individual CBT over 3 or 4 months (Jobst et al., 2016).

This study considered an online version of CBT for depression programme, which consist of behavioural activation, cognitive restructuring, and challenging maladaptive thoughts (Salamanca-Sanabria et al., 2018).

Low intensity Cognitive Behavioural internet-delivered treatment for depression

Low-intensity internet-delivered treatment involves self-guidance, where the content includes CBT techniques that are typically used in face-to-face therapy. The intervention is delivered using text, pictures, animations, audio files and videos. This type of intervention is structured and involves psychoeducation, activities and supplementary resources, such as a supporter contact via asynchronous messages (Titov, 2011).

Internet-interventions can include a supporter, who is a trained professional or paraprofessional and provides regular feedback to the user based on their progress. Likewise, the supporter encourages the participant to continue using in the programme (Richards et al., 2015). Studies have shown that having a supporter is associated with higher engagement and higher efficacy (Richards & Richardson, 2012). However, self-guided internet-based cognitive behavioural therapy (iCBT) without a supporter has also been shown to be effective when demonstrated to be effective also, when compared with a control condition (Meyer et al., 2015). Self-guided iCBT is defined as CBT delivered via the internet, which may involve automatic feedback, but does not provide support related to the therapeutic content (Karyotaki et al., 2017). A recent systematic review and meta-analysis using individual participant data (IPD) from RCTs, found that this type of intervention is more effective compared with a control group (Karyotaki et al., 2017).

Nowadays, low intensity internet-delivered interventions are considered an efficacious alternative treatment for depression. This modality of intervention is administered in the mental health care service in the UK and it is approved by NICE (National Institute for Health and Care Excellence, 2009). Internet-delivered interventions have an established empirical base for major depression (Hedman et al., 2012), sub-threshold depression (Spek et al., 2007), and in maintenance treatments (Ebert et al., 2015; Ebert et al., 2013; Richards & Richardson, 2012). For instance, a systematic review and meta-analysis of computer-based interventions for depression found a mean effect size of $d=0.78$ for the reduction of depressive symptoms post-treatment (Richards & Richardson, 2012). A recent review showed how face-to-face psychotherapy and internet-delivered therapy had similar effects (Andersson et al., 2014).

Internet-interventions for depression are available in many languages. Research from the Spanish language version including López-del-Hoyo et al. (2013) and Montero-Marín et al. (2016) reported positively on the effectiveness of a CBT-based internet-delivered programme for depression. A recent four-year descriptive, naturalistic study monitoring a web based CBT treatment developed and researched in Mexico indicated that the intervention was useful for depressive symptoms (Lara et al., 2014). A feasibility study in Chile found an online treatment to be beneficial, acceptable, and feasible (Espinosa et al., 2016). For the most part, internet interventions for depression have been researched in high-income countries. A recent systematic review found that only three articles reported results of RCTs on internet-delivered interventions for mental health conditions in LMICs (Arjadi et al., 2015).

Psychological treatment of depression in the current study

The intervention in this research is *Space from Depression* programme (*Yo puedo sentirme Bien* –Spanish version) that consists of seven modules of cognitive-behavioural

therapy. The treatment includes self-monitoring, behavioural activation, cognitive restructuring, and challenging of maladaptive thoughts/core beliefs. All modules have the same structure and format, consisting of quizzes, videos, educational content, activities with homework suggestions, and a module review page. Users, also have a supporter, who gives feedback asynchronously (Richards et al., 2015). Recently, Richards et al. (2015) reported that the *Space from Depression programme* showed lower levels of depressive symptoms post-treatment, compared with their baseline scores, yielding a large pre-post-treatment effect ($d=0.91$). They reported significant differences between the treatment group and waiting list control group ($d=0.50$). The positive outcomes were maintained at three and six months' follow-up. The treatment was evaluated by users as acceptable and satisfactory (Richards et al., 2016).

Conclusions

High prevalence rates of depression have been found worldwide and in different cultural groups. Epidemiological studies show a similar proportion of depressive symptoms across cultures. Studies show that Asian populations have the lowest reported prevalence of depression, while South American countries show a moderate prevalence of depression. Overall, European and American countries show the highest prevalence of depression throughout the epidemiological studies.

Studies show that major depression is a commonly occurring disorder in all countries where epidemiological surveys have been carried out. Furthermore, lifetime prevalence estimates of major depression vary widely across countries, with prevalence generally higher in high-income versus low- to middle-income countries.

Across different countries, women show a lifetime risk of major depression twice that of men. Major depression is associated with an impairment and secondary morbidity; although some of these individual-level associations are stronger in high-income than in low- to middle-income countries.

Few epidemiological reports have been published in South America. The studies that are published show similar prevalence rates of depression to those in HICs. However, different reports show that Brazil has the highest prevalence rates of depression compared to other countries in South America and Colombia has the second highest prevalence rates.

Globally, college students have high prevalence of depressive symptoms and MDD compared with the general population. However, only a small portion of the population received treatment.

These findings highlight the importance of including depressive disorders as a global health priority, therefore access to treatment is vital. Psychological treatment for depression needs to be refined and tested more rigorously, according to the cultural necessities of different populations. The therapeutic process includes the conceptualisation of the client's depression aetiologies, comorbidities, trajectories and treatment outcomes. Studies suggest that psychotherapies that have undergone deep cultural adaptations and individual therapies are likely to be preferable, relative to non-adapted and group treatment, respectively. Nonetheless, these findings warrant additional investigation (See culturally adapted psychotherapy chapter 3).

High prevalence rates of depression have been found worldwide and in different cultural groups. The observed differences in prevalence may instead reflect difficulties with

cross-national measurement. Depression is a social construction influenced by culture, which has to be considered in the diagnostic process and treatment. Cross-national differences in the diagnostic threshold for major depression would have important implications for aetiological research, this is an avenue for research that needs in depth exploration. Cultural or linguistic variability is vital in understanding the diagnosis and the treatment of depression, as well as having important implications for treatment research. This question must be addressed by studying the effectiveness of specific depression treatments across a range of language, culture and socio-economic factors.

Treatment for depression has demonstrated efficacy in non-western countries and in LMICs, however cultural differences may be taken in account to improve the therapeutic alliance. More research is needed to evaluate different context and cultures.

Internet-delivered treatment for depression has proven itself to be an alternative to disseminate evidence-based interventions in diverse populations around the world. Research in the area is needed across-cultures.

Chapter 3: Culturally adapted internet-delivered treatment

Introduction

Culturally Adapted Psychotherapy (CAP) has been developed over the last three decades (Bernal & Domenech-Rodríguez, 2012). However, studies in this field including those in internet-delivered treatment remain limited. Previous research has examined the effectiveness of CAP (Huey & Polo, 2008; Miranda et al., 2005) and meta-analyses (Benish, Quintana, & Wampold, 2011; Griner & Smith, 2006) have examined the effectiveness of cultural adaptations in different treatment formats (e.g. family therapy, individual therapy) and for various difficulties including substance abuse, psychotic disorders, anxiety and depression . Culturally adapted interventions seem more effective compared with not-adapted interventions or control groups (Hall et al., 2016; Smith & Trimble, 2016; van Loon, van Schaik, Dekker, & Beekman, 2013).

In recent decades, psychologists in myriad contexts have developed research approaches for cultural adaptation of Evidence Base-Treatments (EBTs) for common mental health problems (Bernal & Domenech-Rodríguez, 2012; Chu & Leino, 2017). Studies have been developed or have incorporated eleven different models or approaches to adapting treatments for different cultures (Bernal & Domenech-Rodríguez, 2012; Chu & Leino, 2017). However, scarce use of these adaptation approaches have been evidenced in culturally adapted face-to-face treatment and this is even more the case in internet-delivered-interventions (Choi et al., 2012; Harper-Shehadeh et al., 2016; Kayrouz, Dear, Johnston, Gandy, et al., 2015; Burçin Ünlü Ince et al., 2013). Culturally adapted internet-delivered treatment (CAiT) offers an alternative to disseminate EBTs with different populations around the world.

The aim of this chapter is to outline theoretical approaches to the cultural adaptation of evidence-based internet-delivered treatments. This chapter begins with an historical overview of culturally adapted interventions. Thereafter, the chapter describes conceptualisations and theoretical approaches used for developing CAP. The chapter provides a review of CAP in Latin-America, and culturally adapted internet-delivered treatment for depression. The final section of this chapter provides general conclusions.

Context

Cultural adaptations of psychological treatments have been developed over the last three decades. Bernal and Domenech-Rodríguez (2012) describe an early Culturally Adapted Psychotherapy (CAP) as a structure (from the couch to the chair) and intensity (from five sessions per week to one per week) adaptation. Migone (2000) argues that these modifications distinguished psychoanalysis from psychotherapy.

The American Psychological Association (2006) supports evidence-based psychological practice, as the best available research, clinical expertise and individuals preferences. In line with this, research has started to support the relevance for the development of treatments based on diverse cultural groups' necessities and contexts (Bernal, Jiménez-Chafey, & Domenech-Rodríguez, 2009; Chowdhary et al., 2014; Miranda et al., 2005). Therefore, EBTs are required to be disseminated among different populations to guarantee their efficacy. Likewise, nowadays multiculturalism is considered the fourth force approach in psychotherapy after psychoanalysis, cognitive-behavioural and humanistic approaches (Bernal & Domenech-Rodríguez, 2012). The multiculturalism movement challenges the contemporary theories and models in psychotherapy, which included EBTs for cultural diverse populations in an effort to reduce disparities in access to and quality of mental

health services (Chu & Leino, 2017). The multiculturalism is based on the effects of globalisation that result in a new social context, increasingly diverse in terms of race, ethnicity, language and culture. The multiculturalism cannot be universal as groups have specific characteristics that affect the intervention and ways to work with.

In the last decade, studies have examined the potential of EBTs for depression in different cultural groups (Cuijpers et al., 2018; Kalibatseva & Leong, 2014). However this field has experienced difficulties in achieving a convergence of methodologies (Bernal & Domenech-Rodríguez, 2012), and empirical studies are limited (Bernal & Adames, 2017; Chowdhary et al., 2014; Chu & Leino, 2017; Hall et al., 2016; Helms, 2015). Historically, Western countries have developed psychotherapeutic modalities such as cognitive-behavioural therapy among several others. However, the need to culturally adapt these evidence-based interventions has received limited attention (Rathod, 2016).

Psychotherapy is influenced by context and history in Western countries. In fact, mental illness is understood differently across cultures. Context shapes the ways mental disorders are expressed. Evidence points at the influence of culture and its impact on the diagnostic and treatment process (Canino & Alegría, 2008; Givens et al., 2007; Hall, 2001). For instance, depressive symptoms can be manifested differently (e.g., somatic symptoms) (Kirmayer et al., 2017). There exists cultural differences in the expression and understanding of depressive symptoms across cultures (Haroz et al., 2017; Karasz, 2005; Muñoz et al., 2005; Richards & Salamanca-Sanabria, 2014; Yusim et al., 2010) (See chapter 2). The influence of culture therefore, provides the foundation in mental illness, which is a consideration to develop culturally sensitive interventions.

In summary, culturally adapted interventions have had an historical evolution based on psychology approaches and contexts. Nowadays, multiculturalism can be considered as a next step to establish efficacy of evidence-based treatment in different populations. Cultural differences can affect both diagnosis and treatment, which are relevant to understand various ways to express mental illness in a specific population. Considering cultural differences may facilitate the engagement in treatment and can be related to the efficacy of the intervention.

Cultural psychology

Cultural psychology is the study of the ways subject and object, psyche and culture, person and context, practitioner and practice live together, require each other, and dynamically, dialectically and jointly make each other up (Pedersen, 2013).

Rathod (2016) posits that culture involves five characteristics: shaping behaviours (e.g., customs, habits); categorising perceptions (e.g., beliefs about mental illness); it involves aspects of experiences related to the context (e.g., family upbringing, socioeconomic status); it is deeply shared by members of a particular society or social group; it provides an orientating guide to organise behaviour and it transfers values across generations.

The American Psychological Association (2003) defines culture as the belief systems and value orientations that influence customs, norms, practices, and social institutions, including psychological process (e.g., language, caretaking practices, media, educational systems) and organizations (e.g., media, educational systems). Castro, Barrera, and Holleran Steiker (2010b) describes culture as the embodiment of a worldview through learned and transmitted beliefs, values, and practices, including religious and spiritual traditions. Some authors have considered culture as a structural framework that includes identity that consists of a unique combination of elements (e.g., gender, race, ethnicity), geographic (e.g., urban-

rural, country), and associative (e.g., family, religion). It includes ethnic group that consists of a collective of people who share common elements (beliefs, heritage, and status).

Following the definition by the American Psychological Association (2003) race and ethnicity are relevant components to understand the concept of culture. Race is defined as a category to which others assign individuals on the basis of physical characteristics (e.g., skin colour and relation with stereotypes), while ethnicity does not have a commonly agreed-upon definition. According to Isajiw (1993) ethnicity involves subjective and objectives dimensions refer to attitudes, values and preconceptions whose meaning has to be interpreted in the context of the process of communication. The APA (2005) defines ethnicity as the acceptance of the group mores and practices of one's culture of origin and the concomitant sense of belonging. Some studies have developed instruments to operationalise race and ethnicity, which help to recognise unique patterns in specific ethnic groups and their impact on counselling (Ponterotto & Park-Taylor, 2007). For instance, Ethnic Identity Scale (EIS); Multigroup Ethnic Identity Measure-Revised (MEIM-R) among others. Those instruments have been designed in the immigrant context in the U.S, to assess the grade of acculturation, which refers to the process of individuals or families migrating from one sociocultural environment to another (Castro et al., 2010b).

In addition, culture can be understood as a general feature around the world. Oyserman, Kemmelmeier, and Coon (2002) have defined a universal model of culture as individualism – collectivism that provides a framework of making categories of behavioural tendencies and cognition influences. This framework can be generalised transversally, in groups, time, place, and situations with commonalities. For instance, European Americans tend to show high individualism and a low collectivism and Latin Americans (in the U.S.) tend to be high in both collectivism and individualism.

Studies have described the individualism-collectivism model as two general culture characteristics around the world (Arpaci, Baloglu, & Kesici, 2018; Oyserman et al., 2002). Individualists are described as more autonomous, independent, self-contained, calculated, and at the same time they feel close to family members (Chan & Cheung, 2016; Cohen, Wu, & Miller, 2016; Oyserman et al., 2002), whereas collectivism is characterized by the belief that fitting into groups or being interconnected is an important, inevitable part of being human (Cohen et al., 2016; Oyserman et al., 2002). Oyserman et al. (2002) posit that individualism–collectivism model have contributed to a growing awareness of culture, supporting systematic differences in cognition, emotion and motivation.

Studies have found that individualism and collectivism are also distinguished by the type of sociability, such as social interaction and social preferences (Arpaci et al., 2018; Chan & Cheung, 2016; Cohen et al., 2016). This model of culture provides a framework for understanding tendencies, attributions across cultures and groups. Cultural psychology supports the idea that psychology practices should be familiar with culture in order to consider clients' necessities and preferences in treatment. The American Psychological Association (2003) argues that psychologists have to recognise that they are influenced by different contexts such as history, socio-political circumstances, history and ecology.

In summary, cultural psychology provides an understanding about how culture affects psychological treatment. Culture involves beliefs systems, values and norms that are learned in a specific context with significant member of the community (e.g. parents, leaders, teachers). Likewise, culture implicates objectives and subjective dimensions to build perceptions and attributions, which can affect ideas of mental illness. In the same way, collectivism and individualism universal model of culture can help to understand tendencies

in different populations contributed to a growing awareness of culture. All of these dimensions in cultural psychology allows to understand a brother perspective of the client in psychotherapy, which should be considered to develop interventions based on the necessities of the populations, and therefore this may impact on the efficacy of the intervention.

Culturally Adapted Psychotherapy (CAP)

Culturally adapted psychotherapy (CAP) is defined by Bernal, Jiménez-Chafey, & Domenech Rodríguez (2009) as a systematic change of an intervention protocol through which consideration of culture modifies the treatment in accordance with clients' values and contexts. In the field of psychological interventions, adaptation is defined as the modification of key characteristics, elements, and methods of delivery, while maintaining the core theoretical components of the intervention (McKleroy et al., 2006; Nicolas, Arntz, Hirsch, & Schmiedigen, 2009). Cultural adaptation involves a planned, organised, iterative, and collaborative process that often includes the participation of persons from the targeted population for whom the adaptation is being developed. The cultural competence of the investigator and of the cultural adaptation team is also important for conducting a deep structure analysis tailoring a treatment (Castro, Barrera, & Holleran Steiker, 2010a).

In recent years culture has been considered as a part of psychotherapy (APA, 2003). Contemporary psychotherapy is supported by evidence-based treatment (EBT) and evidence-based practice (EBP). EBT is defined as a specific set of interventions or techniques, that have produced therapeutic change as tested within clinical trials (Castro et al., 2010a). Furthermore, EBP is seen as a broader term that refers to “clinical practice that is informed by evidence about interventions, clinical expertise, and patient needs, values, preferences and their integration into decision-making about individual care” (Kazdin, 2008, p. 147). EBT has

been discussed in relation to the standard treatments, which include whether standard treatments should be modified to better reflect participants' cultural backgrounds and/or whether alternative culturally responsive evidence-based interventions are needed (Helms, 2015; Kalibatseva & Leong, 2014).

The American Psychological Association (APA) presidential task force on evidence-based practice (2005) has defined evidence-based practice in psychology (EBPP) as the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences. From a research perspective, carrying out cultural adaptations in the context of treatment outcome studies presents an opportunity to advance knowledge on how psychotherapy works in terms of including a broader perspective of the client (e.g., cultural ideas of mental illness) (Bernal, Jiménez-Chafey, & Domenech-Rodríguez, 2009).

Griner and Smith (2006) have categorised cultural adaptations of psychotherapy as consisting of different components, such as: (a) explicitly discussing culture, matching race or ethnicity between client and therapist, (b) using clients' language, (c) incorporate cultural values and worldview into sessions, (d) collaborations with other communities. Generally, adaptation includes also the incorporation of culturally relevant discussion of spirituality. These components involve the interrelation between client and therapist that plays, which is a relevant component for therapeutic alliance. In the same way, cultural competency is essential to conduct a culturally adapted intervention. Cultural competence is defined as a system that acknowledges the importance and incorporation of culture, which involves assessment of cross-cultural relations, vigilance toward the dynamics that result from cultural differences, expansion of cultural knowledge, and adaptation of interventions to meet culturally unique needs (Sue, Zane, Hall, & Berger, 2009; Whaley & Davis, 2007).

The implementation of culturally adapted psychotherapy shows the importance of cultural views of illness in psychotherapy. The explanation of illness involves an anthropological context, the illness myth of healing practices (Benish et al., 2011). Culturally, illness is defined as the experience of distress manifesting diversely in its expression of bodily and mental symptoms, presumed aetiology, expected course, social implications and the relative importance of these expressions of suffering (Haidet et al., 2008; Kleinman, Eisenberg, & Good, 2006). Benish et al. (2011) argue that effective psychotherapies offer adaptive explanations of client's suffering and provide therapeutic actions consistent with those explanations, which is consistent with the client's cultural beliefs about mental illness.

Wampold et al. (1997) posit that CAP has to use language to construct or reconstruct the client's interpretations of the world. Additionally, Benish et al. (2011) argue that the effectiveness is critically altered by the degree of fit between the psychotherapeutic explanation of illness offered by the therapist and the client's understanding of illness and suffering. Psychotherapy as a cultural healing practice involves the model of illness myth, which is a belief about illness including subjective symptoms, aetiology and assumptions of the time line or course that the illness will take (Frank & Frank, 1993). Therefore, myth is an essential concept in CAP, where its modification about illness is a criteria of cultural adaptation (Benish et al., 2011).

In summary, psychotherapy involves EBT and EBP, which require to be modified to reflect participants' cultural backgrounds to consider culturally unique needs, values and preferences. APA argues that therapists should consider the context of the client as part of a psychotherapeutic process. Culturally adapted intervention is a systematic modification of treatment protocol based on the necessities of the client, which involves a collaborative

process with participation of persons from the targeted population. CAP is crucial to develop a therapeutic alliance between therapist and client.

Theoretical approaches to culturally-adapted psychotherapy

In the last three decades, psychologists have explored various methodological approaches for the cultural adaptation of EBTs for common mental health problems (Bernal & Domenech-Rodríguez, 2012; Chu & Leino, 2017). The theoretical approaches to culturally-adapted psychotherapy included in this chapter have divided into three sections: (a) cultural components approach (b) high-order approach and (c) integrative approach. The specific theoretical approaches presented in this section address cultural adaptation of EBTs.

Cultural components approach

There are significant examples of approaches for adaptation of therapy components include Griner and Smith (2006) who proposed a method that involves categories of adaptations, which are: (a) Assessment/ discussions of cultural background and spirituality before starting the adaptation; (b) Ethnic/language match; (c) Translations or adaptations of language; (d) Incorporating cultural values and beliefs in treatment; (e) Collaborating with the population group and adapting the service treatment (e.g., focus groups).

In contrast, the Ecological Validity Model (EVM) proposed by Bernal, Bonilla, and Bellido (1995) involves eight dimensions that must be incorporated into treatment to increase both the ecological validity and the overall external validity of a treatment. These dimensions are: (a) *language*, which must be culturally appropriate and syntonic, taking into consideration differences in inner city, regional, or subcultural groups (oral and written); (b) *persons*, that refers to the client–therapist relationship during the intervention; (c) *metaphors*, that refers to the symbols and concepts that are shared by a particular cultural group; (d)

content, that refers to cultural knowledge about values, customs, and traditions shared by ethnic and minority groups (e) *concepts*, that refers to the constructs of the theoretical model to be used in treatment; (f) *goals*, that implies the establishment of an agreement between the therapist and client as to the goals of treatment; (g) *methods*, that refers to the procedures to follow for the achievement of the treatment goals and (h) *context* that indicates the consideration of the client's social, economic, and political context (Bernal & Sáez-Santiago, 2006). The ecological validity framework involves an evaluation by the members of the community and experts about the adaptation programme, based on the named dimensions.

These approaches described in this section considered relevant components to develop a systematic modification of CAP. Each of them includes a discussion on the best adaptation of the dimensions with the research team, experts and/or members of the community, which can be at the beginning or at the end of the adaptation process. Members of the community are considered an essential component to incorporate cultural necessities to the target population into the programme intervention.

High-order approach

Some methods have further streamlined adaptation components into higher-order conceptual categories. High-order approach involves an adaptation levels, including for instance: (a) the Culturally Sensitivity Framework (CSF) (Resnicow et al., 2000; Wilson & Miller, 2003), (b) Cultural Adaptation Process Model (CAPM) (Domenech Rodríguez, Baumann, & Schwartz, 2011), the Heuristic Framework (Barrera & Castro, 2006) and the Cultural Treatment Adaptation Framework (CTAF)(Chu & Leino, 2017).

The *cultural sensitivity framework* (CSF) focuses on a differentiation between surface structure or deep structure (Resnicow et al., 2000; Wilson & Miller, 2003). The surface

structure or *top down approach*, involves cultural modifications to the programme based on observable social and behavioural characteristics (e.g. expressions, images or cultural metaphors about mental illness), incorporated by the research team (Resnicow et al., 2000; Wilson & Miller, 2003). The deep structure or *bottom up approach* includes changes to treatment protocol that consider sociocultural factors that influence the cause, course and treatment of mental illness and these factors are established through lay participants (Resnicow et al., 2000). The research team analyses what part of the treatment is relevant or even may recommend a specific intervention based on the necessities of the population.

Domenech-Rodriguez and Wieling (2004) developed the Cultural Adaptation Process Model (CAPM), organising a higher-order conceptual categories adaptation components (setting the stage; initial adaptations and adaptation iterations), which involves: (a) gathering relevant cultural characteristics in collaboration with the community; b) evaluating possible adaptations to intervention; (c) developing the adaptation; (d) reviewing the adaptation; (f) evaluating measures; (g) considering a new version of the adaptation; (f) Testing the adaptation; (g) Considering new reviews; and (h) replication. The authors recommend to test the adapted programme with a RCTs.

In contrast, Barrera & Castro (2006) posit further high-order modifications into a heuristic framework to guide cultural adaptations of EBTs, which is divided into three steps: (a) gathering information about relevant cultural components from the community (e.g., focus group); (b) making preliminary adaptations to the intervention; and (c) refine adaptations.

