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Proposed model for the cultural adaptation of an Internet-based depression prevention intervention (CATCH-IT) for Arab adolescents

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Abstract

Background: Evidence-based Internet depression prevention intervention programs are not readily available for Arab youth, but may be effective in this group. Cultural adaptation of evidence-based Western psychotherapy is an important step toward better prevention and treatment of depressive illness in the Arab community. Project CATCH-IT is an Internet-based depression prevention intervention tool that is tailored for adolescents and young adults.

Methods: The PEN-3 theoretical framework was used for the cultural adaptation of Project CATCH-IT for Arab adolescents. First, a narrative review of existing research about depression in Arab nations was performed. Next, expert opinions about applicability and societal values were obtained. This model was then used to suggest relevant changes to the CATCH-IT modules. These modifications were applied to create sample webpages from the culturally adapted version of CATCH-IT for Arab youth.

Results: The narrative review, expert opinions and resultant PEN-3 analysis suggest that Internet-based depression interventions are effective, private and confidential. To be most effective, religious leaders and fathers should be the stakeholders approached for dissemination and adequate usage of the service. Arab themes, quotes, language and relevant stories must be incorporated.

Conclusion: This study sets the background for future studies and research for implementation of the Arabic version of CATCH-IT for the prevention of depression. Using the contextual information provided in this paper to make the necessary changes, huge strides can be made in providing cost-effective and accessible Internet-based interventions to Arab youth.

Keywords

adolescent; Arab; depression; Internet; mental health

Introduction

Depression is a global public health problem. According to the World Health Organisation (WHO) there are about 151 million persons suffering from depression globally [1]. In 2020, unipolar depression is expected to be the second-ranked cause of disease burden, accounting for 5.7% of disability adjusted life years (DALYs) [2]. In the Arab world, reported rates of depression among youth have ranged from 10% to 44% [3], [4]. For instance, despite the societal stigma associated with acknowledging depression, 14.3% of Saudi adolescents reported depressive symptoms in a national school-based survey [5].

Depression is not only highly prevalent, but also highly disabling, leading to functional impairment, reduced educational performance, substance abuse, obesity and impaired relationships [6]. A recent report on the state of health in the Arab world ranked major depressive disorder as the leading cause of years lived with disability (YLD) in Arab nations. Among causes of DALYs lost in 2010, major depressive disorder ranked second in Algeria, Libya, Syria and the occupied Palestinian territory; third in Lebanon and Tunisia and fourth in Morocco [7]. In this region, depression in the adolescent (age 10–19) population is especially concerning. Depressive symptoms are often overlooked in adolescents due to the fluctuating behaviour normally seen in this age-group [8].

Although the need for mental health services is high, mental health resources in the Arab world are still very limited, and literature relating mental health to Arab cultures is scant. According to Okasha [9], the highest number of psychiatrists is found in Qatar, Bahrain and Kuwait, while seven countries (Iraq, Libya, Morocco, Somalia, Sudan, Syria and Yemen) have fewer than 0.5 psychiatrists per 100,000 people. Because of the high prevalence of depression and the shortage of mental health providers in the Arab countries, the Arab world needs an affordable evidence-based, culturally suitable, primary preventive mental health program.

The burden of mental disorders is expected to increase dramatically in the next decade, due in part to demographic and epidemiological transitions in low- and middle-income countries (LMIC). According to estimates reported by the WHO, the percentage difference between the number of people needing treatment for depression and the number of people receiving treatment (treatment gap) was 56.3% [10]. The treatment gap for mental disorders is universally high, though it varies across regions. In Lebanon, for example, the treatment gap for depression is estimated to be 70.2% [10]. There is a strong international consensus that narrowing the treatment gap requires the integration of mental health care into primary health care [9]. There is also considerable evidence to suggest that prevention has the potential to significantly reduce the onset and subsequent burden of mental disorders [11]. Adolescence and young adulthood offer important windows of opportunity for the prevention of major depression [11]. Some estimates suggest that between 25% and 50% of adult lifetime mental illness may be preventable through prevention and early intervention in adolescence [12]. Prevention at early, formative stages in the life course can set the stage for reduction in the prevalence of noncommunicable disease in adulthood [11].

