Development of Wellness Guide: A Guided Self-Help Indigenous Intervention for Reducing Depression, and Anxiety and Enhancing Wellbeing of Pakistani Youth

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Abstract

Mental health concerns are major contributors of disease burden among LMICs' youth. This burden can be reduced through early or preventive interventions. This study presents steps taken to develop, refine and evaluate an indigenous, targeted, CBT based intervention for reducing depression and anxiety and enhancing wellbeing of Pakistani youth. A user centered approach for collection of data involving four major stages was adopted. This intervention is developed in Urdu and English language using intervention mapping technique. Future treatment endeavors can utilize this intervention for large scale testing, integration into local healthcare systems and for further indigenous interventions development.

Key Words: CBT Based Intervention, Young Adults, Intervention Mapping. Common Mental Disorders

Introduction

Mental health challenges are one of the major causes of disability globally (Raviola et al., 2019). Around 10% of global population is suffering from one or more mental health disorder and there is an alarming increase in numbers from past 30 years as well; causing a major burden on public health (Qin & Hsieh, 2020). The main reason of the burden is the treatment gap in psychological care facilities (Wainberg et al., 2017; Raviola et al., 2019). This mental health treatment gap is especially high in low and middle income countries (LMICs) (Luitel et al., 2017; Qin & Hsieh, 2020). According to World Health Organization (WHO) estimates, almost 3 quarter of the individuals suffering from severe mental health conditions in LMICs receive hardly any treatment (Qin & Hsieh, 2020). Majority of the population in LMICs have limited access to psychological and pharmacological interventions due to a variety of factors including limited financial resources, lack of infrastructure, limited human power including shortage of mental health professionals, dearth of culturally appropriate treatments / therapeutic interventions, and issues of training (Dawson et al., 2015). It is rare to have to access to the evidence based treatment for mental health difficulty which is contributing to treatment gap along with multiple other reasons (Kilbourne et al., 2018).

A number of research studies identified different reasons of treatment gap including; limited resources, lack of policies and legislation, inefficiencies in practice (Kaur & Pathak , 2017); lack of perceived need and perceived ineffectiveness of treatment of mental health concerns (Andrade et al., 2014): stigma, limited awareness about mental health disorders, financial constraints like travelling cost and limited service availability (Patel et al., 2018). In areas having low resources people often do not consider mental health concerns as health concern. On the contrary, these are conceptualized as a reaction to their financial and social issues. This coupled with mental health services failure to meet the desired needs of those suffering from mental health disorders leads to less service utilization causing a treatment gap (Roberts et al., 2022).

Treatment gap is more blatant for common mental health disorders (CMD) including depression and anxiety as compared to severe mental health disorders (Garg et al., 2023). A research study reported that despite high prevalence of CMD only half of the individuals perceived lifetime need for care and only 20% are presently utilizing mental health services (Werlen et al., 2020). Research suggested that the CMD burden continues to grow over time (Kassebaum et al., 2016) especially among young adults.

Mental health conditions in youth is a major burden on public health globally (Gore et al., 2011) and majority of youth suffering from mental concerns do not receive treatment (Patton et al., 2012). Evidence suggests that early detection and treatment of mental disorders can reduce the severity of disorder and serve as preventive measure (Colizzi et al., 2020). In terms of CMD, prevention is considered as main priority (McCloud et al., 2023).

A number of different types of interventions are used in early prevention. For instance, universal or primary interventions (interventions designed to reduce the risk for whole population). On the contrary, there are also targeted interventions (interventions that target certain symptoms of disorder or clearly recognized risk) (Costello, 2016). Prevention and early intervention is an important aspect in order to reduce the overall burden on public health and reduction in treatment gap

(Beames et al., 2021). Such efforts are specifically useful for LMICs like Pakistan where there is high burden of CMD and low availability of preventive/ early interventions. Most of the preventive psychological interventions are based on cognitive behavior therapy (CBT) (Cuijpers et al., 2021).

CBT is very effective in treatment of depression (Hawley et al., 2017) and anxiety (Ştefan et al., 2019) and most self-help interventions are derived from CBT (Hof et al., 2009). CBT based guided self-help interventions are considered effective in treatment of mild to moderate symptoms of depression and anxiety (Coull & Morris, 2011). A systematic review of effectiveness of CBT based self-guided interventions for anxiety and depressive disorders reported that such interventions are effective at post treatment. However, they have limited effectiveness at follow ups or when the targeted sample is more clinically representative (Coull & Morris, 2011b).Cognitive behavior therapy has also been adapted in Urdu language to be utilized in treatment of depression and anxiety in Pakistan (Naeem et al., 2015, Amin et al., 2020).