Recently, Chu and Leino (2017) proposed the Cultural Treatment Adaptation Framework (CTAF), which is a higher-order modifications divided in two first-order categories: Peripheral components (e.g., engagement and treatment delivery) and core

treatment components (e.g., cognitive restructuring in CBT). The CTAF is an overarching cultural adaptation organised by levels. The first level of adaptation concerns therapeutic elements that can be preserved without change. The second level of adaptation involves modifications to core components and making them more culturally salient. Third level adaptation includes additions to core elements and the fourth level of adaptation implicates a complete change of the intervention.

These high-order approaches described different levels to develop a systematic modification of an intervention, including surface structure and deep structure, the approaches suggest to continue assessing of the culturally adapted programme after its implementation.

Integrative approach

An integrative approach refers to the adapted process combining different frameworks, models or guidelines. For instance, Hwang (2006, 2009) proposed an integrated top-down and bottom-up approach to adapting psychotherapy. The author built the approach on two separate models of cultural adaptations: (a) the Psychotherapy Adaptation and Modification Framework (PAMF) (Hwang, 2006) and (b) the Formative Method for Adapting Psychotherapies (FMAP) (Hwang, 2009). PAMF is based on top-down approach and has six domains: (a) dynamic issues and cultural complexities, (b) orientation, (c) cultural beliefs (causes and appropriate treatment), (d) client-therapist relationship, (e) cultural differences in expression and communication, and (f) addressing cultural issues of the population (Hwang, 2006). FMAP is a bottom up approach, which proposed six domains of issues and cultural complexities. The domains include: (a) Analysis of the cultural dynamic and relevant characteristics for considering in the adaptation; (b) orienting clients to psychotherapy and increasing mental health awareness; (c) understanding cultural beliefs about mental illness, its causes, and what constitutes appropriate treatment, (d) improving the client-therapist

relationship, (e) understanding cultural differences in the expression and communication of distress, and (f) addressing cultural issues specific to the population (Hwang, 2009).

Another versions of an integrative approach are proposed by Chu, Huynh, and Areán (2012) who provided an integrative approach based on Barrera & Castro's (2006) version and FMAP, which guides the science of cultural adaptation through four components: (a) therapeutic framework; (b) dynamic between clients and therapist; (c) peripheral components (e.g., treatment engagement) and (d) core components (e.g., therapeutic elements that mediate symptoms change). The adaptation involves focus groups and interviews with the community, also an empirical literature review relevant to the treatment, which is consistent with the incorporation of cultural components into the treatment. Finally, the culturally adapted programme is piloted and refined based on the outcomes.

In this study the author (AS) proposed for the first time an integrative approach for culturally adapted internet-delivered treatment, including the cultural sensitivity framework CSF (*Top-down approach*) (Hwang, 2009; Resnicow et al., 2000), the ecological validity model EVM (Bernal & Sáez-Santiago, 2006) and principles from cross-cultural assessment (Helms, 2015). The integrative approach in this study included a proposal by Helms (2015) regarding cultural research principles. Three meta-analysis of culturally adapted treatment led Helms to conclude that the studies in CAP did not include considerations of ethnicity that is defined as traditions transmitted from generation to generation, which are internalised by the person as member of the ethnic cultural group. Therefore, the author proposed including cross-cultural principles (functional relevance, conceptual relevance and linguistic relevance) to achieve the effective cultural adaptation. *Functional* relevance is defined as the extent to which the same ostensible behaviours (e.g., crying) are interpreted similarly in different cultural or racial groups, occur with equal frequency within these groups, and elicit similar

reactions from other members of the groups. *Conceptual* relevance, refers to the extent to which different concepts are analogous for the cultural group that is targeted for the treatment; and *linguistic* relevance, indicates the language or dialect used during the process has been adjusted so that it has meaning to the person(s) being assessed (Helms, 2015, p. 189).

The integrative approach facilitated the adapting of the internet-delivered treatment. The CSF facilitated modifications to the internet-delivered programme based on top down approach, while maintaining the core theoretical components of the intervention. EVM and cross-cultural assessment principles supported the programme's evaluation by members of the community and also experts. This was achieved through the use of a measure developed specifically for this study, the Cultural relevance Questionnaire (CRQ). The integration allows the adjustment of the general structure by tailoring the programme (e.g., language, images, videos), and also maintain the original components (fidelity).

The integrative approach is divided into three phases: (a) Cultural sensitivity (*top-down approach*): involves a preliminary cultural adaptation made by the research group; (b) ecological validity: based on those considerations the process gathered support for the culturally adapted programme through its evaluation by community members and experts using the CRQ and examining three dimensions that are: (i) *Functional* relevance [Components of the programme could be interpreted similarly by the target cultural group (e.g., personal stories, examples)], (ii) *conceptual* relevance [cultural expressions of depression, ideas or analogies about mental illness are included in the programme (e.g., symbols, metaphors and concepts)] and (iii) *Linguistic* relevance [level of oral and written language adjustments are made for the programme (e.g. regionalism, slang)]. (c) Cultural incorporations: the information is analysed, discussed and incorporated into the programme by the research team.

The integrative approaches allow us to consider different methods to adapt a programme and at the same time to include relevant components to contribute to a systematic cultural adaptation of a treatment. The approaches researched in the literature have not been used for Culturally Adapted internet-delivered Treatment (CAiT), therefore, the integrative approach suggested in this study is a first contribution in this field.

Empirical research of culturally adapted psychotherapy

Theoretical approaches to culturally-adapted psychotherapy have been researched for different mental health problems. Effectiveness of the culturally sensitive mental health treatments has been studied mostly in the U.S with immigrants (Bernal, Jiménez-Chafey, & Domenech-Rodríguez, 2009; Castro et al., 2010b; Chu & Leino, 2017). Previous reviews of CAP (Huey & Polo, 2008; Miranda et al., 2005) and meta-analyses (Benish et al., 2011; Griner & Smith, 2006) have examined the effectiveness of cultural adaptations in numerous treatments targeting different disorders. Cultural adaptations seem more effective than no treatment ($d=0.58$), treatment as usual ($d=0.22$) or non-adapted treatment ($d=0.32$) (Benish et al., 2011; Huey & Polo, 2008) and show a weighted average effect size of ($d=0.45$) (Griner & Smith, 2006). A recent meta-analysis (Hall et al., 2016) found 136 published studies from previous meta-analysis, of which 76 were rejected due to methodological inconsistencies. The meta-analysis found the overall effect size using generalised regression was $g=0.67$, which indicates that culturally adapted interventions have better outcomes than other conditions (unadapted treatments and control groups). Likewise treatment effect sizes were significantly larger ($g=0.76$) in treatment studies than in prevention studies (0.25). Type of psychopathology showed different effect size outcomes; psychotic disorders (0.27) mood disorders/anxiety (0.76) and externalising (drugs) disorders (0.59) (Hall et al., 2016).

An early meta-analysis conducted by van Loon et al. (2013) showed the empirical literature of outcomes associated with culturally adapted guideline driven depression and anxiety with adults. The authors included the studies based on the adaptation categories of Grindler and Smith (2006) (Described in the previous section). Also, ethnic or language match and/or translations of the programme was described. The authors concluded that culturally adapted depression and anxiety treatment was effective (the pooled effect size was 1.06). The findings in this study showed that the effect size was considerably larger compared to previous meta-analysis. The previous studies were more heterogeneous (including different diagnosis and ages), which may explain the effect size in this meta-analysis.

Most of the studies conducted in CAP are based on *top-down* approach (Resnicow et al., 2000). For instance, a recent meta-analysis found that all of the studies ($n=76$), involved *top-down approach* adaptations. The overall culturally adapted *top-down* intervention effect size was $g=0.67$ compared to other conditions (no intervention or other interventions). Only four bottom-up interventions were identified, but the effect size was small and not statistically significant in comparison with other conditions (Hall et al., 2016).

The Ecological Validity framework (EVF) proposed by Bernal (1995, 2006) has been researched in CBT for depression with Latin American's families in Puerto Rico and in the U.S. The *Psychological Education Workshop for Mothers and Fathers* (TEPSI) was culturally adapted, using all of the dimensions proposed by Bernal (1995, 2006). The culturally adapted process involved a previous literature review for depression in adolescents, focus group with parents, refining the intervention with a small pilot of the programme and finally testing the revised intervention. Qualitative analysis reported the intervention was successfully implemented (Sáez-Santiago, Bernal, Reyes-Rodríguez, & Bonilla-Silva, 2012). The

culturally adapted programme showed a significant reduction of depression post-treatment in different studies (Rosselló & Bernal, 1999, 2005; Rosselló, Bernal, & Rivera-Medina, 2012).

An illustrated cultural adaptation for Spanish-speaking Latino parents in the US was conducted based on CAPM (Domenech Rodríguez et al., 2011). The authors adapted an established EBT “*the Oregon Model of Parent management Training*”. The adaptation was organised into three phases. Phase 1 consisted of literature review with specialist collaboration (Focus groups). Phase 2 is a pilot adaptation (evaluate measures and observations) and phase 3 consisted in refining the adaptation using the EVM model developed by Bernal and Saez-Santiago. Authors report comparable results to the interventions with white American and Latino families (Domenech Rodríguez et al., 2011).

Chu et al. (2012) used the Formative Method for Adapting Psychotherapy (FMAP) developed by Hwang (2009) for treatment of depression in Chinese older adults. The authors culturally adapted Problem Solving Therapy (PST) manual. The adaptation process was divided into three phases. Phase 1 utilised focus groups and interviews with the community providers and a depressed 60 year-old Chinese elderly client, who assessed the feasibility of cultural recommendations made by the research team based on the focus group. The culturally adapted intervention involved PhDs and master level clinicians and provided care in Mandarin and Cantonese. Phase 2 included an empirical literature review of treatment of depression for Chinese population and interviews to incorporate components into the manual. Phase 3. Refining the manual. The programme was administered during twelve weeks to one participant (61 years old Chinese woman). The participant’s PHQ-9 score decreased, indicating remission and a subclinical level of depression.

Additionally, Chu and Leino (2017) used CTAF in a qualitative systematic review to identify patterns of adaptation. The authors identified 45 papers from the past 20 years that conducted culturally adapted EBTs for different mental health conditions, finding that all of the studies yielded changes in peripheral components (engagement, treatment delivered). Only 11.1% of the studies yielded core therapeutic components modifications and 60% required core additions that address sociocultural and psychoeducation needs.

The theoretical approaches to adapt psychotherapy reported here do not have sufficient empirical studies to demonstrate their efficacy. Most of the studies in the area offer limited explanation about the cultural intervention method. For instance, *top down approach* was used in the studies, with a minimal modification (e.g. Language of the intervention or therapist ethnicity). In spite of almost 30 years of research in developing theoretical approaches, there are very few empirical studies in CAP. Dissemination of culturally adapted EBTs is needed to achieve a gold standard psychotherapy for different ethnic groups.

Culturally Adapted Psychotherapy (CAP) for depression in Latin America

The majority of CAP studies conducted with Latinos have been carried out in the U.S., where this minority/ethnic group represents the second largest community (Passel & Taylor, 2010). Recently, a systematic review of psychotherapies for depression among Latinos in the U.S (Collado, Lim, & MacPherson, 2016), found that studies incorporated between zero to six culturally sensitive changes. Mostly the common reported adaptation was the provision of therapy in Spanish (94%). The authors reported that 61% of the cases the therapist received training on the Latino values, such as *familyism*, that has been identified as a strong cultural value among Latinos. *Familyism* refers on the establishment and maintenance of close-knit relationship with family members included extended family members (Sáez-Santiago et al., 2012). Furthermore, Collado et al. (2016) found that studies incorporated surface structure

(material translated into Spanish, therapist of colour, transportation, childcare) and deep structure changes (e.g. piloting of adapted therapy, inclusion of appropriate cultural metaphors and values).

A recent meta-analysis (Cuijpers et al., 2018) about therapies for depression in LMICs found that a specific adaptation of the treatment to the context was associated with better outcomes. However, the authors posit that the descriptions of the adaptation's treatment was very limited in most of the papers, where only 10 studies of 35 were culturally adapted. Only three studies were conducted in South America, which, were not culturally adapted. The effects of psychotherapies in non-Western countries were large ($g=1.10$; 95% CI: 0.91-1.30). Also, the authors found that comparisons with the studies in Western countries showed that the effects of the therapies were significantly larger in non-Western countries, showing that the interventions are not more effective in non-Western countries.

Other studies conducted with Latin-Americans have been carried out in North America, the Caribbean and South America. For instance, Kalibatseva and Leong (2014) conducted a study in Puerto Rico, which documented a cultural adaptation of CBT with parents of Latino adolescents with depression. The intervention was refined and culturally adapted using the ecological validity framework (EVF), which outlines eight dimensions described by Bernal and Sáez-Santiago (2006). The adaptation included: (a) selecting an intervention model; (b) changing the focus of the model intervention (from therapeutic to psychoeducational); (c) evaluating the feasibility and acceptance, and (d) testing the intervention. Additionally, the research team included into the treatment a cultural characteristic from Latinos such as *familyism*, which is a strong value to maintenance close relationship with family members. Qualitative analysis reported the intervention was successfully implemented (Sáez-Santiago et al., 2012). The adapted programme demonstrated

significant reductions of depression post treatment in trials (Rosselló & Bernal, 1999, 2005; Rosselló et al., 2012).

A recent meta-analysis (Vally & Maggott, 2015) found eleven studies in LMICs and only two in Latin American countries used CAP for depression. In Colombia, a CBT treatment “*Coping with Frustration*” (Gallagher-Thompson, Arean, Rivera, & Thompson, 2001) was culturally adapted to target the mental health of dementia caregivers. The programme was adapted for Hispanic/Latino population in the U.S, through focus group with Latino caregivers. The results showed lower depression post-treatment and three months follow-up (Arango-Lasprilla et al., 2014). In the same way, an intervention and material was culturally sensitised for women of limited means with depressive symptoms in Mexico, based on a treatment protocol developed in California (Munoz & Ying, 2002). The programme was developed as a result of a series of studies that explored women’s mental health. The authors explored the relationship between gender roles and mental health in two samples; the female submissive role was found to be associated with depressive symptoms. During the development of the educational material, focus groups were used to assess its suitability. The adaptation was made by researchers and hospital personal (social workers). The outcomes reported significance reduction of depression post-treatment (Lara, Navarro, Rubí, & Mondragón, 2003).

These studies show that culturally-adapted treatments demonstrated efficacy but such treatments with Latin-Americans in their country of origin are limited. Vally and Maggott (2015) concluded in their meta-analysis that the evaluations and a systematic process using CAP have been absent or lacking in rigor, therefore the effectiveness remains undetermined. However, in spite of the small number of studies, it provides an indication that preliminary

efforts to adapt psychotherapy have been successful in South America, therefore research in this area is needed to develop and guarantee treatment efficacy.

Culturally adapted internet-delivered treatment (CAiT) for depression

Evidence has shown minimal research into the acceptability of Internet therapy to individuals from culturally or linguistically diverse backgrounds (Choi, Sharpe, Li, & Hunt, 2015). Recently, a systematic review found that only three articles reported results of RCTs on online interventions for mental health conditions in LMICs, but none of these interventions were compared with an active control condition (Arjadi et al., 2015).

A recent systematic review of culturally adapted internet-delivered treatment for depression (Salamanca-Sanabria, Richards, & Timulak, in review) found that only three studies, of which only two were RCTs. The studies had three different internet-delivered interventions for treating depression. The *Brighten Your Mood* programme (Choi et al., 2012) a culturally-adapted internet delivered Cognitive Behavioural Therapy (iCBT), *problem-solving intervention* (Burçin Ünlü Ince et al., 2013; van Straten, Cuijpers, & Smits, 2008) and *the Arab Wellbeing course* a CBT online trans-diagnostic treatment (Anxiety and depression) (Kayrouz, Dear, Johnston, Gandy, et al., 2015).

The *Brighten Your Mood* programme (Choi et al., 2012) was a culturally-adapted iCBT intervention based on *The Sadness* programme (Perini, Titov, & Andrews, 2009). The programme was translated; from English to Chinese (Cantonese/Mandarin). Also, the intervention included new illustrations to reflect people with Asian features; phrases, concepts and descriptions were modified to be consistent with Chinese cultural values and terminology to describe depression (e.g., low mood). Moreover, authors included myths about depression and its treatment. All materials of the programme were reviewed with Chinese health

professionals and users, and subsequently the content was edited based on their feedback. The iCBT intervention for depression was culturally adapted for a Chinese population in Australia (Choi et al., 2012). The results showed the efficacy of an iCBT for depression with weekly telephone support. Treatment group participants reported significantly reduced depressive symptoms (Cohen's $d=0.93$) up to 3-months after treatment compared to a WL control group.

The original version of the *problem-solving intervention* (van Straten et al., 2008) was culturally adapted by Ince, Cuijpers, van't Hof, et al. (2013). *Problem-solving therapy* is a brief Cognitive Behavioural Therapy (CBT) based on identified problems and its ways of regaining control over them. The programme is based on a problem-solving therapy model developed by Bowman, Scogin, and Lyrene (1995). The intervention was translated from Dutch into Turkish, and then both versions were culturally adapted. The process included: (1) the participants' preferred language, (2) describing psychological problems in terms of idioms of distress (e.g., using symptoms of depression instead of the term depression), (3) explicitly discussing migration and culture by using culture-specific cases and problems that are recognisable for the target group concerned, and (4) including recognisable examples of persons with similar problems (e.g., a woman who migrated two years ago and cannot find her way in the Netherlands). After adapting the intervention from the original Dutch versions, two native Turkish persons evaluated the interventions both for language – and culture-specific items in close collaboration with the principal author of the study (who is Turkish). Finally, recommendations from theses reviewers in terms of culture and language were incorporated into the intervention. The outcomes demonstrated reductions in depression symptoms in participants using the internet-based, self-help problem-solving intervention, yielding a moderate effect size (Cohen's $d=0.50$). However, the research group did not find significant differences between treatment group and WL control group.

The *Arab Wellbeing course*, consists of online trans-diagnostic treatment targeting symptoms of anxiety and depression based on CBT. The *Wellbeing course* is based on models of cognitive behavioural and interpersonal therapies (Kayrouz, Dear, Johnston, Gandy, et al., 2015). Modifications were made to make the course culturally appropriate. For instance, key words and symptoms were translated into Arabic from English. Case examples and educational stories were made to the target population by changing images, names and demographic characteristics of case examples. Furthermore, those included situations related with migration from an Arab-speaking country to Australia (e.g. bicultural identity). Modification of the content of the course was based on feedback from members of the Arab community and a literature review of acculturation in Arabs-Australians (Kayrouz, Dear, Johnston, Keyrouz, et al., 2015). Professional translators aided in the transliteration of the key mental health words and the lead author conducted a literature review on acculturation and Arabs, combined with feedback from members of the Arabic-speaking community through focus groups and an online survey to inform some of key themes depicted in the case examples and educational stories. The results showed that participants improved significantly across all outcome measures, with large within-group effect sizes (Cohen's d) at post-treatment ($d= 1.08$ to 1.74) and 3-month follow-up ($d= 1.53$ to 2.00).

Three CAiT studies have demonstrated efficacy to reduce depressive symptoms, however none of them allude to the systematic practises developed in the cultural adaptation methodologies (Bernal & Domenech-Rodríguez, 2012; Chu & Leino, 2017). Further studies should be able to recognise the previous framework developed in order to articulate a theoretically informed methodology in internet interventions.

Conclusions

This chapter provided an overview about how culture affects psychological treatment. Culture involves an intergenerational transmitted system of beliefs, values and norms that are learned in a specific context. Psychotherapy and culture can be visible or absent or inseparable depending on the approach used by the therapist. Therefore, there are different degrees of intensity in the relationship between psychotherapy and culture. APA (2003) recommends to clinicians to consider that culture is part of the necessities, values and beliefs of the clients in psychotherapy.

Culturally adapted interventions has been developed in the last twenty years and there are efforts to organise methods, frameworks and models of how to prepare cultural adaptations (Bernal, 2012). Evidence suggests that culturally adapted treatments can lead to positive outcomes (Benish et al., 2011; Hall, 2001; Huey & Polo, 2008; Kalibatseva & Leong, 2014; Moodley, Gielen, & Wu, 2013). However, limited studies in this field make it difficult to establish a unique criteria of an optimal adaptation process (Kalibatseva & Leong, 2014). Likewise, culturally adapted treatments have been critiqued for their lack of theoretical grounding, due to the absence of an organising systematic adaptation (Chu & Leino, 2017; Helms, 2015). This chapter detailed the supports to make systematic modification of an internet-delivered intervention using an integrative organising theoretical framework.

A theoretically informed methodology has been at the centre for the cultural adaptation of an internet-delivered intervention for depression. The method proposed in this research is based on the cultural sensitivity approach (Resnicow et al., 2000; Wilson & Miller, 2003). This first phase facilitated the tailoring of the internet-delivered programme (e.g., language), while maintaining the original treatment components (fidelity). The second approach involved cross-cultural principles assessment research proposed by Lonner (1985)

and extend by Helms (2015), and the elements of the ecological validity framework proposed by Bernal and Sáez-Santiago (2006).

Studies have argued the importance of developing cultural validity as the next step in psychotherapy (Castro et al., 2010b; Helms, 2015). CAP is a process to develop attuned interventions. Using theoretical frameworks for tailoring interventions can contribute to guarantee a systematic method (Castro, Barrera, & Holleran Steiker, 2010) and the treatment efficacy with culturally, linguistically, and ethnically diverse clients (APA, 2010).

Limited studies have been conducted in CAP for Latin-Americans, and this is also the case with internet-delivered interventions. There is a lack of RCTs in culturally adapted internet-delivered treatment for depression (CAiT), therefore, higher quality RCT studies on the efficacy and effectiveness of culturally adapted internet interventions are needed. The research reported in this chapter can be an impulse to start more studies on CAP and CAiT. Researchers should be encouraged to report in detail their adaptation methods to enable readers to appraise validity of the study findings, and to inform the implementation of CAiT. None of the CAiT studies were conducted in the country of origin, therefore those interventions are not generalisable to the populations.

Chapter 4. Method

Introduction

The study is a mixed method approach utilising in study 1, quantitative and qualitative methods to assist in the cultural adaptation of the *Space from Depression* intervention and in study 2 a randomised control design to examine the efficacy of the culturally-adapted intervention in college students in Colombia.

Culturally adapted psychotherapy research approaches were reviewed in study 1 to develop a systematic and robust method. The proposed method is a combination of cultural sensitivity (Resnicow et al., 2000) and ecological validity (Bernal & Sáez-Santiago, 2006) approaches, including principles from cross-cultural assessment research (Helms, 2015). The adaptation included the following stages: a) cultural sensitivity, which included translating the programme from English to Spanish and the incorporation of country-specific cultural expressions (Colombia); b) Users'(5) and experts'(7) evaluated the programme, which considered both the eight dimensions proposed by Bernal and Sáez-Santiago (2006), [language, persons, metaphors, concepts, contexts, methods, and goals], and principles from cross-cultural assessment research (i.e. functional relevance, conceptual relevance, linguistic relevance). The methodology included the development of a theory-informed measure, the Cultural Relevance Questionnaire (CRQ), designed specifically for this research.

Study 2 is a randomised control design to examine the efficacy of the culturally-adapted intervention for depression. The Randomised Control Trial (RCT) was applied in two cities in Colombia (Bogota and Bucaramanga) with college students. Master students in clinical psychology from two colleges were the supporters in the programme “*Space form depression*”. They were trained in low intensity internet-delivered treatment

before starting their role as a supporter. The research sought to investigate a method for the delivery of effective and culturally-adapted cognitive behavioural evidence-based treatment (Richards et al., 2015) in a low-Middle-Income Country LMIC (Colombia). The methodology used in this study was the first research in Latin America.

The chapter considers the method for the studies; participants demographics, including procedures for recruiting participants, data collection and ethical standards. The sample size and power calculation are also considered. Instruments employed in those studies are described, their psychometric measures detailed, and alpha's established for use in the study sample.

General method

Aims and Hypothesis

The overall study aimed to assess the efficacy of a culturally adapted cognitive behavioural internet-delivered treatment for college students with depressive symptoms in Colombia. In line with other studies in high-income countries (HICs), and using an already established intervention, we hypothesised that the culturally adapted *Space from Depression* programme would be efficacious, with significant changes within the treatment group and differences post-treatment between the active treatment and the waiting list control group.

Overview

The study is a mixed method approach utilising in study 1, quantitative and qualitative methods to assist in the cultural adaptation of the *Space from Depression* intervention and in study 2 a randomised control design to examine the efficacy of the culturally-adapted intervention.