In recent years, the Internet has joined the ranks of preventative intervention tools as programs have begun to utilise the accessibility and cost-effectiveness of Internet-based programs. Research suggests that Internet-based interventions may be an efficacious delivery system, especially for chronic conditions such as depression that are amenable to self-management and in settings with various limitations to accessing health care, such as in low-resource settings [13]. One such intervention is Project Competent Adulthood Transition with Cognitive-behavioural, Humanistic and Interpersonal Training (CATCH-IT), which might be used as a framework of an affordable, culturally suitable primary depression prevention intervention for youth in Arab countries.

Project CATCH-IT is a primary care Internet-based depression prevention intervention program developed for use among at-risk adolescents and young adults [14]. As an evidence-based “behavioural vaccine”, this project was built in steps through multiple studies and the collaboration of many experts, including experts in child psychiatry, psychotherapists, primary care providers, in addition to researchers and other experts in Internet design. CATCH-IT includes a primary care risk assessment screen, both pre- and post-intervention primary care interviews, and 14 standardised Internet-based training modules in behavioural activation, cognitive behavioural psychotherapy and interpersonal psychotherapy, as well as components that aim to build on youth resiliency. When used in the United States, a 90.7% user engagement was demonstrated [14].

At 6 months post-enrolment, participants achieved a decrease in depressed episodes, as well as decreased loneliness, depressed mood, school impairment and self-harm thoughts [15]. The marketing strategy appeals to the general public, and, at a low cost, focuses on autonomy, building resiliency, emphasising the preventative value of counseling and lifestyle benefits of overcoming depression [16]. The website was carefully developed based on manuals of demonstrated efficacy in face-to-face settings, and was carefully matched to adolescent risk and protective factors. Similarly, a parent workbook-based behavioural modification programme was developed based on the Beardslee et al. parent education programme [17].

CATCH-IT is free to users, and offers a means to lessen current and future burden of noncommunicable disease on already strained mental health services. This makes it especially appealing for use in Arab nations, which have reduced resources devoted to primary intervention and prevention of mental illness. Prior adaptations of CATCH-IT for various ethnic groups have been conducted and implemented across two countries. One of these was “Project CURB”, or Chicago Urban Resiliency Building Program. This study was tailored for socioeconomically disadvantaged African-American and Latino adolescents in Chicago, USA [18]. Another adaptation was built for youth in Hong Kong, China, titled “Project Grasp the Opportunity”. These previous iterations show that it is possible to effectively adapt CATCH-IT for different ethnic populations [19].

Little is known about how interventions such as CATCH-IT can be delivered in primary care contexts in the Arab world. The aims of this paper are to 1) identify core differences between the Western and Arab culture that pertain to the psychopathology of depression among youth 2) identify the major cultural practices, norms and values that should be taken

into consideration to inform the process of developing the Arabic version of the intervention and 3) propose a theoretical model using the PEN-3 model to develop an Arabic depression intervention.

Methods

The PEN-3 theoretical framework

The necessary changes to the CATCH-IT modules were suggested based on the PEN-3 analysis of the narrative review (Table 1 and Table 2) and culturally relevant expert feedback (Table 3 and Table 4). The PEN-3 model of health promotion was used to guide the cultural adaptation and development process of CATCH-IT for use among Arab youth. This model consists of three interrelated dimensions, and each dimension consists of three facets (Figure 1).

1. **Cultural Identity:** The Person facet investigates the stakeholders, or people who may be the decision makers in the community. The second facet, Extended family, looks at the role of the people closest to the individual, and ways that they affect the individual. Finally, the Neighbourhood facet investigates the context of the community, such as the tribe, in shaping health decisions [20].
2. **Relationships and Expectations:** The first facet is Perceptions, or people's beliefs about health issues, such as depression. The second is Enablers, describing the resources that are available in the society, which can affect the health condition in either a positive or negative way. Lastly, the Nurturer facet investigates the role of friends and family in promoting or hindering the health condition.
3. **Cultural Empowerment:** The first facet of this domain is Positives, where the focus is on bolstering beneficial attributes of a culture. Next is the Existential domain, understanding the cultural contents and qualities that make it unique, with neither positive or negative effects. The third facet is Negatives, where beliefs and behaviours contributing to the health problem are addressed.

Narrative review

The narrative review was performed by using the PubMed and PsycINFO search engines. These databases were used to identify studies that reported qualitative and quantitative data about Arab youth depression and mental health services. We also investigated the relationship of Arab culture to both the psychopathology of depression and the psychotherapy of depressed Arab youth. Inclusion criteria included studies published between 1980 and 2016, studies focusing on Arab adolescents and young adults, and studies conducted totally or in part in Arab countries. The review included literature from Egypt, the Kingdom of Saudi Arabia, United Arab Emirates, Bahrain, Tunisia, Lebanon, Qatar, Iraq, Israel, Algeria, Kuwait and Oman.