A research study to explore the effectiveness of brief CBT intervention for depression among Pakistani population reported significant reduction in depression, anxiety, somatic symptoms and disability and the effect is also maintained till 9 months. The treatment group also reported higher level of satisfaction with the treatment provided (Naeem et al., 2015). Another study exploring the preliminary evaluation of culturally adapted program based on CBT among LMICs for depression and anxiety (CaCBT- GHS), conducted on participants from Karachi, Pakistan concluded that such programs may help to improve symptoms of depression and anxiety and overall functioning among population (Latif et al., 2021).

In recent years there has been an increasing trend of adapting psychological interventions for treating mental health issues of Pakistani youth (for instance Husain et al., 2017; Khan et al., 2019). These interventions are an effort to provide evidence based effective psychological therapies in a cost effective manner. They are adapted to retain their universal components along with modification of some cultural elements so that they become relevant to the local context of the end users. Although this is a cost effective and relatively quick method ensuring access to mental health interventions, it cannot be used as a replacement of original evidence based intervention.

There is no doubt that these adapted interventions provide a middle ground between developing new interventions and applying interventions developed in a different context (Chawdhary, 2014); despite adaptation these interventions present a compromise of components offered by original intervention and cultural context. An important component that is neutralized during adaptation of interventions is that in all cultures mental health is understood as multidimensional need that is strongly associated with cultural identity (Hinton, et al, 2015). During adaptation to ensure equivalency between different versions such elements may be neutralized either intentionally or unintentionally. Thus, adaptation might be a good short term solution to increase access to mental health. However, for long term and more effective access to mental health care there is need to develop indigenous interventions with unique culturally grounded contents and processes.
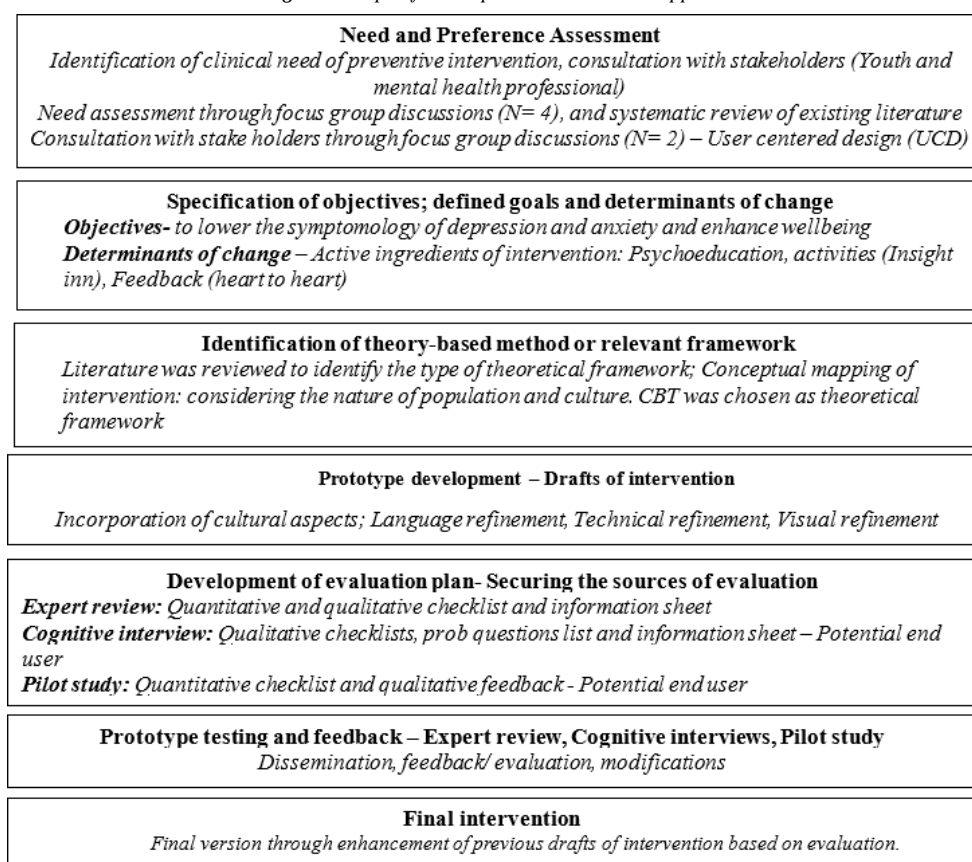
Keeping in view that the youth of developing countries like Pakistan is at an increased risk of experiencing mental health issues due to exposure to unique social and economic stressors and lack of adequate coping skills (Purgato et al., 2016), there is need to design intervention to address specificities in the contexts and experiences. For completely contextualized understanding of the experiences of youth living in Pakistan and formulating culturally grounded conceptualizations and measurement of mental health concerns, this study present the systematic development an indigenous intervention grounded in the local data for reducing anxiety and depressive symptoms among youth thus enhancing the overall performance and wellbeing of youth.