Procedure

The programme *Space from Depression* was culturally adapted for a Colombian population using cultural sensitivity and ecological validity frameworks, including principles from cross-cultural assessment research (Study 1). Once the programme was culturally adapted, it was tested using a randomised controlled trial methodology (Study 2).

Study 1: Cultural Adaptation (Cultural sensitivity and ecological validity)

This study was a mixed method approach utilising quantitative and qualitative methods to assist in the cultural adaptation of the *Space from Depression* programme “*Yo puedo sentirme bien*” in Spanish for Colombian population. The design involved three distinct phases of adaptation, the first considering cultural sensitivity in the adaptation, the second one establishing ecological validity of the adaptation and the third one consisted of the cultural incorporations into the programme (See Table 3).

Table 3.

Cultural adaptation methodology description

<i>Phases</i>	<i>Brief description</i>
Phase a. <i>Cultural sensitivity</i> (Research team, professional translators and video company in Colombia)	<i>Programme translations and cultural incorporations:</i> Translation from English to Spanish and incorporation of the cultural expressions in: general content, psychoeducation information, activities, tools, examples, personals stories, videos, quizzes and quotes.
Phase b. <i>Ecological Validity</i> (Community and specialist evaluation)	<i>Assessment of a culturally adapted treatment by users and experts:</i> Involved the development of a Cultural Relevance Questionnaire (CRQ) measure to capture data on ecological validity of the adapted intervention and its use by users and experts.
Phase c. <i>Cultural incorporations</i> (Research team)	The integration of the feedback for further adjustments to already adapted intervention.

Phase a: Cultural sensitivity

The process for the cultural sensitivity approach is described in the framework by Resnicow et al. (2000). This phase included the preliminary cultural adaptation of *Space from Depression* programme (See Table 3).

Phase b. Ecological Validity

The process used to establish ecological validity was developed using approaches proposed by Bernal and Sáez-Santiago (2006) and Helms (2015) that involved an evaluation of the adapted programme for cultural sensitivity (Phase 1) by Colombian users and clinical

experts using the Cultural Relevance Questionnaire (CRQ) that was developed specifically for this study, see table 3 for description.

Phase c: Cultural incorporations

Once the users and experts completed the CRQ (Phase c), the information was analysed and incorporated in the programme by the researcher. The analysis implicated a quantitative and a qualitative information, see table 3 for description.

Sample of reviewers

Five psychology master students from a university in Colombia participated as volunteers in this research, they underwent the adapted Space from Depression programme from the position of a user. Five experts in Clinical Psychology from Colombia evaluated the initial adaptation. In addition, two clinical psychology experts from Argentina and Spain, who have experience with internet-delivered interventions and also with their translation and adaption for use in Latin America, evaluated the already adjusted programme (see phase 1) using the CRQ. Nine experts were invited to participate in this research and they were selected on the basis of following criteria: a) native Spanish speaker from Colombia and/or other Spanish speaking countries; b) PhD in clinical psychology or in psychology; and c) experience in: CBT, depression, research, and low-intensity internet-delivered treatment (See Table 4). Four experts in Clinical Psychology from Colombia evaluated the culturally sensitive intervention. In addition, two clinical psychology experts from Argentina and Spain, who have experience with internet-delivered interventions and also with their translation and adaption for use in Latin America, evaluated the already adjusted programme (see phase 1) using the CRQ. These criteria aimed to guarantee a diversity of experience and skills to support a rigorous approach to assess and establish the ecological validity of the culturally adapted intervention.

Table 4

Experts' evaluators' information

Experts (N=7)	Ph.D.	CAP Experience	Internet-delivered treatment experience	Nationality
Expert 1	Clinical Psychology	Yes	No	Colombian
Expert 2	Psychology	Yes	No	Colombian
Expert 3	Public Health	No	No	Colombian
Expert 4	Clinical Psychology	Yes	No	Colombian
Expert 5	Clinical and Health Psychology	Yes	No	Colombian
Expert 6	Psychology	Yes	Yes	Spanish
Expert 7	Positive Psychology	Yes	Yes	Argentinian

Recruitment & Procedure

A research group in a Colombian university sent an email to all of master clinical psychology students (seventeen (17) college students) with a summary of the research study, its aims and a description of the task to review the programme and completed the CRQ. Five participants signed the informed consent and after that they reviewed the programme and completed the CRQ after engaging with all of the treatment modules. Volunteer's students completed the first section of the CRQ (See Appendix D).

An invitation email was sent to nine expert researcher/ clinical psychologists in Colombia, Argentina and Spain. Four Colombian experts were selected from two Colombian universities, where the *Space from depression* programme was applied. Three Colombian Experts were selected based on recommendations from a research collaborator (LC) in Colombia. Two Spanish and one Argentinian investigators were recommended by the second author (DR), who were selected based on their experience of internet-delivered interventions and cultural adaptation. Experts received the study information and an invitation to evaluate

the culturally adapted Space from Depression programme. The email contained information about the study including the aims of the research and informed consent, which was signed and sent by email. After that seven experts reviewed the intervention, they completed their evaluation using the CRQ measure.

The feedback from users and experts were collected, once the information was completed the research team started to identify qualitative analysis categories that could be later used to incorporate further changes (in addition to Phase 1 changes) to the intervention.

Study 2: Efficacy trial

The implementation of the culturally adapted programme (post Phase 2 described above) and its evaluation among students using a randomised controlled trial methodology at two sites in Colombia.

Sample size

Our G-Power calculation used a power (0.80) and a 0.05 alpha and determined 45 subjects would be required for each test condition (active group and waiting list) to observe a moderate effect ($d = 0.50$) post-treatment between group difference (Guo, Logan, Glueck, & Muller, 2013).

College students from two Universities in Colombia were included in this study. Both undergraduate and graduate level students from any school at a university in Bogota, and students of psychology, medicine, nursing and education from a university in Bucaramanga were eligible to participate and will be selected according the criteria described on Table 5.

Table 5

Eligibility Criteria

Exclusion criteria:
Severe depressive symptoms >19 on PHQ-9
Suicidal ideation or intent: Score of 2 or above on PHQ-9 question 9
Psychosis
Currently in psychological treatment for depression
On medication for less than 1 month
Alcohol or drugs misuse
Previous diagnosis of an organic mental health disorder
Depression preceding or coinciding a diagnosed medical condition
Inclusion criteria
18-year-old
Mild to moderately severe depressive symptoms: (PHQ-9 score 10-19)

User recruitment

An email was sent to all college students (undergrads and postgrads) in Bogota, and medicine, psychology and education students in Bucaramanga college students at two universities. Potential Participants were able to visit a website to receive information about the study, participation criteria, information about the treatment and how to get in contact to proceed with the study.

Procedure

Once participants read the study information, informed consent was obtained from each user before screening and randomisation. Through the SilverCloud platform, participants were instructed to type their name on the informed consent page, to indicate that

they have read and understood the study information and agree to participate in the study. Thereafter, participants completed measures for screening purposes, including the Patient Health Questionnaire (PHQ-9), Sociodemographic & Clinical History Questionnaire and Generalised Anxiety Disorder-7 (GAD-7) questionnaire. Thereafter participants who were eligible for the study were randomised through computer algorithms and they were assigned in two groups – the active treatment group and waiting-list (WL) control group.

Those assigned to the active treatment started the internet-delivered treatment immediately for seven weeks, while the WL participants treatment started once the first group finished the programme. Individuals not meeting the inclusion criteria at baseline assessment were referred to other appropriate sources of face-to-face support at the student counselling service in the respective universities. Once the students completed the questionnaires, they received immediate feedback on his/her results. If necessary, information was provided to recommend to students to go and see the counselling service at the college. Additionally, the counselling service manager received an automatic email with information of the excluded student, his/her questionnaires (sociodemographic and clinical history questionnaire, PHQ-9 and GAD-7) and his/her scores. The manager follow the student and called him/her in case if necessary.

Randomisation

Post baseline screening participants were randomised and informed immediately about their group assignment. Randomisation was handled by computer algorithm administered by a person independent of the researchers. Figure 1 shows the CONSORT participant flow through the trial.

Baseline characteristics

604 participants were screened, of which 390 were excluded based on the established criteria. A significant amount of participants were excluded due to suicidal ideation (153 individuals; 25%) and misuse of drugs or alcohol (116 students, 19%). At sign-up, there were a total of 107 participants assigned to the treatment group and 107 assigned to the waiting list group.

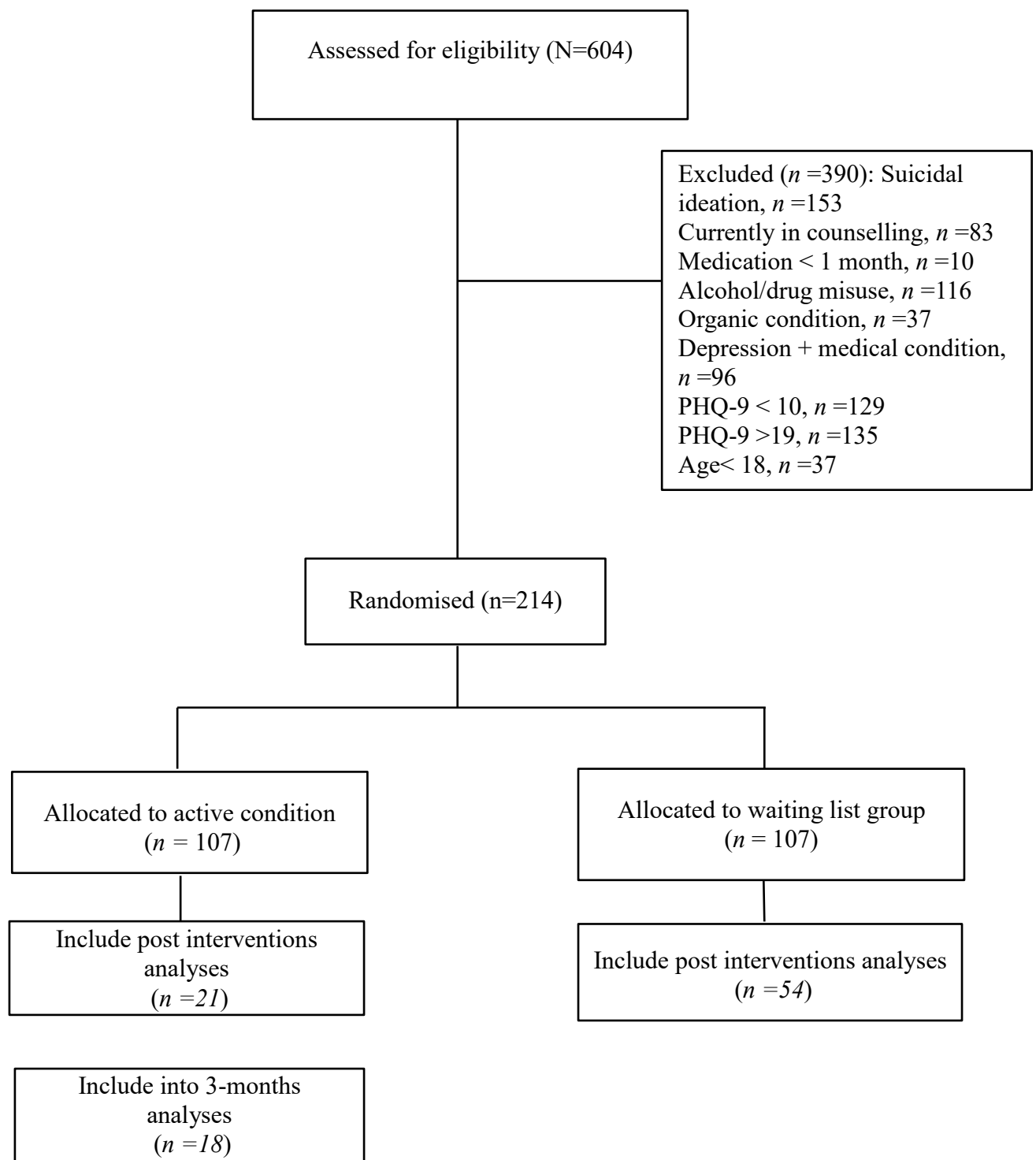


Figure 1. Participant Flow CONSORT

Intervention space from depression (Yo puedo sentirme bien)

Space from Depression programme (*Yo puedo sentirme Bien* –Spanish version)

consists of seven modules of cognitive-behavioural therapy (Table 6). The treatment includes self-monitoring, behavioural activation, cognitive restructuring, and challenging core beliefs.

All modules have the same structure and format, which consist of quizzes, videos, educational content, activities with homework suggestions and a module review page. Also, users have a supporter, who gives a weekly feedback asynchronously (Richards et al., 2015).

Table 6

Space from Depression programme description intervention (Richards et al., 2015)

Module	Brief description
Getting started	Outlines the basic premise of CBT, provide information about depression, and introduce some of the key ideas of <i>Space from Depression</i> . Users are encouraged to begin to chart their own current difficulties with depression.
Tune in I: getting to grips with mood	The focus in this module is on mood monitoring and emotional literacy. Users can explore different aspects of emotions, physical reactions, action and inaction, and how they are related.

Tune in II: spotting thoughts	This module focuses on noting and tracking thoughts. Users can explore the connection between their cognitions and their mood, and record them graphically.
Change It I: boosting behaviour	This module focuses on behavioural change as a way to improve mood. Ideas about behavioural activation are included, and users can plan and record activities, and chart their relationship with their mood.
Change It II: challenge your thoughts	This module supports users to challenge distorted or overly negative thinking patterns, with thought records, as well as helpful coping thoughts.
Change It III: core beliefs	This module outlines the role that deeply held core beliefs could play in mood and depression. Users can use a range of interactive activities to identify, challenge and balance any unhelpful core beliefs.
Bringing It all together	In this final module, users are encouraged to bring together all the skills and ideas they have gathered so far, note their personal warning signs, and make a plan for staying well.

Wait list control group

Participants in the WL control group received treatment after seven weeks; therefore, this group received no treatment for the duration of the first 7 weeks.

Supporters

All of 214 Participants were assigned one of ten (10) supporters who was a postgraduate student in clinical psychology with supervised experience in CBT with adults. Participants per city were assigned to one of five (5) supporters. The iCBT group (107 participants) in Bogota the mean number of participants per supporter was ($M=10.20$ $SD=7.82$ $n=83$); and in Bucaramanga the mean number of participants per supporter was ($M=7$ $SD=4.33$ $n=24$).

Supporters were trained in the *Space from Depression* platform and programme before starting their role as a supporter and they were supervised by an experienced clinical psychologist at the university. Each supporter was assigned users and they provided asynchronous post-session feedback of between 10 and 15 minutes per participant per session. The role of the supporter consisted of motivating and providing feedback to the users. They scheduled the feedback at specific times once each week for a period of 7 weeks.

Assessments

Study 1 consisted of three phases: (a) an initial cultural adaptation programme by the researcher and SilverCloud team (working with the digital content manager (RB) and the chief technical officer (JB) (b) assessed by experts and users using the Cultural Relevance Questionnaire (CRQ) and (c) the further feedback from the experts and users was used in the final version of the *Space from Depression* (*Yo puedo sentirme bien*) in Study 1 (See Table 7).

In study 2, the efficacy trial participants was assessed at baseline, post treatment, and at 3-month follow-up, details of the measures are described in Table 8.

Table 7

Study 1 measures used

Phase	Measure	Assessed variable	Evaluators team
a) Culturally sensitivity	None	<i>Space from depression</i> programme (English version)	Researcher and the SilverCloud team
b) Cultural Validity	Cultural Relevance Questionnaire (CRQ)	Culturally sensitivity programme	Completed by experts and users
c) Cultural modifications	None	Culturally adapted <i>Space from depression</i> programme	Researcher in discussion with the supervisors

Table 8

Study 2 measures used

Study	Measure	Assessed Variable	Time of assessment
Study 2 Efficacy Trial	Patient Health	Depression	Baseline, post-
	Questionnaire (PHQ-9)	symptoms	treatment and follow- up
	Generalised Anxiety Disorder 7 (GAD-7).	Anxiety symptoms	Baseline, post-treatment and follow- up
	Sociodemographic & clinical History Questionnaire	Gender, age, marital status, education, occupation, socioeconomic status and clinical history	Baseline
	Helpful and Hindering Aspects of treatment	Helpful and Hindering Aspects of treatment	After each session
	Satisfaction with Treatment (SAT)	Satisfaction with therapy	Post-treatment

Participants were assessed at baseline through the Patient Health Questionnaire (PHQ-9), Sociodemographic & Clinical History Questionnaire and Generalised Anxiety Disorder-7

(GAD-7). At the beginning of each session participants were asked to reflect on their previous session and complete the Helpful Aspects of Treatment Form (HAT). PHQ-9 and GAD-7 were completed at week 7 and at follow-up, week 20 (3-months). In addition, satisfaction with Treatment (SAT) was administered at week 7.

Measures

Study 1.

Cultural Relevance Questionnaire (CRQ): The Cultural Relevance Questionnaire was designed based on a literature review regarding culturally adapted psychotherapy processes and methods. The CRQ has two sections: (1) a general assessment of the programme and (2) an assessment of each of the modules. The first section, the general assessment of the programme in its entirety, is composed of five questions assessed on a 5 point Likert scale. Each question also includes an open request to elicit qualitative comments from the evaluators' detailing the reasons for their quantitative evaluation. This general assessment section is based on Helms (2015) and Bernal & Sáez-Santiago (2006). The first section of CRQ therefore examined:

Functional relevance. This part of the questionnaire consisted of 3 items. The raters are asked to evaluate the extent to which the same apparent behaviours are interpreted similarly in different cultural or racial groups, occur with equal frequency within these groups, and elicit similar reactions from other members of the groups. Therefore, treatment components could be interpreted similarly by the target cultural group (e.g., personal stories). The category is composed of three questions: (1) the programme involves familiar behavioural or emotional expressions for the cultural group being targeted, (2) the treatment reflects the people and cultural context (e.g., social, political, economic, ethnic, and historical), (3) the treatment goals are tailored to work with clients from this cultural context

(e.g., examples, personal stories, tools). At the each question qualitative comments are invited from reviewers.

Conceptual relevance. This part of the questionnaire consisted of 1 item/question that evaluated the extent to which different behaviours define the same or analogous constructs between groups (i.e., symbols, metaphors and concepts), e.g., the treatment includes symbols and concepts shared by the cultural group; for instance cultural expressions of depression, ideas or analogies about mental illness are included in the programme. Again it is supplemented by an open-ended space allowing for comments in this area.

Linguistic relevance. This part of the questionnaire consisted of 1 item that evaluated the level of oral and written language adjustments made for the programme (e.g. regionalism, slang).

The second section of the CRQ evaluates each module in the programme *Space from Depression (Yo puedo sentirme bien)*. The programme is composed by seven modules, which correspond to seven items in the CRQ. Each module was divided into four components that were: *Content, examples, personal stories, exercises*. Each component collects quantitative judgment assessed on a 5 point Likert scale, based again on the functional relevance, Conceptual relevance and Linguistic relevance principles. Likewise, it is supplemented by a space allowing for comments in each component on each component. Finally, there is an open-ended space allowing for comments for each of the module. The internal consistency (Cronbach's α) of the CRQ scale reached the value of $\alpha = 0.744$. (See the CRQ into appendix B).

Study 2

Screening measure

Sociodemographic Information & Clinical History Questionnaire: This instrument was developed based on a previous version (Richards, Timulak, & Hevey, 2013) and it

collects details on the participants, such as data on the length of time that one is experiencing depression symptoms. Also, it collects data on participant's experience of counselling/therapy and medication for depression. Data is collected on whether one has a previous diagnosis of an organic mental health disorder or serious mental health disorders as schizophrenia, psychosis and bipolar disorder. In addition, it contains items related to co-morbidity of depression with alcohol and drug misuse, and/or any recent medical diagnosis.

Primary outcome measure

Patient Health Questionnaire (PHQ-9)(Kroenke & Spitzer, 2002): PHQ-9 is a 9-item self-report measure that assesses the nine depression symptoms from the DSM-IV depression criteria. Each item is scored on a 4-point scale (0–3) and scores range from 0 to 27. The score can be used to describe the patient's symptoms in one of five categories: none (0–4), mild (5–9), moderate (10–14), moderately severe (15–19), and severe (20–27). The PHQ-9 has been shown to have good reliability and validity in primary care populations, and to have good internal consistency and structural validity ($\alpha = 0.89$, $\alpha = 0.86$, respectively) (Kroenke, Spitzer, & Williams, 2001). PHQ-9 has been translated into Spanish and a Colombian version will be used in the current study (base on <http://www.phqscreeners.com/>). The Spanish version of PHQ-9 has demonstrated reliability ($\alpha = 0.85$) among Latinos in the U.S. (Gilbody, Richards, Brealey, & Hewitt, 2007; Merz, Malcarne, Roesch, Riley, & Sadler, 2011).

Secondary outcome measure

General Anxiety Disorder (GAD-7) (Löwe et al., 2008): Comprises seven items measuring symptoms and severity of anxiety based on the DSM-IV diagnostic criteria. GAD-7 has shown reliability ($\alpha = 0.92$)(Kroenke, Spitzer, Williams, & Löwe, 2010). The GAD-7 has been culturally adapted into Spanish (García-Campayo et al., 2010) and is available in a Spanish language Colombian version (<http://www.phqscreeners.com/>).

Others measures

Helpful Aspects of Therapy Form (HAT) (Elliott, Slatick, & Urman, 2001; Llewelyn, 1988). It is an instrument that assesses the most helpful and hindering events in the therapy. Participants are asked to describe any event, anything they engaged with in the session that was helpful or hindering for them.

Satisfaction with Treatment (SAT) (Richards & Timulak, 2013). At post-treatment, participants will be asked to complete a satisfaction with treatment measure. SAT asks clients about positive and negative experiences with the internet-delivered treatment. SAT contains two questions asking to describe what participants most liked and least liked about the online treatment.

Data analysis

Study 1

Descriptive statistics were reported based on results from the quantitative questions on CRQ, which were analysed in SPSS. The CRQ data collected from the open questions were analysed qualitatively (Dey, 2003). Once all the questionnaires were collected, the information was analysed in Atlas Ti. This phase of the analysis involved the development of a content-oriented coding scheme. The coding scheme consisted of categories generated by evaluators (users and experts) based on comments at the open-ended spaces in the CRQ (general and specific per module).

Study 2

All analyses were based on the intention-to-treat principle. Participant's data were included irrespective of treatment compliance. Descriptive statistics using Chi Square and T-

test were used to analyse sociodemographic and clinical variables at the baseline among the groups (e.g., gender and age) (Field, 2009).

Linear Mixed Model (LMM) was conducted using R for repeated measures within groups and between groups (PHQ-9, GAD7) on each participant over time; it allows for a variety of correlation patterns (variance and covariance structures) to be explicitly modelled (Verbeke & Molenberghs, 2009). Also, it allows the measures on each subject to be used while accounting for missing data. We employed an intention-to-treat (ITT) model for the analysis using Linear Mixed Model (LMM) to use all the missing data in the sample. LMM fit by REML t-test using Satterthwaite's method to estimate covariance matrix, including fixed effects for time (West, Welch, & Galecki, 2014). The LMM used in this study assumed that data were missing at random and were robust to ignorable missingness assumptions. It was considered a significant 2-way interaction between groups and the potential covariance as a significant effect. All reported *P* values are 2-tailed with significant levels at $P < 0.00$, $P < 0.01$ and $P < 0.05$. Also, we reported the outcomes from the per protocol analysis using a maximum likelihood method to calculate missing data in the sample.

The magnitude of effects within and between the two groups was established by Cohen's *d* statistic (Field, 2009). Cohen details what is considered a small effect (size is 0.2 to 0.3), a medium effect (0.5) and a large effect (0.8 upwards) (Cohen, 1988).

Analyses were carried out to assess how many participants achieved clinically significant changes at the end of the intervention and at follow-up. The assessments were made using pre-treatment scores and these are compared to post-treatment scores and follow-up scores on the outcome measures PHQ-9 and GAD-7. The analysis was based on Jacobson

& Truax method, where a reliable change equals the difference pre-test and post-test, divided by standard error of the difference (Jacobson & Truax, 1991).