Expert opinions

An expert panel of physicians who either practiced or were raised in various Arab countries was assembled. The panel consisted of Zaynab Kadhem (Iraq), MD, Amir Bishay (Egypt),

MD, Ereny Mikhael (Egypt), MD and Zach Abuwalla (Bahrain), MD. The experts carefully examined the CATCH-IT-3 website and gave detailed opinions about changes that needed to be made in order to increase the fit of the modules for adolescents in Arab nations. This was done in a precise format using a questionnaire focused around the PEN-3 model (Appendix A). We looked for recurring themes in the literature and expert feedback, which were then synthesised while focusing on cultural appropriateness [21]. The University of Illinois at Chicago IRB has approved this research.

Samples of website adaptation

Based on the suggested changes, selected pages from Project CATCH-IT were translated and adapted for Arab youth. Culturally relevant designs, themes and examples were incorporated into these mock-up pages (Figure 2, Figure 3 and Figure 4), which can be viewed on this website: <https://sites.google.com/a/uic.edu/catch-it-arabic/>.

Results

Narrative review

Cultural identity—The PEN-3 model was used to create a theoretical framework in order to adapt CATCH-IT for Arab countries. The Cultural Identity domain of PEN-3 focuses on who the decision-makers are where healthcare is concerned (Persons), the role of the Extended family, and the community context (Neighbourhood). This is essential in determining who should be targeted when creating an implementation structure, which is a vital part of getting necessary interventions to the target clients [22]. Establishing the best possible point of entry is crucial in ensuring that the intervention reaches the desired audience, in this case Arab adolescents, with the least resistance possible. We determined the stakeholders by delving into Arab societal constructs, and using expert opinions from practicing Arab physicians.

The social structure in the Arab world is male dominant [23]. The patriarchal structure extends throughout all levels of society. The father of the nuclear family is subordinate to his own father, who in turn answers to the head of the clan [23]. All clan heads are subordinate to the head of the tribe, and the tribal leader serves as the spiritual and practical father of the group. He represents the collective to the outside world, oversees the rules for the clan and guides their actions.

This suggests that the most effective points of entry are tribe leaders and fathers of Arab adolescents with depression. Jalali wrote, “the patriarchal organisation of the family is to be acknowledged by addressing fathers first and as the head of the family” [24]. Arab youth live in collectivistic communities, where societal and familial norms, values, roles and authority directives predict behaviour [25]. This is why, when adapting CATCH-IT for the Arab world, it is essential to communicate with influential community figures initially. The importance of traditional Arab values will be emphasised by adding culturally important values such as “strengthening the family” and boosting academic performance in the goals sections of the online modules.

Physical separation between males and females is strictly followed in most of the Arab countries (e.g., Saudi Arabia, Gulf region and other Arab countries), especially with the emergence of the Islamic fundamentalists as a political power. Gender differences in Arab societies tend to remain strong [23]. This will be incorporated into the Internet modules by limiting any stories involving male-female student relationships, especially in school environments.

In order to adapt CATCH-IT for Arab countries, there will be a full translation of the text to the most common dialect of Arabic. For future adaptations to specific locations, the dialect most spoken by people in that area should be used to ensure maximal understanding [26]. In addition, culturally relevant themes such as pictures of Arab youth, characteristic symbols and appealing coloration will be added. Videos should feature Arab-speaking adolescents to increase relatability. The teaching stories will be adjusted to reflect issues that Arab youth commonly face, which differ from struggles that North American youth experience.

Relationships, expectations and cultural empowerment—The Relationships and Expectations domain of the PEN-3 model establishes Perceptions, societal resources (Enablers) and the role of friends and family (Nurturers) in the context of how they affect the health condition. These three components will be examined using the Cultural Empowerment domain of the PEN-3 framework, emphasising the Positive attributes of Arab culture, while looking at Existential and Negative characteristics.

Perceptions—The perceptions of depression in Arab nations will be defined in the early stages of the modules. Positive perceptions will be encouraged and built upon. Focusing on accurate and beneficial cultural beliefs is the cornerstone of adaptation of interventions for new groups of people.

Harmless (existentialist) notions will be stated to provide familiarity with the target group, and, where possible, used to create a new, positive understanding of the subject. Common myths will be debunked if they are harmful to the disease process (negative). This will be done using scientific evidence in order to accelerate recovery and enhance prevention.

Many Arab people perceive mental illness to be a result of the supernatural powers of demons called “jinn” or “evil spirit”, which are believed to be attributable to the aggressive behaviours of some Arab patients [25], [27]. Some Arab people believe that the devil is capable of tempting human beings to think, feel or act unlawfully [25]. In this way, emotional problems are considered as a weakness in one’s faith in Islam, and they seek the help of traditional healers or “sheikh” who also can help them get rid of the jinn.

Islam is the most widespread religion in Arab countries, followed by Christianity and other religions. Islam exerts a powerful effect on the community and regulates daily life in Arab countries. Society’s perception of depression stems from these religious effects, and is therefore important to consider [28], [29]. Including religion and spirituality within the cultural adaptation of psychotherapy might improve outcomes when targeting Arab youth [30], [31].

To demonstrate the above point, Hamdan [28] suggested including cognitive therapy with an Islamic perspective. In her article, Hamdan explained that there are several significant cognitions from the Islamic faith that can be incorporated into the counseling process with Muslim clients. Some examples of these Arab themes that can be incorporated into the CATCH-IT modules include understanding the temporal reality of this world, focusing on the hereafter, recalling the purpose and effects of distress and afflictions, trusting and relying on Allah (Tawakkul), and understanding that after hardship there will be ease [28].

In addition, Abu Raiya and Pargament recommended that when working with Muslim clients, providers consider both the Islamic positive methods of coping and the Islamic religious struggles. Islamic positive coping methods are linked to better wellbeing. Examples of such coping methods include giving “Sadaqa” alms in the name of Allah, or saying supplications and prayers [31], [32], [33]. When adapting CATCH-IT, strengthening spiritual wellness should be a major goal.

The negative role of religion can be seen if internal struggles occur or faith waivers. These struggles may be expressed in the form of questioning the benevolence and power of God, or feelings of anger towards God. Distress also might be caused by questioning deep-set religious beliefs such as life after death, religious teachings, and conflicts between human needs and impulses. Another possible source of religious conflict in youth is that some Islamic scholars consider music “haram”, or forbidden. Such struggles are found to be associated with negative physical and mental health outcomes [31].

Abu Raiya explained that these struggles are negatively associated with wellbeing, perhaps because such struggles threaten core values. They also threaten social relationships, as it is unacceptable to express any doubts about Islam or God in Islamic countries. It is important to consider this internal conflict in the CATCH-IT modules. We suggest references to certain verses in the Quran that refer to esteemed religious figures who struggled with the same doubts. Involving Muslim religious scholars or leaders would be very helpful to help individuals with their struggles before they become a chronic issue [31].

Enablers—In the PEN-3 model, the Relationships and Expectations domain describes Enablers as the second of its facets. This category examines Arab society’s positive, existential and negative impacts on adolescent depression. In contrast to Western societies, Arab societies tend to be oriented toward group affiliation and interdependence rather than competition [34]. Individuals can be perceived only through the group to which they belong, and the importance of the group is reinforced in daily interactions.

Arab social structures are dominated by daily interaction with near and extended kin [35]. Whereas a Western individual may internalise social rules, an Arab individual is more likely to be governed by external-oriented shame, stemming from the attitudes of others [36]. As a result, it is difficult for Arab clients to divulge personal problems and feelings to people outside of the family.

Islam, which is followed by 90% of Arabs, mandates that its followers get help for their illnesses [37]. However, stigma is an important barrier to seeking help for mental health

problems. Many Arab people consider seeking help from a psychiatrist or a mental health provider as a shameful act. Very limited studies are available about the utilisation of mental health services among Arab adolescents. One study of the utilisation of health services among Omani school going adolescents found that “the proportion of lifetime cases having ever made treatment contact are low, being 5.2% for any anxiety disorder and 13.2% for any mood disorder category” [38]. The CATCH-IT adaptation can seek to reduce stigma by including religious verses that promote seeking treatment for mental health disorders, and discouraging labelling of patients with psychiatric conditions [37].