The HAT data were analysed using descriptive and interpretative qualitative analysis (Elliott & Timulak, 2005). First, all the data was reviewed to identify patterns and this was organised at the participant level. This first phase of analysis developed the categorisation of the data following those categories identified in previous research (Richards, Dowling, O'Brien, Viganò, & Timulak, 2018), and extended these where appropriate. Second, meaning units, that is items that could stand by themselves and communicate something meaningful, were divided into (a) helpful events, (b) helpful impacts, (c) hindering events and (d) hindering impact. Third, quotes were identified for categories. Fourth, the categories were defined and fifth, several revisions of each category and assigned the meaning unit were done by the author (AS) and (DR). Furthermore, the qualitative analysis was based on other experiences using HAT with the programme “*Space from Depression*” (Richards et al., 2018), which the meaning units found in this research were similar.

Descriptive statistics was used to analyse the quantitative data from the Satisfaction with treatment (SAT) questions and the qualitative responses from this questionnaire were analysed using thematic analysis. The categorisation of the data followed those identified in previous research (Richards et al., 2016).

Ethics

The ethics committee at the school of psychology in Trinity College Dublin manifested that they could not evaluate the research project, because the study is conducted in a different country. The committee suggested that the project had to have approval from the country in which the study is applied. Therefore, the research project and all related materials

were submitted and approved by the appropriate university ethics committees in Bogota (letter reference no. 552 on December 1st 2015) and Bucaramanga (letter reference no. 075 on March 28th 2016). In Bogota the director (LC) of a research group in the school of psychology in Andes University did an oral presentation of the project and submitted all of related materials. After the meeting with the committee the project was approved. In Bucaramanga, the same ethic forms were submitted and approved by the committee. (See the letter references from both universities appendix 1).

Chapter 5 Results

Introduction

The current chapter presents outcomes from two studies. Study 1 involved the cultural adaptation of the *Space from Depression* intervention and study 2 was a randomised control trial to examine the efficacy of the culturally-adapted intervention in college students in Colombia.

Study 1 describes a method for culturally adapting a psychotherapy intervention and is divided into three phases: (a) cultural sensitivity, (b) ecological validity and (c) cultural incorporations (See general methods). Outcomes from all of three phases are presented and detail the initial cultural adaptation of the programme (Phase a), quantitative and qualitative analysis from the Cultural Relevance Questionnaire (CRQ) (Phase b) and modifications incorporated into the programme *Space from Depression* based on feedback from the CRQ (Phase c).

Study 2 assessed the efficacy of the culturally-adapted intervention for depression. Chi Square and T-test were used to examine any differences in demographic and clinical characteristics in the groups at baseline. Linear Mixed Model (LMM) was used for repeated measures (PHQ-9, GAD7) on each participant over time (Verbeke & Molenberghs, 2009). LMM allows the measures on each subject to be used while accounting for missing data. LMM showed significant differences within group changes over time for the treatment group and significant differences between the active group and the WL control group over time. *Cohen's d* showed large effects within groups in depression and moderate effect in anxiety at posttreatment and these were maintained at three months follow up.

Helpful and hindering aspect of treatment (HAT) examined the user's experience with the programme and Satisfaction with the treatment (SAT) assessed participants level of satisfaction with the online intervention. The results show that the users report positive experiences using the culturally adapted *Space from depression* programme and satisfaction with the treatment.

Study 1. Culturally adapted internet-delivered program

The results are described in three distinct phases considering (a) an initial adaptation taking into account cultural sensitivity and (b) assessment of initial adaptation as to its ecological validity and gathering of further suggestions for changes and (c) the incorporations or modifications based on the feedback from the CRQ by the evaluators.

Phase a: Initial adaptation taking into account Cultural Sensitivity

The outcomes from this phase were made by the researcher (AS). These involved major adjustments to several programme components including: (a) translations from English to Spanish; (b) rewriting of the personal stories; (c) remaking the audio recordings and videos. Secondary adjustments were: (d) revisions to the quizzes, quotes, and (e) the development of the supporter training (manual). All sections were modified to incorporate culturally appropriate expressions and language to make it more understandable for Latin-American Spanish.

This phase was based on a cultural sensitivity framework –*top down*- dimension, which implicates observable characteristics, experiences, norms, values, behavioural patterns and beliefs of the target population (Resnicow et al., 2000). The researcher (AS) is Colombian, therefore this phase involved her own experience in this process in collaboration with a

voluntary Colombian psychologist (RG), a video company in Colombia and the SilverCloud team. AS has worked as a CBT therapist and researcher with different populations in Colombia, including people from low, middle and high socioeconomic status in different regions of Colombia. The cultural sensitivity process is described below:

Adjustments

(a)*Language -Translations:* Translations from the professional translators were reviewed several times, and the grammar was refined, making the content more understandable to the target population. For instance, informal language style aimed at college students was used (i.e. tú the informal you), known as “Tuteo” in Spanish. Furthermore, the concept “*Personal guide*” “*Guía personal*” in Spanish was suggested and selected instead of “*Supporter*”, which in Spanish there is not a direct meaningful translation.

(b)*Personal Stories:* College students’ personal stories in Colombia were rewritten by the main researcher (AS) based on her own experience as a professor and clinician in Colombia familiar with presenting issues of a potentially depressed student population. The stories’ topics included: (a) a pregnant student, (b) economic problems, (c) difficulties in romantic or peer relationships and (d) high self-criticism/perfectionism. Likewise, these personal stories were reviewed by a colleague (RG) in Colombia who has experience in counselling with college students. Once this review was finished, appropriate images of Colombian persons were chosen for each personal story.

(c) *Audio recordings and videos:* Mindfulness exercises were re-recorded (four in total) into Spanish using a Colombian accent. Likewise, the videos in the programme were overlaid with a Colombian recording of the text. The idea was to maintain the Colombian accent. Likewise, eight introductory videos were made by Colombian actors.

(d) *Quizzes, quotes:* Quizzes and quotes were reviewed, for instance a question was

added to the introductory quiz “*Latin Americans do not suffer from depression?*” Moreover, quotes from Latin-American writers were incorporated (e.g. Gabriel Garcia Marquez, Isabel Allende among others) into the programme.

(e) *Supporter training*: The training manual was translated for use in Spanish.

Phase b: Assessment of Ecological Validity of the initial adaptation (with suggestions for further adaptations)

Assessment of initial adaptation as to its ecological validity contributed to further suggestions for changes which are presented here. Cross-cultural principles – Functional, Conceptual and Linguistic relevance - assessment of the programme were evaluated by users and experts (See table 9).

Table 9

General evaluation by users and experts

Cross-cultural principles	Range*	Users (n=5) <i>M (SD)</i>	Experts (n=7) <i>M (SD)</i>	Combined <i>M (SD)</i>
Functional relevance	(1-5)	4.53 (.380)	4.38 (.756)	4.44 (.609)
Conceptual relevance	(1-5)	4.60 (.548)	4.29 (1.25)	4.42 (.996)
Linguistic relevance	(1-5)	4.20 (.447)	3.86 (1.06)	4.00 (.853)

*1 = Functional, conceptual or linguistic relevance are not reflected within the programme.

5= Functional, conceptual or linguistic relevance are reflected within the programme.

Evaluators were generally positive about the initial version of the culturally adapted programme. Experts and users evaluated that the programme as mostly suitable and therefore ecologically valid in their evaluation of the intervention as a whole (Table 1) and its component modules (Table 10).

Table 10

Functional, Conceptual and Linguistic relevance per module

Module	Range*	Functional relevance		Conceptual relevance		Linguistic relevance	
		<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)
Welcome to SilverCloud	(1-5)	4.64	(.4532)	4.17	(1.1060)	4.17	(1.0677)
Getting started	(1-5)	4.78	(.3037)	4.28	(1.0842)	4.17	(1.0649)
Understanding feelings	(1-5)	4.71	(.3660)	4.28	(1.1273)	4.14	(1.0870)
Boosting behaviour	(1-5)	4.75	(.4190)	4.22	(1.0746)	4.12	(1.0394)
Spotting thoughts	(1-5)	4.78	(.3037)	4.35	(1.0880)	4.24	(1.0842)
Challenging your thoughts	(1-5)	4.82	(.3134)	4.42	(1.1060)	4.29	(1.113)
Bringing It all together	(1-5)	4.74	(.3819)	4.35	(1.0979)	4.24	(1.0897)

*1 = Functional, conceptual or linguistic relevance are not reflected within the programme.
5= Functional, conceptual or linguistic relevance are reflected within the programme.

Qualitative analysis

The results of the qualitative component to the CRQ supported five overarching categories, which was assigned a colour: (a) red for “*language’s suggestions or changes*” a category, which is understood as instances of language use that could be improved upon within the intervention; (b) green for “*concept coherence*” which is defined as the conceptual consistency and understanding of the cognitive behavioural therapy elements in the programme, (c) orange for “*quality of delivering*” is defined as the manner in which the content is delivered; and (d) blue for “*positive impressions*” relates to positive comments regarding the strengths of the intervention.

In qualitative comments, evaluators highlighted some aspects of the intervention that required further attention. Their comments centred on the language used (clarification, colloquial language), relevance of examples and personal stories, conceptual clarity and the engagement promoting technical features of the programme.

Clarification of meaning category, for example, the “*Boosting behaviour*” was not considered a suitable title for a module. “*It has no meaning in the everyday context of the population*”. Language suggestions also extended to its more *colloquial use (language’s suggestions or changes* category) including, for instance, Colombian expressions such as, “*guayabo*” (hung over), “*ciclovía*” (bike rides on Sundays). Furthermore, evaluators suggested *changing some of the examples*, such as: “*Failing an exam*” instead of “*Losing a driver licence*”, as the latter is not a common situation for students in Colombia. Likewise, evaluators suggested refining personal stories, which were evaluated as not so natural for college students. Therefore, these were adjusted and the details were extended to include colloquial jargon for college students.

Conceptual coherence category was an issue, for instance, with a Mindfulness exercise “*CBT module is teaching challenging thoughts, the session teaches how to challenge and change thoughts, but the Mindfulness training is more about the acceptance of thoughts*”. The *quality of delivery* was typically commented on in the context of videos: “*Videos are not convincing due to low quality*”, “*Consider animations instead of videos*”, “*The videos presented for each module are not very convincing*”, “*videos can be better*”.

Encouragingly, the evaluators also stated that “*In most parts of the programme the language is suitable and understandable*”. For example, some quotes were: “*The information is presented in a didactically and an understandable manner for the users*”, “*Elements of the programme are familiar to the targeted cultural group*”, “*Personal stories are close to our reality*”, “*The cultural context can be analysed through personal histories*”, “*The intervention presents clearly and simply the CBT basic aspects*”, “*The emotions’ synonyms are well translated and help to understand the meaning of each feeling*”, among others.

Phase c. Incorporation and modification of the programme based on the feedback

The end product of phase 2 was the incorporation and modification of the programme based on the feedback. Qualitative data collected using the CRQ showed that while in principle evaluators were happy with the cultural adaptation, they also made several suggestions as to the language, examples used and personal stories used. They also commented on other features of the programme not necessarily related to cultural adaptation such as the quality of the videos or conceptual match between different parts of the programme. The feedback provided was used in the final adaptation of the programme. Based on this type of feedback the research team made modifications to the titles used in the programme. Comments supported the revision of the language in some parts of the programme, such as the inclusion of modules' title. For instance, *"How to start to motivate myself?"* was used instead of *"boosting behaviour"* and *"How to question my thoughts?"* was used instead of *"challenging thoughts"*. Also, the term *"Beating behavioural traps"* was not used as a title in the programme. Therefore, in the Spanish version, a more informal title was employed: *"How to overcome the vicious cycles of depression?"*

Likewise, mindfulness activities were reviewed and included a quick introduction. The mindfulness activity in the "challenging thoughts" module was changed with more emphasis on acceptance of thoughts. Furthermore, the analysis contributed to increasing the quality of the presentation of the programme (e.g. videos replaced by animation). The animations included images of a typical college student in Colombia. For example, animations involved a male student with a traditional Colombian bag called a *"mochila"* that is originally made by Colombian indigenous people. A stereotypical Colombian girl was included, with her hairstyle and clothes matching current styles. Also, animations included the public bus transport in Bogotá called *"Transmilenio"*.

Adapting an intervention programme is essential to accommodate diversity of experiences and traditions (Domenech Rodríguez et al., 2011). Those examples illustrate some other features incorporated into the programme. Most of the modifications in this illustration might be obvious (e.g. rename modules), however the modification implicates a flexibility approach. The culturally adapted *Space from depression* programme was tested in Colombia for college students, details are described below (Study 2).

Study 2. Efficacy of the intervention

Baseline characteristics

Descriptive statistics revealed that at post-randomisation (Table 11), there were no significant differences in the sample between the iCBT group and waiting list control group (WL) on any variables.

Table 11 details the characteristics of the sample. The mean age was 22.15 (*S.D.* = 4.74). All of the students were studying full time. The majority of the college students sample was from health sciences (40.2%) and social science (29%). There were no significant differences in the number of participants in the control group vs. treatment group who reported a previous diagnosis of depression. The majority of the participants reported depressive symptoms of between 1 and 2 years (35%). Twenty-one percent (21%) reported to have had counselling/psychotherapy for depression in the past. Lastly, the sample reported confidence in their use of information technology with 69% participants reporting being confident. Forty one percent (41%) of the participant reported to feel not so confident.

Treatment response rate

Participants were offered seven modules of content to complete. While they were instructed to complete each of the seven modules, the choice, pace and control over the direction and dose of their engagement was entirely up to them. Of the 107 randomised to the

immediate treatment group 80% ($n=86$) began module 1 and 9.3% ($n=10$) completed all modules. Figure 2 represents the treatment response rate over time.

A session in an online interventions is defined as an instance when a client logged into the system (Richards et al., 2015). Session time estimation is not exact, because users may be interrupted or take breaks within session, and may not formally log out of the system. Regarding the treatment group, the total number of sessions completed was 734, with an average of 7.6 sessions completed per user. The mean time spent on the programme was 3 h and 18 min.

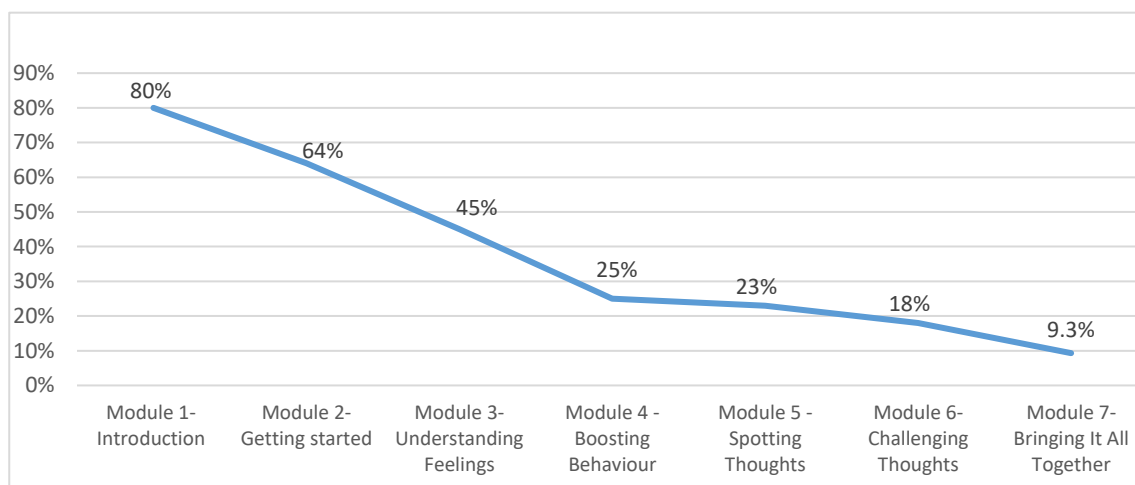


Figure 2. Percentage of users accessing modules over time

Research data attrition

The percentage of participants who completed research measures at post-intervention (20%, $n=21$) and at 3 month follow-up (17%, $n=18$). In the WL group the response was high, with 50.4%, $n=54$ of participants present at post-intervention assessment. The WL control group was not followed up beyond this point as they entered treatment.

ITT analysis

The study sought to establish the effectiveness of the culturally adapted intervention “*Space from Depression*” in college students. Based on previous reports (Richards et al.,

2015) the hypothesis was to obtain significant differences post-treatment in symptoms of depression and anxiety in the treatment group compared to the waiting list control.

Patient health questionnaire (PHQ-9)

The iCBT Group and WL control group samples were compared using linear mixed models (LMM), adjusting for depression and anxiety scores in the model. LMM including fixed effects for time shows significant effects post-treatment ($t=-5.079$, $df=38.23$, $p<0.00$) within the iCBT treatment group. The effects were also maintained at 3-months follow up ($t= 4.668$, $df=39.62$, $p<0.000$) for the treatment group (See Table 12). Also, LMM shows significant differences between the groups ($t=-5.189$, $df=197.54$, $p<0.00$).

The results within groups for the treatment group yielded a large effect size post-treatment ($d=1.44$, $p<0.001$) and this was maintain and increased at 3-month ($d=1.81$, $p<0.001$). Similarly, results shows a large effect size between groups ($d=0.91$, $p<0.001$). Fig. 3 gives a graphical representation of the changes in depressive symptoms between groups pre-treatment and post-treatment.

Generalised Anxiety Disorder (GAD-7)

Similarly, the iCBT group and WL control group samples were compared using linear mixed models LMM, adjusting for depression and anxiety scores in the model. LMM showed a significant effect post treatment ($t=-2.632$, $df=37.83$, $p<0.012$) and at 3-moths follow-up ($t=-2.486$, $df=38.8$, $p<0.017$) (See table 12) within the treatment group. Also, LMM showed significant differences between the groups ($t=-2.229$, $df=103.53$, $p<0.02$).

The results within groups for the treatment group yielded a medium-large effect size post-treatment ($d=0.73$ $p<0.001$) and this was maintain at 3-month ($d=0.52$, $p<0.001$). The mean scores indicated that the treatment group reported significantly lower levels of anxiety symptoms post-treatment than those in the WL control group, yielding a medium

post-treatment effect size between the groups for the intervention ($d=0.60$, $p<0.000$). Fig. 4 gives a graphical representation of the changes in anxiety symptoms between groups.

Per protocol analysis (research completers)

Patient Health Questionnaire (PHQ-9)

A linear mixed effects analysis of the relationship between treatment and PHQ-9 score was conducted withing treatment group, time-point and the interaction of group and time-point as fixed effects and intercepts for individuals as random effects. LMM including fixed effects for time shows significant effects post-treatment ($t=-3.662$, $df=81$ $p<0.000$) and at 3-months follow up ($t=-4.165$, $df=25.67$ $p<0.000$) within the iCBT treatment group (See Table 12).

The analysis within-group analysis revealed significant reduction in depressive symptoms post-treatment ($d=0.97$, $p<0.001$), and these were maintain and improved upon at 3 months follow-up ($d=1.29$, $p<0.001$) yielding a large post-treatment effect for the intervention (See Table 12). Similarly, results shows a medium effect size between the groups ($d=0.72$, $p<0.001$).

Generalised Anxiety Disorder (GAD-7)

Similarly, LMM results showed a significant effect post treatment ($t=-2.223$, $df=81$, $p<0.029$) and at 3-months follow-up ($t=-2.578$, $df=57.65$, $p<0.005$) for the iCBT treatment group (See table 12). The mean scores indicated that within iCBT group reported significantly lower levels of anxiety symptoms post-treatment ($d=0.84$ $p<0.001$), and three months follow-up ($d=0.66$, $p<0.001$) yielding a medium post-treatment effect size for the intervention. Similarly, results shows a medium effect size the between groups ($d=0.56$, $p<0.001$).

Clinically Significant and Reliable change

Reliable change index (RCI) values were calculated for the PHQ-9 and GAD-7 scores to determine the proportion of each group who showed reliable improvements (or deterioration) between baseline and post-treatment and 3-months follow up. Reliable change was assessed using Jacobson and Truax (1991) reliable change criteria. Internal consistency, estimated with Cronbach's α (Santos, 1999), was excellent for both measures ($\alpha_{PHQ9} = 0.89$, $\alpha_{GAD7} = 0.92$). To be considered reliable, change on the PHQ-9 needed to exceed RCI of 3.98 and for the GAD-7 the RCI value was 3.61 (McMillan, Gilbody, & Richards, 2010).

The ITT sample was applied to determine the proportion of those who has reliably changed. In the iCBT group 76.2% ($n=16$) compared to 31.5% ($n=17$) in the waiting list group achieved reliable change. The differences between groups was statistically significant, $X^2(2) = 10.519$ $p=0.001$. For the per protocol sample, in the treatment group 58.6% ($n=17$) compared to 22.2% ($n=12$) in the waiting control group achieved reliable change in depression. The differences between the groups was statistically significant $X^2(2) = 9.4533$ $p=0.002$.

Clinical cut off recovery from depression and anxiety was established by identifying the percentage of participants whom achieved a post-treatment score of 10 or less on the PHQ-9 and score 8 or less in GAD-7. Thirteen participants in the iCBT group met the criteria for depression (See Table 13).

Table 11

Demographical and clinical variables

Variable	Sub-variable	Treatment (n = 107)		Control group (n= 107)		p-value	Total (n=214)	
		N	%	N	%		n	%
Gender	Female	74	69.2	79	73.8	0.573	153	71
	Male	33	30.8	28	26.2		61	28.5
Age	Mean Age (SD)	22.24 (5.450)		22.06(3.944)		0.981	22.15 (4.747)	
	Range	18-52		18-37				
Education Subject	Health sciences	46	43.0	40	37.4	0.972	86	40.2
	Social sciences	31	29.0	31	29.0		62	29.0
	Engineering	17	15.9	20	18.7		37	17.3
	Postgrads	13	12.1	16	15.0		29	13.6

Time with symptoms	Less than 6 months	28	26.2	28	26.2	0.4375	56	26.1
	1-2 years	42	39.3	33	30.8		75	35.0
	2-5 years	22	20.6	21	19.6		43	20.0
	5+ years	15	14.0	25	23.4		40	18.6
Previous therapy for depression	Yes	20	18.7	27	25.2	1	47	21.9
	No	87	81.3	80	74.8		167	78.0
Previous medication for depression	Yes	20	18.7	17	15.9	0.003	37	17.2
	No	87	81.3	90	84.1		177	82.7
Current medication for depression	Yes	3	18.7	4	15.9	0.2312	7	3.2
	No	104	81.3	103	84.1		207	96.7
IT confidence	Very confident	2	1.9	4	3.7	0.468	6	2.8
	Confident	35	32.7	37	34.6		72	33.6
	Average	2	1.9	2	1.9		4	1.8
	Mildly confident	52	23.4	20	18.7		72	33.6
	Not confident	43	40.2	44	41.1		87	40.6

Table 12

Descriptive data for the PHQ-9, GAD7 by group over time (ITT)

Outcomes measures	Pre-treatment	Post-	t(df)	Effect size (d)	Follow-up assessments		
	score M (SD), n	treatment Score M (SD), n	Base line, post p value	[95% CI] Within group	3 month score M (SD), n	t(df) Base line, 3 month p value	Effect size (d) [95% CI]
PHQ-9							
<i>Intention to treat</i>							
Treatment Group	14.22 (2.81),107	8.33 (5.71), 21	-5.079 (38.23) p=< 0.000	1.44 [0.38,2.49]	8.41 (5.98), 107	-4.668(39.62) p=< 0.000	1.81 [0.69, 2.92]
Waiting List Group	13.82 (2.93),107	13.09 (5.06),54		0.20 [- 0.78,0.58]	6.33(5.43),107		
<i>Per protocol analysis</i>							
Treatment Group	14.38 (2.783),107	9.28 (5.609),29	-3.662, (81) p=<0.000	0.97 [0.40,1.54]	7.87 [5.772],29	-4,165 (25.67) p=<0000	1.29 [0.71,1.87]
Waiting List Group	13.86 (3.032),107	13.14 (5.056),54		0.17 [0.21,0.55]			

GAD-7*Intention to treat*

Treatment Group	10.56 (4.380),107	7.19 (4.79),107	-2.632(37.83) p=<0.012	0.73 [0.08,1.37]	7.83 (6.23), 107	-2.486 (38.88) p=< 0.017	0.52 [-0.17,1.21]
Waiting List Group	10.75 (4.053),107	9.44(6.23),107		0.27 [0.10,0.66]			

Per protocol analysis

Treatment Group	10.56 (4.380),107	7.37 (4.79),29	-2.223 (81) p=<0.029	0.84 [0.28,1.40]	6.73(5.661),54	-2578 (57.65) p=<0.005	0.66 [0.12,1,20]
Waiting List Group	10.75 (4.053),107	9.89(4.053),44		0.29 [0.08,0.68]			

Note. PHQ-9, Patient Health Questionnaire; GAD-7, Generalised Anxiety Disorder.

Table 13

Reliable change (Per protocol)

	Post-treatment (7 weeks) <i>N</i> =21				3-months follow-up <i>N</i> =18			
	PHQ-9		GAD-7		PHQ-9		GAD-7	
	<i>N</i>	%	<i>N</i>	%	<i>n</i>	%	<i>N</i>	%
Reliable improved	16	76	12	57	13	72	11	61
No change	1	4.8	1	4.8	0		0	
Deteriorated	2	9.5	3	14	2	11	2	11
Recovery	13	61	16	76	11	61	13	72

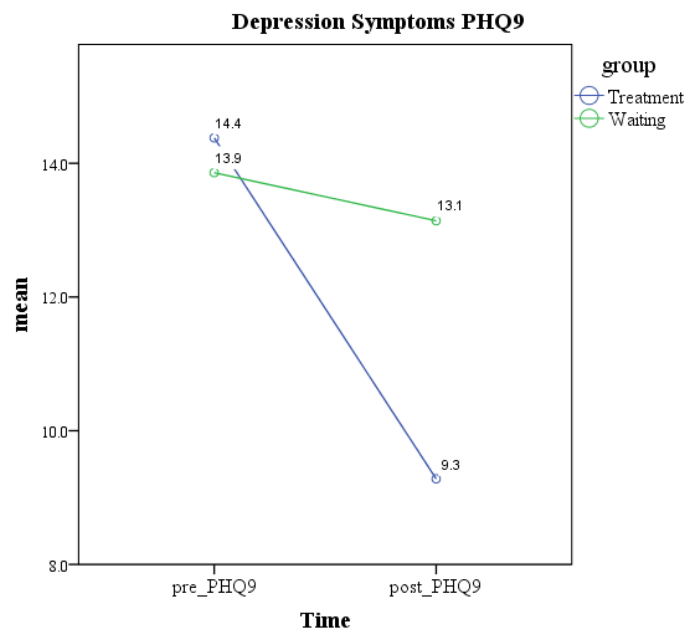


Figure 3. Changes in depression symptoms pre-to-post-intervention

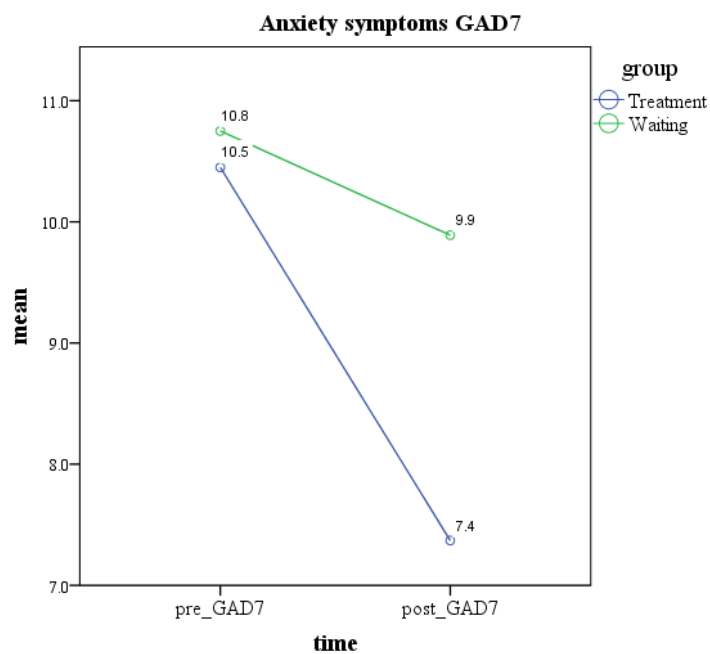


Figure.4. Changes in anxiety symptoms pre-to-post-intervention

Significant events in the programme ‘Space from depression’ HAT

In total 71 participants completed the HAT, 52 women (72.9%), 19 men (25.7%), with ages ranging from 18 to 52 ($M=22.71$, $SD=5.75$). The participants completed a total of 163 HAT Questionnaires ($M=2.28$ $SD=1.49$). Fourteen participants (20%) completed four or more HAT questionnaires. Figure 5 shows the percentage of participants who completed the HAT per session.

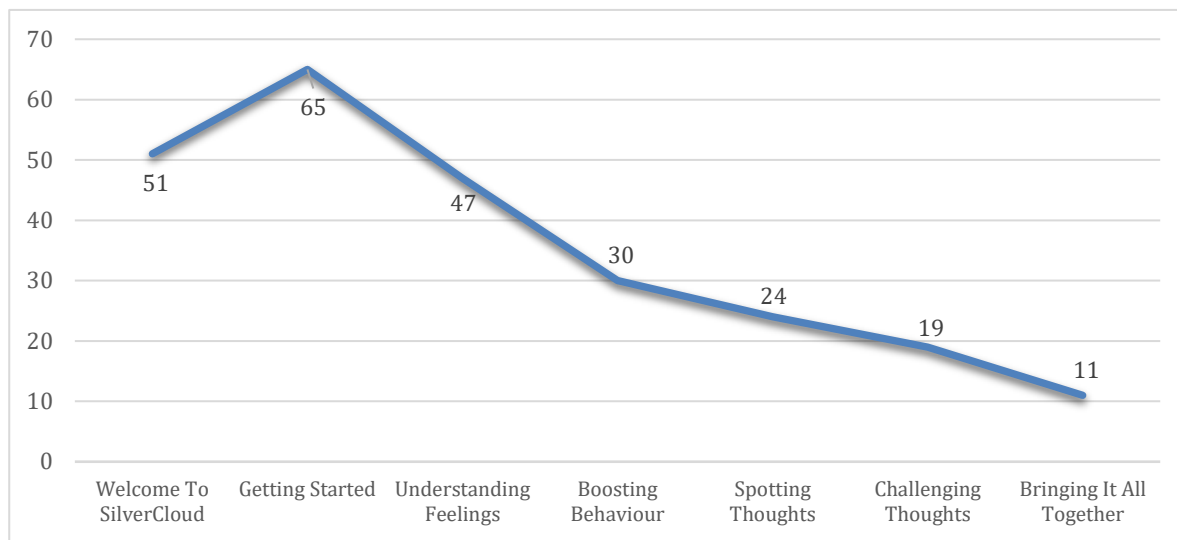


Figure 5. Number of HAT completers ($n=71$) who reviewed each session / module

Of the 71 participants who completed HAT, the majority of the participants ($n= 47$, 66.1%) did not complete all the modules. Twenty nine users (41%) reviewed 1 or 2 modules only, eighteen participants (25.3%) completed between three and four modules and twenty four users (33.8%) reviewed more than 5 modules.

Helpful events

In total six helpful events were reported (provision of information, CBT Activities [TFB cycle, challenging thoughts, recognising emotions, recognising triggers, behavioural activation, goal setting, journaling, mood tracking/monitoring/recording], the availability of supporter, programme accessibility and usability, mindfulness, personal stories and examples) and four associated impacts (networking, awareness and insight, feeling supported/validated, expression/relief) (See Table 14).

In total five (5) hindering events were identified (lack of time, personal difficulties with engagement, unhelpfulness of supporters ‘communication, unhelpfulness of platform features/design) and three associated impacts (confusion) (See table 15). Table 16, 17 and 19 have the definitions of the helpful and hindering events and helpful and hindering impacts.

Table 14

Helpful events

ICBT <i>n</i> =71	
Helpful Events	No. of participants identifying each item
Provision of information	31/71
TFB cycle	15/71
Challenging thoughts	9/71
Recognising emotions	2/71
Recognising triggers	3/71
Behavioural activation	6/71
Goal setting	4/71
Journaling	7/71
Mood tracking/monitoring/recording	5/71
Availability of supporter	16/71
Mindfulness	9/71
Personal stories & examples	6/71

Table 15

Helpful impacts

ICBT n=71	
Helpful impacts	No. of participants identifying each item
Awareness and insight	45/71
Feeling supported/validated	13/71
Expression/relief	9/71

Table 16

Hindering events

ICBT n=71	
Hindering Events	No. of participants identifying each item
Lack of time	8/71
Personal difficulties with engagement	8/71
Unhelpfulness of supporters' communication	5/71
Unhelpfulness of platform features/design	3/71

Table 17

Hindering impacts

ICBT n=71	
Hindering impacts	No. of participants identifying each item
Confusion	8/71

Table 18

Definitions of helpful events

Helpful event	Definition
Provision of information	Clients highlighting the psychoeducational content of the modules that contribute to understand their mood or elements of the intervention. For example: the TFB cycle, the importance of behavioural activation, distinction between achievement and pleasure activities, learning about emotions, learning about core beliefs, thinking styles and negative thoughts, and relationship between behaviours, thoughts and emotions.
The availability of Supporter	The availability/ presence of a supporter, contact with the supporter or reference to the provision of feedback.
TFB cycle	Clients highlighting the TFB cycle, which is an activity in which users identify their thoughts, feelings and behaviours associated with a situation or trigger event.
Challenging thoughts	Clients make comments related to identify evidence for and against their hot thought, based on the ‘Challenging Thoughts’ module.
Recognising emotions	Comments related to recognise their emotions based on TBF cycle tool or psychoeducation content.
Recognising triggers	Comments related to recognise triggers based on TBF cycle tool or psychoeducation content.

Goal setting	Comments related to achievement goals based on psychoeducation content and tools in the programme
Journaling	Comments related to experiences of journaling activity in the programme
Mood tracking/monitoring/recording	Comments related to the mood tracking tool in which clients monitoring their daily mood in the programme
Mindfulness	Reference to mindfulness activities in the programme and its practice
Programme accessibility and usability	Comments related to programme structure, layout or format. Recognition of the programme accessibility. It includes flexible access and 24 hours availability for the client.
Personal stories & examples	Reference to the personal stories and examples provided within the programme.

Table 19

Definitions of helpful impacts

Helpful impacts	Definitions
Awareness and insight	Recognition of something was previously unknown by the client. Insight is characterised particularly by personal resonance that distinguishes it from awareness only.
Feeling supported/validated	Outcomes of the clients being listened to, understood, acknowledged and/or validated. It includes outcomes of being encouraged and/or advice by the supporter. May include a sense of reassurance that there is a supporter available to the client during the programme and may result in re-engagement with the programme.
Expression/relief	Includes a sense of relief as a result of engaging with the programme. Likewise, it includes that the client feels that can express by themselves through the programme.

Table 20

Definitions of hindering events

Hindering events	Definitions
Lack of time	Participants did not have time to access the intervention. It includes academic demands or exam week.
Personal Difficulties with engagement	Reports of personal events that affect the interaction with the programme, such as: psychological distress, lack of motivation, which affect the engagement with the programme.
Unhelpfulness of Platform features/design	Comments related to the design or interactivity with the programme
Unhelpfulness of Supporters' communication	Comments related to the structure of communication with the support, such as: the communication is not synchronic or clients have to wait each week to communicate to them.

Table 21

Definitions of hindering impacts

Hindering impacts	Definitions
Confusion	Aspects of the programme have caused confusion, it included being left without a clear understanding of an element of the programme, or feeling confused in relation to navigating the programme.

The helpful events and associated impacts presented in Table 6, shows the numbers correspond to the number of participants identifying each item and the numbers of counts of each of the quantitative items. The most frequently reported helpful events were *provision of the information* ($n=31$), *CBT activities* ($n=22$) [TFB cycle ($n=15$)], challenging thoughts ($n=$

9), recognising emotions ($n=2$), Recognising triggers ($n=3$), behavioural activation ($n=6$), Goal setting ($n=4$), Journaling ($n=7$), mood tracking/monitoring/recording ($n=5$).] and *availability of supporter* ($n=16$), followed by *programme accessibility and usability* ($n=11$), *mindfulness* ($n=9$) and *personal stories and examples* ($n=6$).

Participants reported that psychoeducational information was helpful. This information is part of all of the modules in the programme, that include an explanation of depression, CBT, emotions, behavioural activation, thinking styles and the relationship between thoughts, emotions and behaviours.

"I liked that the explanation of the depression process or some similar feeling, which are clear and it helps to see the possible variables that can lead to this generating a way of seeing the world in another way (with the option to get out of that spiral of feelings that lead to a bad feeling or thought)". "Me gusto que la explicación del proceso de la depresión o de algún sentimiento parecido, lo cual es claro y ayuda a ver las posibles variables que pueden conllevar a que esto genere una manera de ver el mundo de otra manera con opción a salir de esa espiral de sentimientos que conllevan a un mal sentimiento o pensamiento" in Spanish).

Engagement with CBT activities in the intervention was identified as a helpful event. Activities included the following: using the TFB cycle ($n=15$), challenging thoughts ($n=9$) Recognising emotions ($n=2$), Recognising triggers ($n=3$), behavioural activation ($n=6$), Goal setting ($n=4$), Journaling ($n=7$), mood tracking/monitoring/recording ($n=5$).

"The types of negative thoughts I identified with several of these and led me to reflect on the power that sometimes I give them in my life. /"Los tipos de pensamientos negativos me identifique con varios de estos y me llevaron a reflexionar sobre el poder que a veces les doy en mi vida" in Spanish.

“ ... Both the mood tracking and the goals seem to me a particular way of measuring how I am feeling and if what I am proposing is what I am doing. So I like it because I feel part of my own process.”/ *“Tanto el monitor como las metas me parecen una manera particular de medir como me estoy sintiendo y si lo que me propongo lo estoy cumpliendo. Entonces me gusta porque me siento participe de mi propio proceso”* in Spanish.

“This programme has motivated me to keep a diary (not only virtual) that has allowed me to express myself and understand better what happens to me”/ *“Este programa me ha motivado a llevar un diario (no solo virtual) que me ha permitido expresarme y entender mejor lo que me pasa”* in Spanish.

“Knowing that there are several ways of seeing the present one of them is critical”./ *“Conocer que hay varias formas de ver el presente una de ellas es de forma crítica”* in Spanish

The supporter was identified by large number of the participants (n=16, 22.5%) as a helpful event. The students reported that the supporter provided guidance in the programme, encouraging to continue along the modules.

“I am interested in the fact that there is someone waiting for your progress and vigilant that you fulfil the modules to satisfaction”/ *“Me interesa que hay alguien pendiente de tu progreso y vigilante de que cumplas a satisfacción los módulos”* in Spanish.

Mindfulness was repeatedly (n=9, 13%) reported as a helpful event by participants, helping them to connect with the present or feeling relaxing.

“The moment in which one I could practice breathing was a very calm moment that I ordered everything I had learned during the session”./ *“El momento en el que se podía practicar la respiración fue un momento muy calmado que ordeno todo lo que había aprendido durante la sesión”* in Spanish.

The personal stories and examples illustrated along the programme were identified as a helpful event for the users.

The programme helped me see that many students like me feel bad and try to continue with their obligations. Their experiences and their motivation to be part of this process were the ones that helped me/”*Me ayudo a ver que muchos estudiantes al igual que yo se sienten mal e intentan seguir con sus obligaciones. Sus experiencias y su motivación a ser partes de este proceso fueron los que me ayudaron*” in Spanish.

Helpful impacts

In total three helpful events were reported by the participants in the study. The most common impacts reported were: Awareness and insight ($n = 45$) Feeling supported/validated ($n= 13$) Expression/relief ($n=9$).

Awareness and insight helpful impact was reported by a large number of participants ($n=45$, 63.3%). The users reported that the programme allows them to recognise something that was previously unknown and be aware about personal issues.

....It made me see that there is not only one way to see the problem at the same time as the problem depends on several factors which can be solved and changed/ “*Me hizo ver que no hay solo una manera de ver el problema a la vez que el problema depende de varios factores los cuales se pueden resolver y cambiar*” in Spanish.

Thirteen participants (18%) reported that were *feeling supported/validated* by the supporter. Students informed that they felt listened, understood, acknowledged and/or validated.

“Having my supporter has helped me to understand that my emotions are common and that I should not feel unhappy because in many occasions I lack the motivation”/”*Tener a mi guía personal me ha ayudado a entender que mis emociones son comunes y que no debo sentirme desdichada porque en muchas ocasiones me falta la motivación*” in Spanish.

Expression/ Relief helpful impact event was reported by some participants ($n=9$, 12.6%). Users informed that they could express by themselves through the programme.

“It helps me to vent certain issues that I cannot do with anyone else”/ “*me ayuda a desahogar ciertos temas que no puedo con nadie*” in Spanish.

Hindering events

In total five hindering events were identified (Personal difficulties with engagement, Unhelpfulness of Supporters’ communication, Unhelpfulness of Platform features/design) and three associated impacts (lack of time, confusion, self-criticalness, lack of continuity) (See table 7). Table 18, 19, 20 and 21 have the definitions of the helpful and hindering events and helpful and hindering impacts.

In total three hindering events were reported by the participants in the study, and three impacts were associated with these hindering impact. The hindering events and its associated impacts are presented in the Table 4. The most common events reported were lack of time ($n=8$) and internal factors/triggers ($n=8$) followed by supporters ‘communication ($n=5$) and platform features/design ($n=3$).

Lack of time was one of the two most frequent reported hindering events for the users. They described difficulties with academic work at the college (e.g. exams), that affect the use of the programme.

... “Lack of time to complete the modules since I am closing the first cohort in the university”/ *“La falta de tiempo para realizar los módulos ya que me encuentro cerrando primer corte en la Universidad”* in Spanish.

The same number of participants reported *personal difficulties with engagement* that affect the engagement with the programme. “When I was in the middle of one of the modules I remembered that I had a pending work so I prepared to finish it”/ *“Cuando iba en la mitad de uno de los módulos recordé que tenía un trabajo pendiente así que me dispuse a terminarlo”* in Spanish.

Participants noted that in a minority of cases, platform features could be hindering to their treatment.

“Actually, I did not use it, I felt that it is not very effective because when I did not feel a set schedule I forgot the programme”/ *“En realidad no lo use, sentí que es poco efectivo pues al no sentir un horario establecido olvidaba el programa”* in Spanish.

The other hindering events that were noted included comments on the delayed supporters’ communication, such as:

“There is no direct exchange with the supporter, so if some ideas or proposals on my part are too vague, they cannot be clarified immediately”. / *“No hay un intercambio directo con el guía, de manera que si algunas ideas o planteamientos de mi parte son muy vagos, estos no se pueden aclarar de manera inmediata”* in Spanish.

Hindering impacts

On overall, hindering impacts reported by the users were minimal. One hindering impact were identified, that was: Confusion ($n=8$). Confusion involves being left without a clear understanding of an element of the programme, or feeling confused in relation to navigating the programme.

... “The platform is not very clear or I have not understood how to use the platform's tools”/“*La plataforma no es muy clara o no he entendido como usar las herramientas de la plataforma*” in Spanish.

Satisfaction with the treatment (SAT)

Forty participants completed the satisfaction with treatment questionnaire, 30 (75%) were female, and 10 (25%) were male, with ages ranging from 18 to 52 years ($M = 23$, $SD = 6.67$). Most users from Bogota completed the SAT (34 /85%) compare to users from Bucaramanga (6/15%). Half of the participants ($n = 20$, 50%) did not complete all of the modules. Seven participants (20%) completed 1 or 2 modules. Thirteen participants (31.7%) completed between three and four modules and the majority of the participants (46.3%) reviewed more than 5 modules.

Participants were asked to rate how strongly or not agreed to use of the computer to access the treatment, how easy they found the online treatment to use, whether they felt that the treatment they received would have a lasting effect for them and whether they would specifically recommend online treatment to others. Table 8 displays the results from the quantitative analysis. Most of the users were happy to use the computer to access the treatment (76.3%), and found the interventions easy to use (81.8%). The satisfaction measure also asked how helpful the participants found the online treatment. The majority of participants (67.5%) found the online treatment helpful (See table 20).

Table 22

Results from the satisfaction measure questions

	<i>Satisfaction with the treatment SAT n=40</i>		
	<i>Agree</i>	<i>Disagree</i>	<i>Neither</i>
I was happy to use the computer to access the treatment	76.3%	7.9%	15.8%
I found the intervention easy to use	81.8%	5.3%	13.2%
I feel the treatment received will have a lasting effect	63.1%	7.9%	28.9%
I would recommend the online treatment to others	68.4%	15.8%	15.8%
	Helpful	A little helpful	Not at all helpful
How helpful you found the online treatment programme	67.5%	22.5%	10%

The final two questions in the satisfaction measure were qualitative and asked participants what they most liked and least liked about the online treatment. The majority of users reported its accessibility and flexibility (n=20, 50%) as they most liked. The other areas liked was the applicability of the programme in their life, having a supporter, interactive tools and activities.

“...The availability of all the material that it includes and the sense of security that it gives to know that I can receive help at any time”; “The strategies proposed are very effective that allows us to question about the habits that we do not have so well to lead a happier life”; “That I could keep track of my emotions and moods..”/ “La disponibilidad de todo el material que incluye y la sensación de seguridad que da saber que puedo recibir ayuda en cualquier momento”, “Las estrategias que propone son muy efectivas eso permite que nos cuestionemos

sobre los hábitos que no llevamos tan bien para poder llevar una vida más feliz”, “Que pudiera hacer un seguimiento a mis emociones y mis estados de Ánimo” in Spanish.

When asked what they ‘least liked’ about the online treatment programme some participants reported that the programme did not meet their individual needs, such as immediate feedback or synchronic interaction with the supporter (n=11, 27.5%), lack time (n=4, 10%).

“...The platform is impersonal. Perhaps, it was not what I needed to hear. Perhaps, nothing replaces being in touch in real life with someone...”.”*La plataforma es impersonal. De pronto no era lo que necesitaba escuchar. De pronto nada reemplaza el estar en contacto en la vida real con alguien*” in Spanish

Conclusion

Study 1 aimed to articulate a theoretically informed methodology for the cultural adaptation of an internet-delivered intervention for depression. In general, evaluators were positive about the culturally adapted programme, while they suggested further changes. The quantitative analysis of the CRQ showed that the initial version of the programme was assessed positively by users and experts regarding the cultural validity of the treatment [Functional relevance, Conceptual relevance, Linguistic relevance].

In study 2 the culturally adapted programme for depression shows significant reductions in depressive and anxiety symptoms for participants in the treatment group. These effect were maintained at follow-up (3-months). Likewise, significant differences were found between iCBT group and WL control group. However, post-treatment attrition was very high.

Data from HAT and SAT measures highlight key issues that contribute to the results of the study, such as the CBT activities achieved by the users, which are the aim in the programme. Additionally, the supporter seems have a valuable impact on satisfaction with the treatment.

Chapter 6: Discussion

Introduction

The present study sought to assess the efficacy of a culturally adapted cognitive behavioural internet-delivered treatment on college student with mild and moderate symptoms of depression in Colombia. The research consisted of two studies, *study 1* contributed to development of an integrative method for culturally adapting an internet-delivered intervention, and *study 2* consisted of assessing the efficacy of the culturally adapted “*Space from depression*” programme.

Limited studies have been conducted using approaches or models to develop culturally adapted psychotherapy, which were designed to improve the engagement and therefore the efficacy of the intervention (Bernal & Domenech-Rodríguez, 2012), and this is also the case for internet interventions. In study 1 the author developed an integrative approach for the cultural adaptation of an internet intervention for depression treatment. This integrative approach could be revised and built upon in future studies.

The culturally adapted *Space from Depression* programme was shown to be effective for depressive symptoms and comorbid anxiety symptoms in Colombian college students. Significant differences between treatment group and WL control group were found. However, the attrition was very high at post-treatment and three months follow up, which is not an uncommon problem in internet interventions (Christensen & Mackinnon, 2006; Eysenbach, 2005). Further, studies in culturally adapted internet-delivered treatment (CAiT) for depression have had similar attrition problems (Burçin Ünlü Ince et al., 2013).

Helpful and hindering events in treatment (HAT) were reported by the participants, showing positive experiences with the culturally-adapted internet-delivered intervention. Reports on helpful and hindering events and impacts have been previously described in others studies (Richards et al., 2018). The findings described in this study confirm the potential use of internet-delivered treatment *Space from depression* programme in different populations.

Finally, the users who stayed in the study reported that they were happy with the treatment and they described this as a helpful intervention (a caution has to be made due to high research attrition and treatment drop-out). This is the first research in South America regarding a culturally adapted internet-delivered treatment for depression. Multicultural studies are needed to establish the efficacy of evidence-based internet-delivered interventions in different populations, and thus to facilitate access to mental health treatments around the world.