Islamic culture in Arab countries might affect not only help-seeking behaviours, but also patients’ complaints and symptom expression. For example, giving up hope is seen as blasphemous in Islam, so the Muslim individual does not express hopelessness to the physician. Instead the patient might complain of chest tightness or “heartache” as expressions of psychological distress [25]. In contrast to Western models of depression, somatic symptoms are by far the most common presenting symptoms among Arab youth, particularly among female adolescents [3], [39]. Unexplained fatigue, decreased energy, psychomotor changes, lack of concentration, weight changes and suicidal ideation are the most common presenting complaints [3]. These symptoms are different from those of other Western studies, where the most common symptoms among depressed adolescents are feelings of sadness [40], depressed mood and sleep disturbances [41].

The CATCH-IT modules will promote individual needs by emphasising that the youth themselves are valued and important. Building resiliency is in the best interests of the individual, and is not something to be ashamed of. The Internet-based depression intervention offers a private way for adolescents to deal with decreased mood, which is important in a society where the concept of depression is so heavily stigmatised. Al-Krenawi, Graham and Fakher-Aldin [42] found that Arab women were more likely to adhere to services ensuring anonymity and confidentiality [42]. Finally, when performing initial depression screening for interventions in Arab nations, somatic symptoms should be weighted more strongly as indicators for depression.

Nurturers—The third facet of the Relationships and Expectations domain of the PEN-3 model is Nurturers, which represents the impact of the family and friends on depression in positive, existential and negative ways. Erickson and Al-Timimi claim that in Arab culture, a person’s behaviour is a reflection of the whole family’s attempt to maintain and support the social values, norms and expectations [43]. Recent research confirms the value of the traditional role of the family and of group identity in Arab communities [25]. Family members are expected to behave in certain ways to ensure the wellbeing of the family. The adolescent, for instance, is expected to act according to the family rules, not towards his/her self-independence. Values of honour and respect are highly appreciated, and younger people are expected to respect older generations and act according to their orders and according to what maintains the family and tribe’s honour [44].

In the Arab world, factors that predict behaviour are the collective community, norms, values, roles, and most importantly, familial authority. Psychopathology among Arab people is viewed as having to do with interpersonal disorder within the family. Therefore,

psychotherapy should aim to restore that order. Dwairy emphasised the importance of preserving the unity of the family when working with an Arab person and suggested that the aim should be to achieve new familial order that brings relief from tension and symptoms [44]. For Arabs, one barrier to psychotherapy is the misconception that in the process of mental health treatment, one might declare family secrets to a stranger. Thus, some family members might accompany the Arabic person into the psychotherapy session in order to act as a guardian to prevent the release of private family information [46].

Contrary to a Western therapeutic emphasis on the individual, all interventions with Arab clients need to be couched in the context of the family, extended family, community or tribal background [23]. The culturally adapted version of CATCH-IT will aim to do this. Internet-based depression interventions offer a treatment option that families can feel safe about, as no private information needs to be disclosed.

Included in the Cultural Empowerment domain are the unique vulnerability and protective factors affecting adolescent depression in the Arab world. This includes a high prevalence in these societies for bullying, obesity, decreased exercise, academic pressure and political conflict [5], [47]. These factors can function to provide a more culturally relevant context and common location-specific depressive triggers into the vignettes and examples of the CATCH-IT modules.

Expert opinions

The expert panel provided detailed feedback about their recommended changes to the CATCH-IT website for Arab youth using the questionnaire, which was structured using the PEN-3 model (Appendix A). Some examples of the questions that were asked include: 1) “What is the role of religion in depression in Arab countries?” 2) “How applicable are the cognitive behavioural therapy, behavioural activation and interpersonal therapy modules for Arab youth?” 3) “How do Arab families support or deter treatment for depressed individuals?”. The opinions are shown in Table 3 and Table 4.

The panel described how although there is a large amount of stigma surrounding depression in Arab countries, families are incredibly supportive in helping their children achieve resolution of depressive symptoms. They shared a number of religious quotes that should be incorporated into the intervention to show that religion mandates medical treatment for illnesses, weakness can be forgiven and labelling is not acceptable.

1. Religion enforces the need to use medicine for therapy: Also, Prophet Muhammad pbuh said when a Bedouin asked him whether he should seek treatment “Yes, servants of God seek treatment; God has not set a disease without setting a cure to it, known to whoever knows it and unknown to whoever does not know it” (cited by Ibn Majah, Tirmizi and Abu-Dawood).

Prophet Muhammad pbuh said “There is no disease that Allah has created, except that He also has created its remedy.” Bukhari 7.582:
2. Weakness can be forgiven, and the affected need not be ridden with guilt:

Forgiveness is mentioned many times in Quran. “Let not those among you who are endued with grace and amplitude of means resolve by oath against helping their kinsmen, those in want, and those who have left their homes in Allah’s cause: let them forgive and overlook, do you not wish that Allah should forgive you? For Allah is Oft-Forgiving, Most Merciful.” (An-Nur: 24/22)

3. Stigmatising or ridiculing those with mental illness is unacceptable:

“O you who have believed, let not a people ridicule [another] people; perhaps they may be better than them; nor let women ridicule [other] women; perhaps they may be better than them. And do not insult one another and do not call each other by [offensive] nicknames. Wretched is the name of disobedience after [one’s] faith. And whoever does not repent – then it is those who are the wrongdoers.” (Al-Hujurat 49/11)

Experts thought that using Internet-based interventions would be especially useful for Arab nations because of its privacy, ease of use and cost-effectiveness. They noted that mental health services in these countries are few. CATCH-IT would provide access to depression prevention to many more people than the limited number of psychiatrists and psychologists would be able to reach.

Discussion

Recurring concepts obtained from the expert opinions and narrative review of literature about depression in Arab countries were analysed using the PEN-3 theoretical framework. Significant changes need to be made to the CATCH-IT website to make it effective at preventing depression in Arab adolescents. The concepts presented in this paper are ideal for use in future adaptations of interventions for Arab youth.

The narrative review (Table 1 and Table 2) and expert opinions (Table 3 and Table 4) provided similar viewpoints about many of the key topics that are necessary for culturally adapting CATCH-IT for Arab countries. Both sources showed that the points of entry providing the best implementation in these patriarchal and religious societies are religious leaders, fathers, primary care physicians, social workers and clan leaders. For the best possible delivery of the material, it needs to be visually appealing to target youth, which can be done with the inclusion of images depicting Arab youth, symbols, figures and colors. Some examples of religion-neutral cultural symbols that can be included in the website are the Dallah, Dhow, palm trees, camels and sand dunes. Simon explained that culturally appropriate content puts the user at ease, allowing for greater engagement and adherence [48].

The modules should be translated entirely to the most common dialect of Arabic in order to establish a strong connection with participants [49]. Samples of this are depicted in the mock-up website pages in Figure 2–Figure 4. To further this connection, the vignettes in the online modules were modified to adhere to Arab themes. For example, Figure 3 shows a story about Kareema, a young girl who is struggling with keeping up both her pre-medical studies and her relationship with her cousin. This is a modified version of the original CATCH-IT story about a girl named Kristen, who was having trouble with her long-distance

boyfriend. The concept of having boyfriends before marriage is taboo in Arab societies. Therefore, this modified story maintains the essence of the story while making it culturally relevant.

As in the American and Chinese versions of CATCH-IT, the best way for the sample stories to truly reflect Arab culture is to have them written by Arab adolescents who understand the unique factors present in their society [50]. For example, one of the major risk factors for depression in Arab nations cited by our experts is the climate of political violence. Youth have to deal with the constant threat of attack, and sometimes the loss of loved ones. As a result, many are forced to relocate and deal with large changes, adding an additional source of stress, which can lead them into joining desperate groups of people with whom they would not otherwise engage [51]. This provides a major reason for the development of depression prevention interventions targeting this cultural group.

The narrative review and expert opinions revealed similar Arab family values. However, the experts depicted Arab families as more supportive, both emotionally and in aiding with treatment. This shows that Arab families might be more open to Westernised mental health treatment methods than previously expected. Experts differed on their opinions about the use of interpersonal therapy (IPT) in communicating with family members. Some saw it as helpful in facilitating healthy family discussion about depression, while others thought that the confrontational nature of IPT would create discord when dealing with often authoritarian Arab parents. This was also found in the Hong Kong adaptation of CATCH-IT, where experts said that IPT has a high risk of increasing conflict due to strict Chinese family dynamics where respect for elders is paramount [19].

The narrative review brought to light the negative impacts of religion on depression in Arab countries. People there often view depression as reflecting a lack of faith, and seek to treat it with prayer and offerings to God. The experts shared a number of religious quotes that should be incorporated into the intervention to show that religion mandates medical treatment for illnesses, weakness can be forgiven and labelling is not acceptable.