Principal results

Study 1. Culturally adapted internet-delivered intervention

This study developed a robust and theoretically-informed methodology to adapt an internet-delivered intervention for depression in another culture. Limited studies about cultural adaptation in psychotherapy have been conducted, despite twenty years of efforts to conceptualise methods, frameworks and models in this field (Bernal & Adames, 2017; Chu & Leino, 2017; Helms, 2015), and even more limited research available in culturally adapted internet-delivered treatments (Arjadi et al., 2015; Harper-Shehadeh et al., 2016). For instance, a systematic review of culturally adapted internet-delivered interventions for depression carried out in this research, found only three studies (Salamanca-Sanabria et al., in review).

Evidence suggests that culturally adapted face-to-face treatments can lead to positive outcomes (Benish et al., 2011; Hall, 2001; Hall et al., 2016; Huey & Polo, 2008; Kalibatseva

& Leong, 2014; Moodley et al., 2013). However, there is limited knowledge about any unique criteria that could contribute to an optimal adaptation process (Kalibatseva & Leong, 2014). Likewise, culturally adapted treatments have been critiqued for their lack of theoretical grounding, due to the absence of a systematic adaptation (Chu & Leino, 2017; Helms, 2015). This study is a contribution to expand this field and attempt a systematic modification of an internet-delivered intervention using an integrative organising theoretical framework.

The methodology documented in this research is an attempt to systematically modify an evidence-based internet-delivered intervention for depression. It uses the inclusion of community members in the process of adapting or developing a treatment as an essential component to increase the external validity (Bernal & Domenech-Rodríguez, 2012). The participation of the community in cultural adaptations is a relevant component to incorporate necessities, values and beliefs into the programme, achieving ecological validity (Kalibatseva & Leong, 2014).

The method was composed of three phases. The first phase facilitated the tailoring of the internet-delivered programme (e.g., language), while maintaining the original treatment components (fidelity). The second phase involved cross-cultural principles assessment research proposed by Lonner (1985) and extended by Helms (2015), and the elements of the ecological validity framework proposed by Bernal and Sáez-Santiago (2006), which were evaluated by users and experts through the Cultural Relevance Questionnaire (CRQ). Finally, the third phase consisted of the incorporations into the programme *Space from depression* based on the feedback in the CRQ.

In general evaluators were positive about the culturally adapted programme, while they suggested further changes. The quantitative analysis of the CRQ data showed that the

initial version of the programme was assessed positively by users and experts regarding the cultural validity of the treatment [Functional relevance, Conceptual relevance and Linguistic relevance]. Functional relevance scores suggested that the programme included components (e.g. examples, personal stories), that are relevant for the cultural group (Regnault & Herdman, 2015). Furthermore, conceptual relevance scores suggested that the online intervention used constructs that would be understood by the target population (e.g. adjectives that describe depression) (Helms, 2015). Finally, linguistic relevance scores suggests that the language used in the programme could be improved (e.g. inclusion of cultural expressions) within the population. Expert's ratings were slightly lower than ratings of users, which might support a more rigorous analysis of items from the experts, who also provided more comments on the programme components compared to users.

Studies have argued the importance of developing measures and refining existing measures of cultural validity as the next step in this field (Castro et al., 2010b; Helms, 2015). The integrative approach adopted for the current study with the development of the associated CRQ measure is a first contribution to integrate a paradigm for developing measures to incorporate ethnic and racial experiences, previously discussed by Helms (2015). The CRQ can be further refined and elaborated upon in future studies. The author recommends in the culturally adapted assessment process based on the CRQ to include the original version of the programme and the adapted version to verify the cultural 'equivalences' content in the programmes for future studies as is suggested by (Helms, 2015). In this study, not all of our evaluators could check the English version, due to limited knowledge of the language. Therefore, the assessment was based on the observations from the culturally adapted *Space from depression* programme and thus can be rather seen as assessing cultural relevance than equivalence.

The inclusion of diverse populations are generally underrepresented in scientific and clinical analyses and are known to be a hard-to-reach population for research purposes (Arjadi et al., 2015; Cuijpers et al., 2018). The current study supports the inclusion of diverse population in research and the relevant necessity to use culturally adapted internet-delivered interventions for depression.

Study 2: Efficacy of the culturally adapted *Space from Depression* programme

The study further aimed to evaluate the efficacy of the culturally adapted *Space from Depression* programme for college students with depressive symptoms in Colombia. The results show that the treatment demonstrated statistically significant decreases in depressive symptoms post-treatment, relative to pre-post change in the wait-list condition, and these were maintained at 3-month follow up. Furthermore, participants in the iCBT group compared to the WL control group achieved greater reliable change, also the differences between groups was statistically significant. The results from the present study thus showed that the culturally adapted cognitive-behavioural internet-delivered programme, *Space from Depression*, is effective in reducing depressive symptoms in comparison to a waiting list control group. These results support previous research findings on *Space from Depression* in Ireland (Richards et al., 2015). This findings might indicate that the programme potentially can be used with other cultural groups, provided that it contains culturally adapted components.

The results in this study also showed that positive changes can be maintained by users 3-months post-treatment for depressive symptoms. It is a relevant finding, regarding maintenance of gain achieved from an internet-delivered intervention. This is may be possible because the internet-delivered intervention programme provides tools to continue making gains, as well as this modality encourages the participant to enhance self-responsibility

(Wagner, Horn, & Maercker, 2014). Previous research in CAiT for depression has been consistent in demonstrating lasting effects. For instance, Choi et al. (2012) found that reduction on depressive symptoms were still maintained at 3-months follow-up.

Furthermore, this study found that the *Space from Depression* programme is effective in reducing comorbid symptoms of anxiety in comparison to a waiting list control group. Statistically significant reductions were observed in anxiety symptoms for the intervention group from pre-to post-treatment and these were maintained at 3-month follow-up. The results support the general efficacy of internet-delivered cognitive behavioural interventions for depression and anxiety as has been observed in previous studies (Richards et al., 2015). Similarly, Burçin Ünlü Ince et al. (2013) showed in a RCT significant reduction in depression and comorbidity anxiety post-treatment and 3-months follow-up with Turkish people in the Netherlands. These outcomes, supports the idea that online interventions allow for convenient access to evidence-based treatment and interactive tools, which may encourage and enhance the participants with the intervention and thus contribute to the stability of outcomes (Wagner et al., 2014).

This study included a high proportion of women (71%). Although an invitation to participate in this study was sent to different careers that had similar proportions of male and female students, more female decided to participate. This is not necessarily unusual given the higher incidence and prevalence of depression in women compared to men worldwide (Ferrari, Somerville, et al., 2013).

The study reports the results from the first culturally adapted internet-delivered programme with asynchronous online support in a low-middle country in South America as examined in a randomised control trial design. The intervention showed similar outcomes to

those established previously in online treatments for depression and anxiety in HICs (G. Andersson, 2018; Richards & Richardson, 2012; Richards et al., 2015; Wells et al., 2018). Internet-delivered intervention evidence comes mainly from people living in developed countries (Schröder et al., 2016) whereas iCBT may be a valuable resource to reduce the treatment gap for those living in less developed countries, thus ameliorating social health inequalities between regions (Latulippe et al., 2017). This study is a contribution to the knowledge base about the potential for delivering internet based interventions for depression.

Furthermore, reliable change was achieved by a greater percentage of those in the iCBT group (58.6%) compared to WL control group (22.2%) and the difference was statistically significant $X^2(2) = 9.4533$ $p=0.002$. Internet interventions reliable change has showed greater percentage in different studies in the literature based on ITT samples. For instance, in one study of culturally-adapted iCBT for depression and anxiety Kayrouz, Dear, Johnston, Gandy, et al. (2015) reported a 50% reliable change in the treatment group. A study of internet-delivered treatment for depression with *Space from depression* programme, reported 31% reliable change (Richards et al., 2015).

The participants in the iCBT group spent an average of 3 h and 18 min in treatment, and average time of 18.2 mins per session. Participants determined their time in the platform, which is a feature of internet-delivered intervention. Studies using *Space from depression* programme have showed a mean time spent on the programme longer (5h 22 min) (Richards et al., 2015). These time differences in the intervention could be associated with the college student sample in Colombia, where exams weeks and academic tasks affected people use of the programme.

Attrition

Research attrition

In this study only 20% of the participants completed measure post-treatment and 17% 3-month follow up, which is high compared to other studies with diverse populations. For instance, Burçin Ünlü Ince et al. (2013) had 58% participants completed the post-test (6 weeks), and 38% filled the follow-up assessment at 4 months. Choi et al. (2012) reported 92% of the users completed the post-test and 84% of the participants filled the questionnaires 3-months follow-up. Internet interventions have showed high attrition also, for example, Proudfoot et al. (2004) had 69% of participants filling the forms at post-treatment and 67% at follow up. Meyer et al. (2009) reported 49% of participants providing data at post-treatment and 35% follow up. A previous study using *Space from depression* programme research attrition at post-treatment was 63% and 52% at 3-month follow-up (Richards et al., 2015).

Procedural variables could be associated with the research attrition in this study, such as contact phones numbers of the participants were not provided by the colleges at the beginning, therefore calling the participants to encourage them to complete the measures post-treatment was limited. Future studies should examine strategies to decrease attrition rates, which is a determinant of effectiveness in internet-interventions.

Treatment drop-out

Only a small proportion of participants completed all modules, 80% (n=86) of the participants in the iCBT group began module 1 and 9.3% (n=10) completed all modules. Treatment drop-out is a common problem in internet interventions (Christensen & Mackinnon, 2006; Eysenbach, 2005). Additionally, this is the first study in Colombia - South America with internet-delivered interventions, which may affect the engagement with the treatment. Several barriers are related to access to mental health treatments, such as lack of

motivation for change, negative perception of psychological treatments and personal stigma (Richards & Salamanca-Sanabria, 2014), and these may help the treatment attrition. Also, possible cultural differences and specific characteristics of the college students sample have to be considered in future studies in Colombia to improve the engagement with the treatment. For instance, the structure of the year, competing demands on students e.g. exams and holiday periods can have detrimental impact on engagement and adherence to any intervention.

Strengths of the research

The outcomes reported in this study highlights strengths. First, the study contributed to developing an integrative methodological approach to conduct a systematic modification for culturally adapting internet-delivered interventions. A preliminary adaptation carried out by the research team (Phase a), the evaluation of the initial culturally adapted programme through the CRQ (Phase b), and incorporations or modifications in the intervention (Phase c). The CRQ, is the first measure developed and used to assist in the cultural adaptation process, which can considered in future studies. The systematic approach to cultural adaptation was theoretically supported through an integration of cultural sensitivity framework (CSF) (Resnicow et al., 2000; Wilson & Miller, 2003) , alongside an ecological validity framework (EVF) (Bernal & Sáez-Santiago, 2006), and principles from cross-cultural assessment research (Helms, 2015). This integration of theoretical approaches contributed to a systematic cultural adaptations of the internet-delivered intervention. The CSF facilitated modifications to the internet-delivered programme based on top down approach, while maintaining the core theoretical components of the intervention. EVF and cross-cultural assessment principles supported the programme's evaluation by members of the community and also experts, contributing to the ecological validity of the adapted programme.

Second, the results show that the culturally adapted programme *Space from depression* was effective reducing depressive symptoms and comorbid anxiety symptoms with college students in Colombia. *Space from Depression* programme has been previously investigated with college students (Doherty, Coyle, & Sharry, 2012) and a community population (Richards et al., 2015), with significant improvements in depression pre-to-post treatment. Most of the studies of internet-delivered interventions have been studied in HICs, which might not be generalisable to other populations worldwide. This type of treatment is an alternative for people who cannot access mental health services due to limited health insurance, or personal stigma and therefore is relevant in Colombia (Ministry of Health, 2015; Richards et al., 2014).

Third, the intervention allowed that college students have access to a psychological treatment, which may be the only alternative to use a mental health service for them. Despite the high attrition found in this study, this type of treatment was an opportunity for students to have access of a psychological intervention. A recent report showed that only a small minority of college students receive adequate treatment for their mental disorders in low-income –countries (6.7%) compare to HICs (23.1%) (Auerbach et al., 2016).

Forth, this study adds supporting evidence for using trained students supporters in guided internet-delivered interventions for mild to moderate depressive symptoms. Several studies have reported that various levels and type of supporters can achieve positive outcomes in low intensity internet-delivered interventions for depression (Richards & Richardson, 2012; Wells et al., 2018). The student supporters in this study might play an important role in increasing engagement with the programme, as the participants reported this as such in the qualitative part of this thesis.

Finally, this type of intervention could be delivered through a counselling service with trained students in Colombia. Likewise, it may employed as a potential alternative in primary care or other populations. Studies have evidenced that internet-delivered interventions might potentially reduce barriers to treatment access in LMICs (Cuijpers et al., 2018). Additionally, culturally adapted internet-delivered treatments could reduce cost and possibly personal stigma (Mohr et al., 2010). Therefore, the study alludes to the potential of a culturally adapted internet-delivered intervention, with support, to accomplish significant outcomes. In locations where mental health services are underdeveloped, or where health care structures do not exist, or where there is a potential to offset risk and escalation of difficulties and benefit from early intervention, such a model of service provision could be feasible (Cuijpers et al., 2018).

Differences between cities and colleges in Colombia

The study was conducted in two cities in Colombia, Bogota and Bucaramanga, which have different socioeconomic context that might be related with the outcomes in this study. Colombia is socio-economically stratified into 6 levels, 1 being the lowest socio-economic class and 6 being the high socio-economic class. The university in Bogota is one of Colombia's most prestigious and expensive institutions, therefore the sample there were from high economic status (from 4 to 6). On the other hand, the university in Bucaramanga included population from 2nd to 4th socio-economic class. It is relevant that Colombia is a diverse cultural country, where socioeconomic status also present cultural differences (Culture Ministry of Colombia, 2013). There are challenges and risks to adapting an intervention, such as presuming global understanding from knowledge of any one culture or subculture (Rathod & Kingdon, 2014).

However, in fact, both colleges reported similarities in the study, such as a high exclusion criteria at the beginning (64% of participants were excluded before they were

randomised to treatment group and WL control group). For instance, in Bogota high proportion of students were excluded, due to suicidal ideation (23.5% $n=130$) and drug /alcohol misuse (17% $n=94$). Similarly, in Bucaramanga, a high proportion of students reported suicidal ideation (12.3% $n=23$) and also, alcohol and/ drugs misuse (18% $n=22$). The exclusion might be considered higher compared to other studies in high income-countries (Montero-Marín et al., 2016; Richards et al., 2015; Titov et al., 2010). In CAiT for depression high exclusion related to suicidal ideation has been reported in different populations (Choi et al., 2012; Burçin Ünlü Ince et al., 2013). Studies have supported that the reasons of the exclusion may include different interpretations that communities have about mental disorders, which may not be considered in the measures used for depression (Kirmayer et al., 2017; Kleinman, 2004). More studies are needed in this area to develop validated measures considering cultural differences. Additionally, college students typically report higher prevalence rate of depression, suicidal ideation and alcohol /drug misuse (Auerbach et al., 2016; Ibrahim et al., 2013), and there are similar reports in South America (Alarcón, Mojica, & Serrano, 2016; Richards & Salamanca-Sanabria, 2014).

Both colleges had a similar percentage of research attrition. Twenty four participants (27% of the sample) and five students (20% of the sample) in Bogota and Bucaramanga respectively completed the PHQ-9 and GAD-7 post-treatment and 3-months follow-up. The research attrition in Bucaramanga was slightly higher, and this is more evident related to the numbers of students who completed the HAT (77%, $n=55$, Bogota; 23%, $n=16$, Bucaramanga). Also, more students in Bogota described qualitatively their experience with the programme, and report interest with the programme. That is the same situation with users who filled the SAT (85%, $n=34$, Bogota; 15%, $n=6$, Bucaramanga). This outcomes suggest that in Bogota the users had higher treatment response rate compared to the participants in Bucaramanga.

All college students in Bogota including undergrads and postgrads were included in this study. In Bucaramanga only undergrads students from health sciences and education participated in this research. Students selected in this research may make a differences with the engagement with the treatment. For instance, participants from medicine and nursing have a high demand on their time, which may be associated with the high attrition. Furthermore, specifically a relevant proportion of postgrads students in Bogota (30%, $n=12$) provided data at three months follow up, which might be one of the reasons for the attrition between the colleges. Postgrads students are more mature and may be more diligent of filling measures and aware the benefits of the online intervention. Additionally, studies in Bucaramanga shows that mental health stigma is high, and even with face-to-face interventions it is a challenge for professionals, due to the low engagement in treatment (Agudelo-Vélez, Casadiegos-Garzón, & Sánchez-Ortíz, 2009). However, reports in Bucaramanga shows high rate of depression among college students (Agudelo-Vélez et al., 2009; Pinzón Amado, 2014).

Helpful and hindering aspects of therapy (HAT)

Several helpful events and their impacts were identified in this study and are similarly described in other studies (online and face-to-face CBT) including increasing awareness and insight, and feeling supported and validated (Richards et al., 2018; Timulak, 2007). Likewise, some of the hindering impacts were reported previously in internet-delivered interventions, such as confusion (Richards et al., 2018; D. Richards & Timulak, 2012).

Helpful events & impacts

Provision of the information and CBT activities

Psychoeducation information and CBT activities such as provision of the information, TBF cycle, and mindfulness were identified as key components in the intervention. This categories showed which parts of the information delivered were more relevant to the users, possibly contributing to the success and engagement with the treatment. Other studies have identified that psychoeducation has positive effect on depressive symptoms in online interventions (G. Andersson & Cuijpers, 2009).

One of the CBT activities most mentioned by the users was TFB cycle, which is a core characteristic in CBT therapy that teaches the essential skills and strategies to help the person manage their emotions and thoughts. The cognitive and behavioural CBT activities identified by participants, demonstrating the utility to tackling low mood and depression. Previous studies with college students and in general population have supported similar outcomes (Richards et al., 2018; Richards et al., 2013).

Awareness and insight

In this study, helpful impact of awareness and insight was one of the most frequent categories identified in the sample. Awareness and insight is typically found to be helpful impact in face-to-face therapy (Castonguay & Hill, 2007; Timulak, 2010). Previous studies in online interventions have reported awareness and insight as a significant event (Richards et al., 2018). Developing personal awareness and insight are prerequisites of behavioural change (Castonguay & Hill, 2007).

Support and validation

The supporter played an important role in the programme. In general, the users mention that they felt supported and /or validated by the supporter. Other studies have analysed the therapeutic alliance and the experience of being supported, validated, and encouraged in online interventions (Berger, 2017; Knaevelsrud & Maercker, 2006; Pihlaja et al., 2017). The presence of the supporter appears to be an add-on with studies utilising supporters showing better outcomes in trials in comparison to interventions without any form of support (Richards & Richardson, 2012). However, the therapeutic relationship in online interventions has been found to be a less relevant predictor of the therapy outcome than in face-to-face approaches (Knaevelsrud & Maercker, 2006). Several factors are associated with the supporter relationship (e.g. the nature, type, duration or variabilities of implementation), which are still unanswered (Richards et al., 2018; Richards & Richardson, 2012; Titov et al., 2010).

Participants in this study reported feeling encouraged to continue with the programme due to supporters presence. Participants informed that supporter' feedback was based on their necessities, also users found the guidance, supportive and reinforcing. Other studies with asynchronous supporter using HAT have reported that the sense of feedback received throughout the programme was genuine (Richards et al., 2018). Support and validation by the supporter may suggests a success component from session to session in this intervention. For instance, a specific feedback, explanation, recommendation or appropriate exercise suggested by the supporter, was highlighting for the users as part of his/her achievement in the programme.

Additionally, personal stories and examples throughout the intervention were recognised by the participants as part of the sense of being supported and validated.

Therefore, the participants found this as part of the encouragement to continue the treatment. For instance, participants reported feeling less lonely in the programme when they read the personal stories and examples. Other studies shows that personal stories provide support to the participants (Richards et al., 2018).

In summary, the findings described here may provide evidence for the role of a supporter in the implementation of an online intervention, improving adherence and increasing motivation among users of such interventions. Richards et al. (2018) posit that the inclusion of a supporter in internet-delivered interventions may facilitate the transmission of certain aspects of face-to face therapy to online interventions.

Mindfulness

All of the modules in the *Space from depression* programme include a mindfulness exercises. This component was included due to an evidence of effectiveness of mindfulness in the treatment of depression (Cladder-Micus et al., 2015; van der Velden et al., 2015), also in the internet delivered format (Cavanagh et al., 2013; Spijkerman, Pots, & Bohlmeijer, 2016). The aim of mindfulness is to facilitate awareness, self-compassion and flexibility (Spijkerman et al., 2016).

Even though, mindfulness exercises were not a core component in the intervention, 13% of participants in this study reported positive experiences, such as facilitate their awareness and also helps them to feel relaxed. Mindfulness exercises were translated into Spanish in this study by the researcher (AS). Probably the translations could be reviewed in future studies to improve the effect in the treatment and additionally, cultural differences may be discussed.

Hindering events and their impacts

Participants in this study reported mostly positive benefits from the programme. Hindering events and their impacts were few (three events and one impact), but not less relevant. Hindering events can lead participants to disengage (Safran, Muran, & Eubanks-Carter, 2011) and allow us to improve components of the programme.

Lack of time (11%, $n=8$) was one of the most reported events by the participants. Participants reported that exam week or other academic activities affected the interaction with the programme. Furthermore, personal difficulties with engagement (11%, $n=8$) were reported by the users as a psychological distress that affect the engagement. These events are external to the treatment and those are usually presented in face-to-face interventions. In this confusion (11%, $n=8$) was identified as a negative impact, mainly related to a misunderstanding of how to use the online intervention. This category represents technical issues, which could perhaps be addressed in the future. Every day new programmes are available to improve the experience with the online programmes. The programme *Space from Depression* since recently has a new version that takes into consideration previous experience and suggestions from the users.

Satisfaction with the treatment (SAT)

The results from the satisfaction and user-experience questionnaires indicated that in general participants were satisfied with accessing an iCBT intervention. However, a minority of participants felt the treatment did not meet their individual needs as they found it difficult to get motivated and engage with the programme.

Flexibility & accessibility

Flexibility and accessibility were most liked by the participants, which is consistent with previous studies (Richards et al., 2016; Richards & Timulak, 2013). Participants reported benefits to access to the online intervention, such as it being: flexible, confidential and available. These features may be facilitative in overcoming typical barriers to help seeking for mental health difficulties in Colombia (Ministry of Health, 2015). This may potentially reduce the perceived stigma in mental health, increase autonomy and accommodate preferences of user (Mohr et al., 2010).

Design & development

Participants found the intervention easy to use and were happy to access to the online treatment. Users reported that the programme was dynamic, it included an easy comprehension of the information and the methodology used facilitated the engagement with the programme. The mood monitor tool was mentioned by the participants as a useful to track their emotions. Participants reported CBT activities as valuable and possible to apply in their life.

In contrast, some respondents reported the programme to be difficult to navigate and to remember where they had last been while previously logged in. Impersonal content was also reported as one of the least liked aspects of the treatment. Previous studies have identified these same perceptions from users (Richards et al., 2016).

Time

Participants reported aspects of time as something they least liked about the internet-delivered intervention, which was related with difficulties to complete all of the modules in the programme. Users reported lack of time due to academic commitments or personal circumstances. Participants reported that they did not have enough time to complete the

modules in the programme and also reported feeling rushed to review the content between sessions. Similar findings have been reported previously (Richards et al., 2016).

Supporter

One of the most things liked by the participants was the supporter. Having a supporter was valuable to encourage the user to continue with the programme, and also provided guidance and feedback. Some participants reported feeling relief due to the supporter, or having a space to express them-self. All of the participants in this study reported positive comments about their supporters, which may reflect the importance of having trained master student as an appropriate component to provide a suitable feedback to the users. However, limited number of users share information with his/her supporter, which may reflect a sense of anonymity unique to online treatment (Efsthathiou, 2009). It is not clear yet what characteristics may affect the engagement with an asynchronous supporter in internet-delivered interventions (Pihlaja et al., 2017). More research is required in this field to understand these elements.

Limitations

In Study 1, the CAP approach used was characterised mostly as *top-down* (the initial adaptation was prepared by an expert and the researcher) and therefore likely misses some of the richness that could be gained from a more “balanced” approach that would incorporate more fully the views, interests, opinions of users and clinicians on the ground, such as opinions from a focus group. Another limitation is that the user sample who evaluated the preliminary cultural adaptation of the programme did not include students with depressive symptomatology.