The experts all agreed that behavioural activation and cognitive behavioural therapy would be extremely effective in treating depression in Arab youth. Currently, there is a scarcity of psychiatrists, psychologists and social workers in Arab nations. These services are being bolstered in larger cities, but there is much left to be desired. In order to deliver depression interventions more efficiently, experts believe that increased public and parental education about depression is required, preferably with support from religious and clan leaders. Adapting the parent-targeted version of CATCH-IT for Arab countries should be considered, as families, and fathers in particular, are major stakeholders in Arab communities. This would provide an excellent vehicle to increase youth support and engagement with the program [17].

There is a variance of belief in doctrines, as well as diversity among Arab countries. There is also a limited body of relevant literature in this area, and more work needs to be done when customising this intervention for specific countries. Another limitation of this study is that a narrative review and subjective data were used to create qualitative results. Getting

recommendations from a larger number of experts would be helpful to reach thematic saturation for future developments about depression interventions in Arab nations. In addition, a more structured technique such as the Delphi method should be used for eliciting expert opinions in future adaptations. Setting up focus groups would also provide a deeper insight into perceptions and understanding of depression and depression interventions in these societies. This paper creates the framework within which these focus groups and future work about adaptations to Arab nations can be built.

Conclusions

Major themes from narrative review and expert consultations were analyzed using the PEN-3 to create a body of work with which to adapt a depression prevention intervention for Arab nations. This showed that it is possible for CATCH-IT to be culturally developed in order to prevent depression in Arab youth. Future work should focus on the implementation structure to reach as many at-risk adolescents as possible. Running focus groups in the specific country of interest in order to gather more location-specific data is recommended. In addition, the involvement of clan and religious leaders in depression education and treatment would increase the intervention's effectiveness.

Appendix

A Expert opinion questionnaire based on PEN-3 framework

A.1 Cultural identity

Persons

1. What is the point of entry and who are the stakeholders? Who needs to be approached for dissemination of the intervention?
2. How do you think Imams, religious leaders, clan leaders, social workers, and primary physicians would respond to this website? Referrals?
3. How would stakeholders view the Internet as a tool for providing depression interventions in Arab nations?
4. What symbols, themes, colors or general visuals should be included in the modules? Is it appropriate to include photographs of Arab youth?

Extended family

1. What values are important in Arab families?
2. How would Arab families think about having a depressed family member?
3. How would Arab families and Arab youth view each of the therapeutic approaches? Interpersonal therapy (social skills support, confronting interpersonal styles)? Cognitive behavioural therapy (problem-solving, the relation between thoughts and feelings)? Behavioural activation (activity scheduling, etc.)?

Neighbourhood

1. What are the risk factors for depression in Arab countries?
2. What stressors are commonly experienced by Arab youth? By Arab families?
3. What protective factors can you identify in Arab families and communities?
4. Please comment on the male-female relationships depicted in the sample stories.

A.2 Relationships and expectations and cultural empowerment

Perceptions

1. What are culturally acceptable terms for depression?
2. What kinds of treatments are commonly used for depression?
3. What are some goals that would be appealing to Arab youth that can be achieved by overcoming depression?
4. Can you think of any religious verses that might forgive lapses of faith or promote self-discovery and questioning?
5. Can you think of any prominent religious figures that have had lapses of faith?

Enablers

1. How is depression viewed in relation to religion?
2. How can religion be a protective factor?
3. What kind of impact might religion have on someone with depression?
4. Please comment on the use of social workers or psychologists by depressed individuals in Arab societies.
5. What is the availability of social workers, psychiatrists and psychologists for the population?
6. Can you think of any religious verses that address the issue of mental health treatment? Or that mandate the treatment of mental illnesses, or advise against negative labelling of sick people?
7. Please describe how mental health treatment is viewed in Arab countries?

Nurturers

1. How do families support treatment for depression or care for depressed individuals?
2. How do you think Arab individuals might respond to the privacy provided by the web-based modules? How would this approach to mental health intervention address the confidentiality concerns surrounding psychotherapy in Arab nations?

A.3 Additional comments

1. What suggestions do you have for changes to the CATCH-IT modules to better suit Arab audiences?

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Figure 1:
Diagram representing the flow of the cultural adaptation of CATCH-IT for Arab countries using the PEN-3 model.

Figure 2:
The home page of the culturally adapted version of the CATCH-IT website for Arab youth.

Figure 3:

A sample vignette from the culturally adapted version of the CATCH-IT website for Arab youth.

Figure 4:

A sample vignette from the culturally adapted version of the CATCH-IT website for Arab youth.

Table 1:

Cultural factors and suggested changes using the cultural identity domain of the PEN-3 model based on a narrative review.