A noted limitation is that the study did not include an official depression diagnosis of participants; however, it includes well-established measures of symptom severity that can allow us to establish the efficacy of low intensity internet-delivered treatments for depression symptoms among college students in Colombia.

Another concern regards the problem of missing data. The current study employed ITT analysis using LMM. Additionally, per protocol analysis was performed including participants with 2+ measures and the maximum likelihood method to calculate missing data was used with this sample. However, this may have underestimated the true extent of change for the sample. The research attrition was high at post-treatment and it was even higher at follow-up. Reminders in the form of emails were sent (maximum 4 times) and phone-calls were carried out with some participants who provided their phone details (maximum 3 times), but this did not result in a significant decrease in study drop-out / attrition rate. Reasons for this high attrition rate are not entirely known.

The sample who completed HAT was limited. Only 20% of participants completed four or more HAT forms. Therefore, much of the data comes from the initial sessions (41%) and perhaps users' reasons for dropping out are not adequately captured in the data, especially if they dropped out for negative reasons. Also, information regarding specific modules may be lacking because participants did not complete all of the modules.

Future research

Internet-delivered interventions for depression have shown significant effects post-treatment (Richards & Richardson, 2012), specifically in Western countries. Low and middle income countries around the world have scarce access to mental health services (World Health Organisation, 2008). A strategy to utilise the internet to provide more widely-available and low cost mental health care has vast potential. Additionally, internet-delivered treatments could contribute to the globalisation of mental health services and psychological interventions, for which cultural adaptation is key (Arjadi et al., 2015). Therefore,

establishing a standardised procedure and theory informed for cultural adaptation of treatments is essential.

Based on the CAiT experience, the author recommends to incorporate multiple methods of assessment, including measures such as the CRQ, which can evaluate the ecological validity of a culturally adapted treatment. Furthermore, community evaluations are a relevant part of the culturally adapted programme; therefore, suggestions for future studies include recruitment of users with depressive symptoms from the beginning in order to be able to adjust the adaptation to the specific needs of this group. In this way, in addition to making a top-down adaptation, the study would also be reinforced with bottom-up data, including members of the community with depressive symptoms and experts assessment before, during and at the end of the intervention, which is also recommended by other authors (Castro et al., 2010b).

Cultural adaptation methodologies appear to be critical for engaging the users and delivering services effectively (Domenech Rodríguez et al., 2011). Research in the area needs more work to empirically document the impact of CAiT. Research insight into culturally adapted internet-delivered interventions is of enormous relevance to the community of researchers who are integrating knowledge and procedures with the realities of working in ethnically, culturally, socio-economically, and otherwise diverse communities.

This study was the first contribution regarding the potential impact of a culturally adapted internet-delivered, low-intensity intervention on depressive symptoms for college students as compared to a WL control group, in South America. Internet-delivered interventions could be a potential option for delivering evidence-based psychological interventions, and may overcome some of the significant barriers to accessing mental health treatment in Colombia. Future research should focus on monitoring participants who drop out prematurely from the study at follow-up to evaluate the reasons for withdrawal.

This study has demonstrated the potential for internet-delivered interventions to provide satisfactory, acceptable and effective low intensity treatments to individuals living with depression in South America. The accessibility and flexibility unique to an online environment may increase the access to mental health interventions around the world, regarding cultural characteristics of the populations, and this contributes to decreasing the mental health gap in LMICs.

Further studies should be able to recognise the previous framework developed in order to articulate a theoretically informed methodology in internet interventions.

Also, in future studies analysis of the central characteristics of the sample such as age, previous level of depression, familiarity with the technology, previous treatments, perceived usefulness of the treatment, among others could show the extent to which different groups of people might benefit more from this type of online treatment.

Future lines of research may analyse differences between participants who completed and did not complete the treatment and among those who completed it, between those who had a successful outcome and those who did not.

In attempting to explain and understand the reasons for dropout in the sample a number of reasons were speculated upon. However, future studies might analyse further the population's previous knowledge about depression, any associated personal stigma and their perception of how psychological treatment could help overcome it.

Conclusion

The integrative approach developed and used for culturally adapted internet-delivered *Space from Depression* programme was useful to do a systematic and a robust method. Functional, conceptual and linguistic relevance assessed through the CRQ may be considered and improved in other studies.

The current study showed that the culturally adapted internet-delivered cognitive behaviour therapy programme *Space from Depression* could be employed in multicultural groups as a population level intervention for mild to moderate symptoms of depression. Importantly, outcomes from the treatment group were maintained into follow up.

The research attrition was high at post-treatment and at follow-up in this study. Future research should focus on monitoring participants who drop out prematurely from the study at follow-up to evaluate the reasons for withdrawal.

The use of the HAT and SAT measures allowed to know the participants' experience with the culturally adapted *Space from Depression* programme. The data allows to understand the therapeutic processes of an Internet-delivered treatment. Conclusions from the current research indicate the need for increased flexibility related to the level and duration of support provided. The results from this study are encouraging for the implementation of the culturally adapted internet-delivered cognitive behaviour programme, *Space from Depression*, for treatment of symptoms of depression in different population, helping to disseminate EBTs in LMICs.

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Appendix A

Ethics document and approval letters

School of Psychology Research Ethics Committee

Application for approval

Handwritten applications will be not be accepted.
Please note that you may exceed the space provided if necessary.

Name of applicant	Alicia Salamanca
Date	November 28 th
Contact details (TCD e-mail)	<u>salamana@tcd.ie</u>
Status (e.g., Staff, Postgraduate)	Postgraduate Student PhD
Brief project title (6 words max.)	Efficacy of culturally adapted Internet-delivered treatment
Academic Supervisor/Principal Investigator (if applicable)	Alicia Salamanca, Derek Richards & Ladislav Timulak
Proposed start date	February 2016

Study Design & Methods

1. Specify the research question/s to be addressed (30 words max.)

To evaluate the efficacy of a culturally adapted cognitive behavioural internet-delivered intervention for college students with depressive symptoms in Colombia

2. Describe the research design and briefly outline the methods that will be used

The methodology consists of three parts:

Part 1: A cultural adaptation of the internet-delivered *Space from Depression* cognitive-behavioural programme for depressive symptoms, including its translation from English to Spanish, writing of culturally relevant personal stories, and remaking of videos and audios with Colombian actors.

Part 2: An evaluation of the programme by experts and students and the integration of their feedback to achieve cultural validity

Part 3: The implementation of the culturally adapted programme and its evaluation among students using a randomised controlled trial methodology at two Universities in Colombia.

The first part consists of adapting the cultural sensitivity of the internet-delivered programme for Colombians, through a top down structure (Bernal, Jiménez-Chafey, & Domenech Rodríguez, 2009). The Internet-delivered treatment will be translated from English to Spanish, and include Colombian expressions of language into the content such as personal stories and videos.

The Second part consists of asking 5 Colombian students to use the *Space from Depression* programme and give feedback on its cultural validity. Data will be collected and the feedback will be integrated in the developing programme. In addition, we will ask experts to evaluate the cultural validity of the *Space from Depression* programme. The experts will be clinical psychologists in Colombia. The evaluation will follow the Assessment Guidelines for Research and Evaluation II (Agree II) protocol for the evaluation of interventions. The AGREE II protocol is an instrument that is officially used to validate the effectiveness of interventions. The Agree II instrument is a tool that assesses the methodological rigour and transparency of an intervention, based on established criteria.

The third part of the study is a randomised controlled trial of the internet-delivered cognitive behavioural therapy (iCBT) programme, *Space from Depression*, for the treatment of depressive symptoms in college students. The trial will include an active treatment group and a waiting-list control group. The active condition will consist of 7 weekly modules of iCBT, with post-session feedback support. Participants in the waiting list will receive access to the treatment at week 7. Participants will complete the Patient Health Questionnaire (PHQ-9), Generalized Anxiety Disorder (GAD-7) and eligibility criteria will also apply. Primary outcomes are depressive symptoms. Secondary outcomes include comorbid anxiety symptoms, significant events (helpful and hindering) and satisfaction with online treatment and an evaluation of the cultural validity of the intervention. Data will be collected at baseline and at post-treatment, week 7, and at follow-up week 20 (3-months) and week 32 (6-months). Analysis will be conducted on the intention-to-treat basis.

Screening and Outcome measures:

- Sociodemographic & Clinical History Questionnaire
- Patient Health Questionnaire (PHQ-9)
- Generalized Anxiety Disorder (GAD-7)
- Helpful Aspects of Therapy Form (HAT)
- Satisfaction with Treatment (SAT)
- Cultural Relevance Questionnaire (CRQ) [this instrument will be developed based on the literature]
- Assessment Guidelines for research and evaluation II (AGREE II)

Eligibility criteria:

All registered college student users at two Colombian universities (Universidad de los Andes and Universidad Autónoma de Bucaramanga) will be eligible to participate. On screening participants, the following eligibility criteria will apply:

Exclusion criteria:

Suicidal intent/ ideation: score >0 on question 9 of the Patient Health Questionnaire PHQ-9
Psychotic illness
Currently in psychological treatment for depression
On medication for less than 1 month
Alcohol or drug misuse
Previous diagnosis of an organic mental health disorder

Depression preceding or coinciding a diagnosed medical condition

Inclusion Criteria

18 years of age
Moderate depressive symptoms (PHQ-9 –score 10-19)

- **Note:** Subjects that are identified with suicidal ideation/intent (PHQ-9, score >0 on Q9) will be excluded and directed to an information page where they will be advised to seek appropriate support. The supports are also listed on the accompanying debriefing sheet attached to this application.

Data Analysis

Data will be collected online and the results automatically recorded in a secure and encrypted database. The data collected will be analysed using SPSS

- Statistcial comparison of means will be conducted and the effect sizes established for each intervention on the primary outcome for depressive symptoms and the secondary outcomes for comorbid anxiety.
- Helpful and hindering aspects and satisfaction with treatment will be quantitatively and qualitatively analysed using an appropriate methodology for the analysis of qualitative data. Similarly, data collected using the Culturally Relevance Questionnaire will be analysed.

3. Describe the procedures that participants will encounter during the study. This account should convey, in straightforward language, exactly what will happen to participants in the study.

Please attach copies of all **non-standard** questionnaires, interview schedules, etc. in an appendix (copies of standard/published questionnaires are not required, but their psychometric properties must be stated in the next section).

First phase: *Cultural sensitivity*: The Space from depression programme will be translated from English to Spanish. Additionally, the programme involves cultural expressions in the examples and the personal stories. This process will be developed following the descriptive framework described by Resnicow, Soler, Braithwaite, Ahluwalia & Butler (2002) therefore; the program will be adapted with *top down* methodology. This initial process will be carried out by the researcher (Alicia Salamanca) in conjunction with collaborators from SilverCloud Health, a professional translators and video production from Colombia.

Second phase: *Ecological Validity*: When the programme has been culturally adapted, 5 psychologists users and experts in clinical psychology will be selected to evaluate the cultural adaptation of the programme. The users will give their feedback using the Cultural Relevance Questionnaire [this instrument will be developed based on the literature], it evaluates functional, conceptual and linguistic relevance of the online program for Colombian people. Experts will evaluate the intervention using the Assessment Guidelines for Research and Evaluation II (Agree II). The intervention will be adjusted, according to the users and experts feedback. This phase follows the framework describe by Bernal (2009) about ecological validity.

Third phase: *Randomised control Trial*:

An email will be sent to students inviting them to take part in an intervention for depressive symptoms and a research study. Potential participants will be able to visit a website to receive information on the study, what will be involved in participating, the treatment, and how to make contact and proceed with screening. On agreeing to participate, informed consent will be completed online and thereafter the baseline screening questionnaires.

Randomisation will take place at the individual level after the baseline screening. Computer algorithms will determine scores on the screening questionnaires and will automatically assign participants to one of two groups –active intervention group and a waiting-list control group. Participants will be immediately informed about the randomisation outcome. A person independent of the research group will manage the randomisation procedure.

Participants will complete the online treatment programme. *Space of depression* consist of seven-module online CBT-based intervention for depression, it is delivered on a Web 2.0 platform using media-rich interactive content. The structure and content of the programme modules follow evidence-based principles of a traditional CBT programme. Each module is structured in an identical way and incorporates introductory quizzes, videos, informational content, interactive activities, as well as homework suggestions and summaries. In addition, personal stories and accounts from other clients are incorporated into the presentation of the material. Each participant will be assigned a supporter who will monitor his or her progress throughout the trial. All supporters are presently trained. In addition, they will receive further training in the SliverCloud platform and how to deliver feedback.

Participants will be assessed at baseline and the assessments include the Patient Health Questionnaire PHQ-9, Sociodemographic & Clinical History Questionnaire and Generalized Anxiety Disorder-7 (GAD-7). Thereafter the PHQ-9, GAD-7, will be completed at the end of treatment, week 7, and at follow-up, week 20 (3-months) and week 32 (6-months). After each session participants will be asked to complete the Helpful Aspects of Treatment Form (HAT). The measure Satisfaction with Treatment (SAT) will be administered at week 7. Finally, participants will be asked to complete the CRQ at post-treatment.

4. How will reliability and validity be assessed. If not known, what steps will be taken to establish reliability and validity?

The study is a Randomised Controlled Trail that uses standard instruments to assess primary depressive symptoms and also secondary comorbid symptoms. It does this through the use of reliable and valid instruments, including:

Sociodemographic Information & Clinical History Questionnaire: will be developed based on a previous version (Richards et al., 2013) and will collect demographic details on the participants. It collects data on previous diagnosis of anxiety disorders and length of time that one is experiencing depression symptoms. It will collect data on participant's experience of counselling/therapy and medication for depression. Data is collected on whether one has a previous diagnosis of an organic mental health disorder such as schizophrenia, psychosis and bipolar disorder. In addition, it contains items related to co-morbidity of depression with presence of psychosis, alcohol and drug misuse, and/or any recent medical diagnosis. This device should be applied as a baseline in the investigation and will be the criteria for inclusion or exclusion variables of the study. Participants reporting suicidal ideation or intent, or as any organic diagnosis will be referred to counselling Service College

Patient Health Questionnaire (PHQ-9): PHQ-9 is a 9-item self-report measure that assesses the nine depression symptoms from the DSM-IV depression criteria. Each item is scored on a 4-point scale (0–3) and scores range from 0 to 27. The score can be used to describe the patient’s symptoms in one of five interpretive categories: none (0–4), mild (5–9), moderate (10–14), moderately severe (15–19), and severe (20–27). The PHQ-9 has been shown to have good reliability and validity in primary care populations, and have good internal consistency and structural validity when is used in Spanish among Latinas (Merz et al., 2011).

General Anxiety Disorder (GAD-7): Comprises 7 items measuring symptoms and severity of GAD based on the DSM-IV diagnostic criteria for GAD. The GAD-7 has been culturally adapted into Spanish, which has shown reliability and validity. Cronbach’s (0.936). All items showed a high item-total correlation (higher than 0.68), with a test-retest correlation of 0.844 and an intra-class correlation coefficient of 0.926 (95% confidence interval of 0.881-0.958) (García-Campayo et al., 2010).

Others measures

Helpful Aspects of Therapy Form (HAT) Elliott, Slatick and Urman (2001): Is an instrument that assesses the most helpful and hindering events in the therapy. Participants are asked to describe any event, anything they engaged with in the session that was helpful or hindering for them.

Satisfaction with Treatment (SAT) (Richards & Timulak, 2013; Richards et al., 2013): At post-treatment participants will be asked to complete a satisfaction with treatment measure. It asks a number of questions to determine if participants were happy to access treatment over the internet and how they feel about that.

Culturally Relevant Questionnaire (CRQ) At post-treatment participants will be asked to describe functional, conceptual and linguistic cultural relevance of the online programme. This instrument will be developed based on the literature.

Access & Recruitment of Participants

5. How many participants are required? 112

B. Age/age-range of participants? 18+

6. Classification of participants [Tick as appropriate]

A. Students

B. Other non-clinical/non-medical groups (e.g., participant panel) – specify group in space below

☐

C. Medical group (see section 6.1 on medical groups below)

Inclusion criteria

- i) People currently receiving medical treatment
- ii) People not ‘in remission’ from previous medical treatment
- iii) People to be recruited because of a previous medical condition
- iv) Healthy controls recruited for a medical study

☐

D. Clinical group (see section 6.2 on clinical groups below)

Inclusion criteria

- i) People currently undergoing non-medical treatment (e.g., counselling, psychoanalysis) in treatment centre or similar venue
 - ii) People diagnosed with DSM disorder or organic disorder
-



6.1a If study involves a MEDICAL GROUP, has ethics approval from hospital / medical / specialist ethics committee been sought and granted?

Yes _____ / No _____ [Tick as appropriate]

[

If Yes, supply letter of full (unconditional) approval [Tick to confirm attachment]

If No, give detailed explanation why approval cannot/has not been sought and granted

The study does not involve a medical group

6.1b If study involves a MEDICAL GROUP, does study impact on participant's (including medical and control groups) medical condition, well-being or health?

Yes _____ / No _____ [Tick as appropriate]

If Yes, supply letter of full (unconditional) approval for hospital / medical / specialist ethics committee.
[Tick to confirm attachment]

[

If No, give detailed explanation of why you consider there to be no impact on medical condition.

The study does not involve a medical group

Note: if study impacts on participant's medical condition and where no external ethics committee approval exists, Committee's panel of medical experts will review applications.

6.1c If study involves a MEDICAL GROUP, (regardless of external ethics committee approval), supply the following two letters:

1. Letter from host institution agreeing to support study [Tick to confirm attachment]

2. Letter from medically responsible authority figure at host institution supporting/sanctioning study (should include: support mechanisms for participants who may experience distress; potential risks to participants; access to sufficient number of participants) [Tick to confirm attachment]

[

[

Note: One letter containing all necessary information may suffice

6.1d People attending for psychoanalysis or counselling but who would NOT normally be regarded as being part of a treatment group. NB. Usual individual consent protocols apply

[

6.2a If study involves a CLINICAL GROUP, has ethics approval from hospital / medical / specialist ethics committee been sought and granted?

Yes _____ / No _____ ✓ _____ [Tick as appropriate]

If Yes, supply letter of full (unconditional) approval [Tick to confirm attachment]

[

If No, give detailed explanation of why approval cannot/has not been sought and granted

Currently submitted for approval to the school of psychology, Trinity College.

6.2b If study involves a CLINICAL GROUP, (regardless of external ethics committee approval), supply following two letters:

1. Letter from host institution agreeing to support study [Tick to confirm attachment]

✓

2. Letter from clinically responsible authority figure at host institution supporting/sanctioning study (should include: support mechanisms for participants who may experience distress; potential risks to participants; access to sufficient number of participants) [Tick to confirm attachment]

✓

Note: One letter containing all necessary information may suffice

7. How will participants be accessed/ recruited? From where will participants be recruited?

Note: If recruiting participants from institution/organisation, supply letter of agreement to host study and participant recruitment advertisement/email etc.

✓

[Tick to confirm attachment]

Potential participants will be recruited from Universities in the cities of Bogotá and Bucaramanga – Colombia. Potential participants will be able to visit a website to receive information on the study, what will be involved in participating, the treatment, and how to make contact and proceed with screening. On agreeing to participate, informed consent will be completed online and thereafter the baseline screening questionnaires.

8. Specify how participants will be informed of the nature of the study (e.g., aim, rationale) and what participation entails (attach copy of information sheet, briefing or debriefing forms).

Participants can access information regarding the study from the webpage and also download a pdf of this information. The information explains the rationale for the study, its objectives and the procedures.

✓

[Tick to confirm attachment]

9. Specify how informed consent will be obtained (attach copy of consent form).

There are two consent form, one relates to getting consent from experts to evaluate the cultural validity of the intervention. The second is the consent to be used for the participants in the randomised controlled trial.



Consent 1 – Attached

Consent 2 – Summarised below and attached

Participants will supply informed consent online by ticking a checkbox:

INFORMED CONSENT

Thank you for your interest in participating in this research of an Internet-delivered intervention for the treatment of symptoms of depression.

Instructions

This informed consent document will provide you with information that will help you decide whether you want to participate in the study. If any information is not clear or you have questions or you want to get additional information, you can request this information from the researchers. This document is also available on the website, which you can review there or print.

Title of the study:

Assessing the efficacy of a culturally adapted cognitive behavioural internet-delivered treatment for college students with depressive symptoms in Colombia

Aim

To evaluate the efficacy of a culturally adapted cognitive behavioural internet-delivered treatment for depressive symptoms in college students in Colombia

Benefits of the study

The benefits of this study include learning skills and abilities to reduce depression and understand more about yourself and your feelings. On the other hand, your participation will help to develop reliable and valid internet-delivered programmes for people with depressive symptoms.

Risks of the study

Low-intensity internet-delivered treatment is the modality in this study, which uses several tools in a specific online platform. The study will use the SilverCloud platform that has demonstrated efficacy in Ireland for adults with depressive symptoms. This study does not anticipate risks or dangers as a consequence of using the programme. It is possible for you to have temporary feelings of discomfort (e.g. anxiety, sad, angry or frustrations). However, the programme will give you strategies that will help reduce depression symptoms and improve your quality life. Additionally, you will have a supporter throughout your time with the intervention.

Conditions of participation

Should you wish to participate there is no obligation to continue to do so, and you may withdraw from the research project at any time without consequence.

The interventions consist of 7 modules, aimed at college students over 18 years with depressive symptoms. Participants will have to complete some questionnaires that are baseline in the study. The treatment will be applied in two groups, the groups receive the intervention

for 7 weeks, and the second group starts the process when the first group will have finished their treatment in week 7. The selection to the treatment will be randomised with an algorithm developed by the research team. You will receive an email informing you about your allocation to either the initial treatment group or the waiting list group.

College students, who report severe depression or specific mental health conditions, will be recommended to attend the student counselling centre.

The intervention will be delivered through the SilverCloud platform, where you can access from your email and activate it with your password.

Once you agree to participate you will have to complete some questionnaires, which are:

1. Complete the baseline questionnaires (no longer than 20 minutes to complete).
2. Complete one questionnaire after each session (no longer than 5 minutes to complete).
3. Complete one module of the intervention each week for 7 weeks. Your supporter will give you feedback each week.
4. Complete questionnaires at the end of the treatment and also at follow up, week 20 (three months) and week 32 (6 months). You will receive an email asking you to complete the questionnaires. The researcher will also contact you by phone and /or email to remind you to complete the questionnaires.

Confidentiality

All information gathered from this project will be treated with the utmost confidentiality and no identifying information will be used in the subsequent use of the data obtained for research purposes. Any personal information, which you provide and agree to being used as part of the research component of the project, will be assigned a code, known only to and accessible by the researcher. All written/paper data obtained will be transferred to a computer database that is password protected and encrypted. In accordance with the Freedom of Information Act (1997) you shall have full and open access pertaining to any personal information you provide for this project. Any subsequent academic reports or publications will not include any personally identifying information, though some selected quotations may be included.

I have read and understood the information about participating and I agree to participate in this study

Note: The consent form attached (Spanish and English versions) has also included specific reference to laws and ethics regarding research that apply to Colombia.

[Tick to confirm attachment]

10. Specify whether the study involves deception or the withholding of information. If so, justify why it is necessary?

The study does not involve deception or the withholding of information

11. If observational research is to be undertaken without prior consent, describe the situation and how privacy, confidentiality and dignity will be preserved.

The study does not involve observational research methods

Fieldwork/Data Collection/ Testing

12. Where will the study take place? Specify where participants will be tested/interviewed.

The study is online and all measures will be administered to participants through a secure website. They can complete questionnaires at their own pace.

13. How long (per participant) will testing / interviewing take? Will participants be offered a break? [if testing period extends beyond one hour, then a break must be offered]

Baseline measures will take approximately 20 minutes to complete. Post-session questionnaire will take about 5 minutes to complete. Post-treatment and follow-up measures will take about 15 minutes to complete

14. Will participants be paid? If so, what is the rate of payment?

No

15. Specify how confidentiality of participants will be assured.

All information collected on participants will be stored in securely encrypted database and only senior personnel will have access to this information.

16. Can participants withdraw from the study at any point without penalty? If so, how will this information be communicated to participants?

Yes, this is made clear in the information pages provided to participants

Assessment of Risk and Risk Management

17. Specify whether the study involves physical risk to the participants. If so, justify why it is necessary and how it will be minimised.

N/A

18. Specify whether the study involves any social risk to participants (e.g., loss of status, privacy or reputation). If so, justify why it is necessary and how it will be minimised.

The study poses no risk to the social lives of participants such as to their reputation, invasion of their privacy or loss of any personal/ social status. Participants will be assigned to supporters who have undergone training and are bound by a normal confidentiality agreement.

19. Specify whether the study requires participants to reveal information of a sensitive nature or whether the procedures may cause any psychological distress to the participants. If so, justify why it is necessary and what support will be in place to minimise any distress caused by such disclosures/procedures.

The researcher makes it clear in the information sheet on the study that there is no obligation at any stage to go beyond a comfortable level of self-disclosure. The debriefing form also gives information on where to seek support should any distress be caused by such disclosures.

20. Specify whether the study involves any risks to participants other than those encountered in everyday life. If so, specify how such risk will be minimised.

N/A

21. Specify whether the study involves administering any substances or requiring participants to refrain from taking any substances. If so, justify why it is necessary to administer or withhold these substance/s, and give the following details of the substance/s: a) substance, b) amount, c) desired effect, c) possible side effects, and d) measures for minimising risks.

N/A

22. Specify the study's procedure for debriefing participants (attach copy of debriefing form)

Participants will be made clear about all aspects of the study by the information provided to them through the website. A debriefing and information sheet will also be available on the website and in downloadable format.



[Tick to confirm attachment]

Data Storage & Management

23. [For guidelines, see <http://www.tcd.ie/foi/>] With reference to the Freedom of Information Act, specify the measures the study will adopt for storing data.

The computerised data will be password protected and each participant will be identified by a code known only to the researcher. Should participants request any information they have contributed to the study the researcher would provide them with the relevant information. Data collected will be

held for a period of 10 years to comply with TCD policy on data keeping. This conforms to FOI and

also to School of Psychology data protection policy. After which data is destroyed.

Will all data be kept for 10 years in line with Trinity's data storage policy? [Tick to confirm]



24. For studies involving the use of personal, secondary data (e.g., for clinical audit purposes), describe how the study complies with the policy of the Data Protection Commissioner regarding informed consent and anonymisation [for guidelines, see http://www.psychology.tcd.ie/Health_research%20data%20protection%20guidelines.pdf]

Data collected will be held for a period of 10 years to comply with TCD policy on data keeping. This conforms to FOI and also to School of Psychology data protection policy. After which data is destroyed.

Declaration of applicant

I confirm that I have read and will abide by the School of Psychology Ethical Guidelines and the Psychological Society of Ireland guidelines on Ethical Research.

Signature of applicant _____

Declaration of supervisor (if applicable)

I have read through and approved the contents of this application to the Research Ethics Committee.

Signature of supervisor:

Derek Richards

Ladislav Timulak

Ethic Committee
Universidad de Los Andes
Bogotá/ Colombia
Letter number 552, 2015

The research ethics committee of the “*Universidad de Los Andes*” certifies that on December 1st 2015 we reviewed the research project: “Assessing the efficacy of a culturally adapted Cognitive Behavioural internet-delivered treatment for college students with depressive symptoms in Colombia”, which Leonidas Castro is principal investigator, who is an associate professor at school of psychology in Los Andes University.

Outcome

The RESEARCH ETHICS COMMITTEE of the University approves the project. According to the current legislation, the project is classified as:

Research without risk

This certification is issued on January 28th 2016

Yours sincerely,

Silvia Restrepo Restrepo
Committee’ president

Telephone: (57)1 339-4949, Ext. 3210
Email: comite-etica-investigaciones@uniandes.edu.co

Ethic Committee
Universidad Autonoma de Bucaramanga UNAB
Bucaramanga/ Colombia

Dr. Monica Mojica
UNAB
EL BOSQUE CAMPUS

Attn.: Ethical evaluation of the project CIEI-UNAB-004-2016 "Assessing the efficacy of a culturally adapted Cognitive Behavioral internet-delivered treatment for college students with depressive symptoms in Colombia"

Dear Dr. Mojica:

We hereby inform you that on March 28, 2016, the Institutional Committee for Research Ethics reviewed and considered the study and grants ethical approval to the study, which Alicia Salamanca Sanabria, M.Sc. PhD candidate in Psychology at Trinity College Dublin, is the Principal Investigator.

The ethical risk level of the project is classified as low risk.

The committee requests you to inform by email once the project has started so that we can establish continued follow-up.

We will be attentive about the notification by email.
Ciei@unab.edu.co

Yours sincerely,

Claudia Janeth Uribe Pérez
President
Committee for Research Ethics (CIEI)
Universidad Autónoma de Bucaramanga UNAB
E-mail: ciei@unab.edu.co

Appendix B

Informed consent users and experts

INFORMED CONSENT USERS

Thank you for your interest in participating in this research of an Internet-delivered intervention for the treatment of symptoms of depression.

Instructions

This informed consent document will provide you with information that will help you decide whether you want to participate in the study. If any information is not clear or you have questions or you want to get additional information, you can request this information from the researchers. This document is also available on the website, which you can review there or print.

Title of the study:

Assessing of the efficacy of a culturally adapted cognitive behavioural Internet-delivered treatment for college students with depressive symptoms in Colombia.

Aim

To evaluate the efficacy of a culturally adapted cognitive behavioural internet-delivered treatment for depressive symptoms in college students in Colombia.

Benefits of the study

The benefits of this study include learning skills and abilities to reduce depression and understand more about yourself and your feelings. On the other hand, your participation will help to develop reliable and valid internet-delivered programmes for people with depressive symptoms.

Risks of the study

Low-intensity internet-delivered treatment is the modality in this study, which uses several tools in a specific online platform. The study will use the SilverCloud platform that has demonstrated efficacy in Ireland for adults with depressive symptoms. This study does not anticipate risks or dangers as a consequence of using the programme. It is possible for you to have temporary feelings of discomfort (e.g. anxiety, sad, angry or frustrations). However, the programme will give you strategies that will help reduce depression symptoms and improve your quality life. Additionally, you will have a supporter throughout your time with the intervention.

Conditions of participation

Should you wish to participate there is no obligation to continue to do so, and you may withdraw from the research project at any time without consequence.

The interventions consist of 7 modules, aimed at college students over 18 years with depressive symptoms. Participants will have to complete some questionnaires that are baseline in the study. The treatment will be applied in two groups, the groups receive the intervention for 7 weeks, and the second group starts the process when the first group will have finished their treatment in week 7. The selection to the treatment will be randomised with an algorithm developed by the research team. You will receive an email informing you about your allocation to either the initial treatment group or the waiting list group.

College students, who report severe depression or specific mental health conditions, will be recommended to attend the student counselling centre.

The intervention will be delivered through the SilverCloud platform, where you can access from your email and activate it with your password.

Once you agree to participate you will have to complete some questionnaires, which are:

5. Complete the baseline questionnaires (no longer than 20 minutes to complete).
6. Complete one questionnaire after each session (no longer than 5 minutes to complete).
7. Complete one module of the intervention each week for 7 weeks. Your supporter will give you feedback each week.
8. Complete questionnaires at the end of the treatment and also at follow up, week 20 (three months) and week 32 (6 months). You will receive an email asking you to complete the questionnaires. The researcher will also contact you by phone and /or email to remind you to complete the questionnaires.

Confidentiality

All information gathered from this project will be treated with the utmost confidentiality and no identifying information will be used in the subsequent use of the data obtained for research purposes. Any personal information, which you provide and agree to being used as part of the research component of the project, will be assigned a code, known only to and accessible by the researcher. All written/paper data obtained will be transferred to a computer database that is password protected and encrypted. In accordance with the Freedom of Information Act (1997) you shall have full and open access pertaining to any personal information you provide for this project. Any subsequent academic reports or publications will not include any personally identifying information, though some selected quotations may be included.

I have read and understood the information and I agree to participate in this study

Note: The consent form attached (Spanish and English versions) has also included specific reference to laws and ethics regarding research that apply to Colombia.

Signature

Your name will be link with your signature

Informed consent expert

Thank you for your interest in participating in this research of assessing the efficacy of a culturally adapted behavioural cognitive internet-delivered intervention for the treatment of symptoms of depression.

This informed consent document will provide you with information as evaluator of the *space from depression* programme. The researchers of this study ask you to check the cultural relevance of this programme, which includes cultural expressions, personal stories, videos and examples of the treatment.

Once you agree to participate you will have to complete questionnaires.

I have read and understood the information and I agree to participate in this study

Signature

Appendix C

Cultural relevance Questionnaire

Cultural Relevance Questionnaire (CRQ) English version

Salamanca-Sanabria, A., Richards, D., Timulak, L (2016)

The Cultural Relevance Questionnaire is an instrument that evaluates a culturally adapted psychotherapy protocol. This questionnaire is based on cultural sensitivity and ecological validity theory by Bernal (2009), and Helms' (2015) proposals for culturally evidence-based practices.

This questionnaire assesses a culturally adapted psychotherapy (CAP). CAP is defined as a systematic change of intervention protocols through which consideration of culture and context modifies treatment in accordance with clients' values and contexts, relevant to the culture of the target population (Bernal, Jiménez-Chafey, & Domenech Rodríguez, 2009).

CRQ is divided into three categories:

Functional relevance: It is defined as the extent to which the same ostensible behaviours (e.g., crying) are interpreted similarly in different cultural or racial groups, occur with equal frequency within these groups, and elicit similar reactions from other members of the groups. [Components of the internet-delivered programme could be interpreted similarly by the target cultural group (e.g., personal stories, examples)].

Conceptual relevance: refers to the extent to which different concepts are analogous for the cultural group that is targeted for the treatment. [Cultural expressions of depression, ideas or analogies about mental illness are included in the internet-delivered programme (e.g., symbols, metaphors and concepts)].

Linguistic relevance: indicates the language or dialect used during the process and in evaluations of the process and outcome have been adjusted so that it has meaning to the person(s) being assessed. [Level of oral and written language adjustments are made for the internet-delivered programme (e.g. regionalism, slang)].

Likewise, cultural relevance is based on eight (8) areas described by Bernal (2009) for making culturally adapted psychotherapy, which are:

Language: Includes oral and written language, which must be culturally appropriate and syntonic, taking into consideration differences in inner city, regional or subcultural groups.

Person(s): Refers to the client–therapist relationship during the intervention.

Metaphors: Meaning to the symbols and concepts that are shared by a particular cultural group.

Contents: Refers to cultural knowledge about values, customs, and traditions shared by ethnic and minority groups.

Concepts: Indicate the constructs of the theoretical model to be used in treatment.

Goals: Implies the establishment of an agreement between the therapist and client as to the goals of treatment.

Methods: Refers to the procedures to follow for the achievement of the treatment goals.

Contexts: Indicates the consideration of the client's broader social, economic, and political context.

Cultural Relevance Questionnaire (CRQ)

The general evaluation of cultural relevance treatment consists of three categories, which are explained below. Please assess these from 1 to 5 and explain your score.

Categories:

Section 1. Functional relevance:

The Functional relevance of a questionnaire item refers to whether the item describes behaviour (example: depression) in a way that is interpreted similarly by your culture (example: is a crying person viewed and interpreted the same way in your culture?)

Please use this legend to answer the questions:

1	2	3	4	5
The components are not reflected within the programme.	Most of the components are not reflected within the programme; however, some of them are.	Some components are reflected within the programme and others are not.	Most of the components are reflected within the programme; however, others are not.	All of the components are reflected within the programme.

For each question, please choose the response which best characterises the treatment assessed.

1.1 The programme involves **behavioural** or **emotional expressions** familiar to the cultural group being targeted.

1	2	3	4	5
---	---	---	---	---

Please explain your choice

1.2 **The people** and **cultural context** are reflected in the treatment (e.g. social, political, economic, ethnic, historical).

1	2	3	4	5
---	---	---	---	---

Please explain your choice

1.3. The **treatment goals** are tailored to work with the user from this cultural context (e.g. examples, personal stories).

1	2	3	4	5
---	---	---	---	---

Please explain your choice

Section 2. Conceptual relevance:

The Conceptual relevance of a questionnaire item refers to whether the item measures the same concept in your culture. It is the analogy grade is shared by a cultural group, such as: behaviours, symbols, metaphors and concepts. Asses this category on the programme in: psychoeducation sections, personal stories, examples, activities, imagens and quotes.

2.1 The treatment includes **symbols** and **concepts** shared by the cultural group, for instance cultural expressions of depression, ideas or analogies about mental illness are included in the program.

1	2	3	4	5
---	---	---	---	---

Please explain your choice

Section 3. Linguistic relevance:

Involves oral and written language on the programme. Assess language on the programme, content, examples and activities

3.1 The treatment includes **written** and **oral communication** that can be considered dialects and jargon relevant in this cultural context (e.g. regionalism, slang).

1	2	3	4	5
---	---	---	---	---

Please explain your choice

--

Culturally adapted treatment per module

Please assess from 1 to 5 the functional relevance, conceptual relevance and linguistic relevance of each module on the programme:

Functional relevance: The Functional relevance of a questionnaire item refers to whether the item describes behaviour (example: depression) in a way that is interpreted similarly by your culture (example: is a crying person viewed and interpreted the same way in your culture?). Assess this category on the personal stories, examples.

Conceptual relevance: refers the analogy grade is shared by a cultural group, such as: behaviours, symbols, metaphors and concepts. Assess this category on the programme in: psychoeducation sections, activities, imagens and quotes.

Linguistic relevance: Involves oral and written language on the programme. (Example: regionalism, slangs).

Please use this legend to answer the questions:

1	2	3	4	5
The components are not reflected within the module.	Most of the components are not reflected within the module; however, some of them are.	Some components are reflected within the module and others are not.	Most of the components are reflected within the module; however, others are not.	All of the components are reflected within the module.

For each question, please choose the response which best characterises the treatment assessed.

Module 1: Welcome to SilverCloud

Components	Functional relevance (1-5)	Conceptual relevance (1-5)	Linguistic relevance (1-5)	Observations
Content				
Personal Stories				
Examples				
Activities				
General comments of the module				

Module: Getting Started

Components	Functional relevance (1-5)	Conceptual relevance (1-5)	Linguistic relevance (1-5)	Observations
Content				
Personal Stories				
Examples				
Activities				
General comments of the module				

Module: Understanding feelings

Components	Functional relevance (1-5)	Conceptual relevance (1-5)	Linguistic relevance (1-5)	Observations
Content				
Personal Stories				
Examples				
Activities				
General comments of the module				

Module: Boosting Behaviour

Components	Functional relevance (1-5)	Conceptual relevance (1-5)	Linguistic relevance (1-5)	Observations
Content				
Personal Stories				
Examples				
Activities				
General comments of the module				

Module: Spotting Thoughts

Components	Functional relevance (1-5)	Conceptual relevance (1-5)	Linguistic relevance (1-5)	Observations
Content				
Personal Stories				
Examples				
Activities				
General comments of the module				

Module: Challenging Thoughts

Components	Functional relevance (1-5)	Conceptual relevance (1-5)	Linguistic relevance (1-5)	Observations
Content				
Personal Stories				
Examples				
Activities				
General comments of the module				

Module: Bringing It All Together

Components	Functional relevance (1-5)	Conceptual relevance (1-5)	Linguistic relevance (1-5)	Observations
Content				
Personal Stories				
Examples				
Activities				
General comments of the module				

Note: The interaction on the platform and modules will be reviewed as part of the validity of this evaluation.

Appendix D

History and clinical antecedents instrument

Socio demographic and Clinical Questionnaire

Gender

- Male
- Female

Age:

Education level:

- Undergraduate degree
- Postgraduate degree
- Career

How confident are you with using computers and the internet?

- Very confident
- Confident
- Average
- Mildly confident
- Not confident

For how long have you been experiencing symptoms of depression?

- Less than 6 months
- 1-2 years
- 2-5 years
- 5 or more years

In the past, have you received counseling-psychotherapy for depression?

- Yes
- No

Are you currently attending counseling-psychotherapy for depression?

- Yes
- No

In the past, have you been on medication for depression?

- Yes
- No

Are you currently on medication for depression?

- Yes
- No

For how long have you been taking medication for depression?

- Less than one month

- More than one month

Has your use of alcohol or other drugs meant that you could not fulfill obligations such as study or work?

- Yes
- No

Has your experience of depression preceded or coincided with a medical diagnosis?

- Yes
- No

Have you ever been diagnosed with an organic mental health condition?

- Yes
- No

If yes, what is that condition?

- Schizophrenia
- Psychosis
- Bipolar disorder
- Other, please name:

Do you ever experience disturbing thoughts that won't leave your mind?

- Yes
- No

Do you ever experience hallucinations or hear voices that others do not hear?

- Yes
- No

Appendix E

Helpful and hindering aspects of therapy HAT

HELPFUL ASPECTS OF THERAPY FORM (H.A.T.) (10/93)

1. Of the events, which occurred in this session, which one do you feel was the most **helpful** or **important** for you personally? (By "event" we mean something that happened in the session. It might be something you said or did, or something your therapist said or did.)

2. Please describe what made this event helpful/important and what you got out of it.

3. did anything else particularly **helpful** happen during this session?

YES NO

(b. Please describe the event briefly:

4. did anything happen during the session, which might have been **hindering**?

YES NO

(b. Please describe this event briefly:

Appendix F

Satisfaction with the treatment

Satisfaction with Treatment (SAT)

Feedback Treatment Questionnaire

I was happy to use the computer to access treatment

Agree very strongly	Agree strongly	Neither agree nor disagree	Disagree strongly	Disagree very strongly
---------------------	----------------	----------------------------	-------------------	------------------------

I found the online treatment easy to use

Agree very strongly	Agree strongly	Neither agree nor disagree	Disagree strongly	Disagree very strongly
---------------------	----------------	----------------------------	-------------------	------------------------

I feel the treatment received will have a long lasting effect

Agree very strongly	Agree strongly	Neither agree nor disagree	Disagree strongly	Disagree very strongly
---------------------	----------------	----------------------------	-------------------	------------------------

I would recommend the online treatment to other users

Agree very strongly	Agree strongly	Neither agree nor disagree	Disagree strongly	Disagree very strongly
---------------------	----------------	----------------------------	-------------------	------------------------

Please rate how helpful you found the online treatment program

Very helpful	Quite helpful	Not really helpful	Not at all helpful
--------------	---------------	--------------------	--------------------

What did you most like about the online treatment?

--

What did you least like about the online treatment?

--

Appendix G

Patient Health Questionnaire -9 PHQ-9

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)				
Over the <u>last 2 weeks</u> , how often have you been bothered by any of the following problems? (Use "✓" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

Appendix H

Generalized Anxiety Disorder GAD-7

GAD-7				
Over the <u>last 2 weeks</u> , how often have you been bothered by the following problems? (Use "✓" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

Appendix I

Email advertising the study

Email Invite

Space from depression

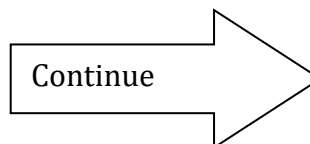
An online programme for college students who are feeling depressed

The University is offering access to the **space from depression Programme, an online 7 week programme** that provides information and support for people experiencing low mood and depression. You will be supported from a trained personal guide from the school of psychology. You are invited to sign up for access to the space from depression programme, and take part in a research project evaluating its effectiveness.

This is a great opportunity to learn how to manage your depression and boost your mental health, in a supported, but very private way. It's also very flexible- you can use it when you want, and in a personal way that suits you and your needs.

This is a great way to get involved in a research project that aims to evaluate the effectiveness of the programme. These results will hopefully benefit not only future college students, but also many individuals with depression nationally and internationally.

To sign up, click the continue button below. This will bring you to an information page which gives more detail about the programme and the different phases of the research.



Please note the space from depression programme is confidential and available free of charge

Appendix J

Participant information sheet Website information

Information page study

We have developed a culturally adapted a programme for students with depressive symptoms, namely space from depression. This treatment consists of 7 online modules based on cognitive behavioural therapy, which is a type of intervention that has demonstrated efficacy for reducing depressive symptoms. This document will provide you with information about this research.

Aim:

To evaluate the efficacy of a culturally adapted cognitive behavioural Internet-delivered treatment for college students with depressive symptoms in Colombia.

The process of the study is described in 4 phases, which are:

Phase 1: Screening

The participants for this study will be selected when they complete the questionnaires about depression symptoms, which indicate different levels of depression.

Phase 2: Intervention group

The participants will be selected in two groups: an active treatment group and a waiting-list control group. The active group will begin the treatment immediately during 7 weeks; the second group will wait for this period of time, and they begin after completion of the intervention by the first group. The role of the wait list group is very important to this research, because it contributes to rigorously investigating the effectiveness of this programme in targeting symptoms of depression, therefore, this group returns to complete the questionnaires before starting the intervention.

Phase 3: Supporter / personal guide

A personal guide, who is a professional psychologist and clinical master student, accompanies the programme space from depression. The personal guide will provide to the participant feedback post-section, asynchronously. Therefore, the content, tasks that the participant reviews or question that they make, the personal guide will review it each week and gives feedback. The online programme will selective the personal guide, who will be a company during 7 weeks for the participants.

Phase 4: Follow up

When the participant have finished the treatment, the researches will do follow up on week 20 (3-months) and on week 32 (6-months). The investigators will contact you by phone and /or email to remind you to complete the questionnaires again.

Appendix K

Information page- iCBT group and WL group

Information page for iCBT group

You have been allocated to the intervention group.

You will begin the treatment programme **space from depression**. Your role is very important to this research and will contribute to rigorously investigating the effectiveness of this programme in targeting symptoms of depression. The treatment will be active for you during 7 weeks; you will have a personal guide, who gives you feedback about your work into the platform. We really appreciate your involvement.

If you have any further questions or need further support please contact:

Clinical manager
Centre of psychological services
Universidad de Los Andes / Universidad Autonoma de Bucaramanga
Tel:
Email:
Address:

The researchers for this study are:

Alicia Salamanca, School of psychology, Trinity College, Dublin. Email: salamana@tcd.ie

Dr. Derek Richards, Director of Clinical Research, SilverCloud Health Ltd., The Priory, John's Street, Dublin 8, Ireland & Research Fellow, School of Psychology, Trinity College, Dublin 2. Email: derek.richards@silvercloudhealth.com

Dr. Ladislav Timulak, School of Psychology, Trinity College, Dublin. Email: timulakl@tcd.ie

Dr. Leonidas Castro, School of psychology, Universidad de los Andes, Bogota-Colombia. Lecastro@uniandes.edu.co

Dr. Monica Mojica, School of psychology, Universidad Autonoma de Bucaramanga. Bucaramanga- Colombia. Email: mmojica@unab.edu.co.

Information page for wait list group

You have been allocated to the waiting list group.

You will begin the treatment programme **space from depression** next waiting list. Your role in the next group is very important to this research and will contribute to rigorously investigating the effectiveness of this programme in targeting symptoms of depression. An essential part of your participation in the research will be in 7 weeks, when you will receive an e-mail requesting that you complete the same questionnaires you filled out today. We really appreciate your involvement.

Taking part in this study does not impact on your ability to receive services offered by *Los Andes University*. Should you feel your circumstances require immediate support, you can:

Ring the helpline:

Email:

If you have any further questions or need further support please contact:

Clinical manager

Los Andes University / Universidad Autnoma de Bucaramanga

The researchers for this study are:

Alicia Salamanca, School of psychology, Trinity College, Dublin. Tel: 00 353 87 4417790, salamana@tcd.ie

Dr. Derek Richards, Director of Clinical Research, SilverCloud Health Ltd., The Priory, John's Street, Dublin 8, Ireland & Research Fellow, School of Psychology, Trinity College, Dublin 2. Tel. 00 353 1 896 3759, Email: derek.richards@silvercloudhealth.com

Dr. Ladislav Timulak, School of Psychology, Trinity College, Dublin. Tel. 00 353 1 8961489, Email: timulakl@tcd.ie

Dr. Leonidas Castro, School of psychology, Los Andes University, Bogota- Colombia Tel: (57) 312 5212910. Lecastro@uniandes.edu.co

Dr. Monica Mojica, School of psychology, Universidad Autonoma de Bucaramanga. Bucaramanga- Colombia. Email: mmojica@unab.edu.co.

Appendix L

Information page – exclusion

Information page for those with scores of 20+ on the PHQ-9

Your total score on the Patient Health Questionnaire (PHQ-9) is 20+ that suggests that you may have significant depressive symptoms. One of the clinical team will contact you in the next working day to discuss your score and whether the online programme is the most suitable option for you at this time. You will be offered a face-to-face session with a counsellor at the Student Counselling Service.

If you are in any concern because of this message please feel free to either:

Book an appointment with a counsellor:	
Call to the student counselling service	

If you have any further questions:

Universidad de Los Andes
Universidad Autonoma de Bucaramanga

Tel:
Email:

The researchers for this study are:

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