Cultural identity		
Person	Extended family	Neighbourhood
– Patriarchal and religious society: Spiritual leaders and fathers are points of entry	– Family unit important: Focus goals on family wellbeing- Familial pressure for academic success: focus goals on boosting academic performance	– Collectivistic society– Gender segregation: avoid stories about male-female relationships– Translate text and videos in the modules into Arabic, along with cultural themes, pictures and symbols

Table 2:

Cultural factors and suggested changes using the cultural empowerment and relationships and expectations domains of the PEN-3 model based on a narrative review.

	Cultural empowerment		
	Positives	Existential	Negatives
Relationships and expectations			
Perceptions	– Importance of religion: Strengthen spiritual wellness	– Mental illness seen as due to evil spirits/ “jinn”: Acknowledge these perceptions	– Belief that depression stems from religious weakness: Explain that there are many factors leading to depression that must be addressed. Include quotes from religious scholars demonstrating that it is alright to question religious beliefs– Acts of supplication to God are the main treatments: Establish psychiatry as a proven treatment
Enablers	– Islam mandates seeking treatment for illnesses: Incorporate religious verses promoting treatment and discouraging labelling– Meditative and calming benefits of religion: Promote continued healthy religious practices	– Collectivistic society: Establish that healthy individuals strengthen the society as a whole– Somatic symptom expressions of depression more common for Arabs: Teach health providers and families to recognise the somatic symptoms, while encouraging expression of psychiatric symptoms	– Stigma around mental health treatment. Reluctance to divulge personal information to therapists: CATCH-IT offers a private, nonjudgemental setting for treatment
Nurturers	– Family members interested in ensuring group wellbeing: Explain that psychotherapy can restore family order	– Unique vulnerability factors: Incorporate into vignettes	– Families reluctant to use psychotherapy: Online therapy ensures privacy

Table 3:

Cultural factors and suggested changes using the Cultural Identity domain of the PEN-3 model based on expert opinions.

Cultural identity		
Person –The main stakeholders are religious leaders and fathers –Other points of entry are primary care physicians, social workers and clan leaders –Internet good for implementation as no appointments needed, and no associated cost	Extended family –Important values are family unity, tradition, marriage, hospitality, stability, educational achievements, religion, modesty and good income –Depression seen as a lack of faith, or weakness for the whole family –Interpersonal therapy seen as helpful in facilitating healthy family communication, but can be too abrasive in more authoritative families	Neighbourhood –Lack of opposite-gender friendships outside of marriage –Societal risk factors include political violence, academic stress, familial perfectionism, poverty, economic crises, forced immigration, lack of physical activity, bullying, and images of an unpleasable God –Protective factors include family support, spirituality, and friendships –Incorporating these factors into sample stories would be useful in connecting with readers

Table 4:

Cultural factors and suggested changes using the cultural empowerment and relationships and expectations domains of the PEN-3 model based on expert opinions.

	Cultural empowerment		
	Positives	Existential	Negatives
Relationships and expectations			
Perceptions	– Appealing goals for treatment of depression are regaining functionality, healthy relationships, family wellbeing, and academic improvement – There is some use of medication and psychotherapy	– Depression described as “severe sadness”, “black life”, hopelessness, annoyance, “unable to breathe”, “volcano inside me”, “bleeding heart”, “heartache” or “jinn” – CBT and behavioural activation are effective in Arab societies	– Depression described as lack of faith, and often treated with prayer rather than medicine or therapy – Some believe that depression is contagious
Enablers	– Christianity prohibits suicide – Reading holy books give comfort from stressors – Prayer has a calming effect – Islam promotes self-help, positive attitudes and treatment of afflictions – Increasing availability of psychiatrists and social workers in big cities	– Medicine is a tool provided by God to help patients – Public education about mental health is needed, preferably with support from religious leaders	– Fear that lack of faith can lead to divine punishment or eternal damnation – Some Imams neglect medical treatment and emphasise religious redemption – Religion can increase sense of guilt in patients – Shortage of child and adolescent psychiatrists
Nurturers	– Families are supportive of depression treatment to resume functionality – Family provides emotional support – Families would appreciate the privacy that comes from web-based therapy	– Adding one-on-one live mentor chat or webcam session features on the website would be wellreceived – Families often take youth to the Sheikh or Imam for treatment	– Depression in one family member stigmatises the entire family– Lack of family understanding of depression– Authoritarian families often make individuals feel robbed of personal freedoms