Methodology
The development of intervention involved both qualitative and quantitative approaches. The intervention is developed in the form of a booklet having both Urdu and English versions.

Research Design and Procedure of Intervention Development
Intervention Mapping (IM); an evidence based approach was used in the development of this intervention. IM involved multiple steps. Figure 1 summarizes the complete process of intervention development based on the steps of IM as suggested by (Orgeta et al., 2021).

Figure1. *Steps of development based on IM approach*

Need and Preference Assessment
Identification of clinical need of preventive intervention, consultation with stakeholders (Youth and mental health professional)
Need assessment through focus group discussions (N= 4), and systematic review of existing literature
Consultation with stake holders through focus group discussions (N= 2) – User centered design (UCD)

Specification of objectives; defined goals and determinants of change
Objectives- to lower the symptomology of depression and anxiety and enhance wellbeing
Determinants of change – Active ingredients of intervention: Psychoeducation, activities (Insight inn), Feedback (heart to heart)

Identification of theory-based method or relevant framework
Literature was reviewed to identify the type of theoretical framework; Conceptual mapping of intervention: considering the nature of population and culture. CBT was chosen as theoretical framework

Prototype development – Drafts of intervention
Incorporation of cultural aspects; Language refinement, Technical refinement, Visual refinement

Development of evaluation plan- Securing the sources of evaluation
Expert review: Quantitative and qualitative checklist and information sheet
Cognitive interview: Qualitative checklists, prob questions list and information sheet – Potential end user
Pilot study: Quantitative checklist and qualitative feedback - Potential end user

Prototype testing and feedback – Expert review, Cognitive interviews, Pilot study
Dissemination, feedback/ evaluation, modifications

Final intervention
Final version through enhancement of previous drafts of intervention based on evaluation.

As the figure 1 indicates the development of this intervention was initiated by need assessment from the stake holder by conducting four focus groups discussion with youth (18-25 years age) and medical and mental health care practitioners and systematic review of the existing literature which is presented elsewhere in a published article. The main objective of the need assessment was to understand the perspectives of major stakeholders and to develop ingredients for the prototype of the intervention. Major objectives of the intervention, its active ingredients of change and theoretical framework of the intervention were aligned. The extracted active ingredients of the intervention acting as change determinants were evaluated on the basis of the focus groups in order to ensure incorporation of the indigenous components. Once the prototype was developed it was further tested through user centered approach (an approach in which there is active involvement of the potential end users in the process of development). This involved data collection in three major phases including quantitative and qualitative data collection from experts (Expert panel Review) and both qualitative and quantitative data collection from potential end users (Cognitive interviews and pilot testing). Along with data collection the intervention was also reviewed by a team of psychologists. This helped to evaluate the intervention in terms of technical aspects, cultural competence, clinical competence and language competence. After analysis of all the data collected and feedback from research team, the modifications were made in the prototype of the intervention.

Ethical Review
The ethics approval of the intervention was taken from Institutional Ethical Review Board of Capital University of Science and Technology, Islamabad. (Reference no. CUST/ORIC/IERC/ 2023-03)

Intervention format and contents
The resultant intervention booklet is named as Wellness Guide in both Urdu and English. It is self-help CBT based Intervention consisting of a series of eight self-help sessions. Each session focuses on reducing the symptomology of depression and anxiety along with increase in wellbeing, social and work adjustments, performance and enhancement of mood. As the theoretical framework for this intervention is CBT, the major CBT techniques incorporated in this intervention are psychoeducation, introducing the concept of working on core beliefs, cognitive distortions, problem solving, and behavioral activation, identification of viscous cycle and emotion regulation. Indigenous cultural components include elements like "concept of values". These are incorporated throughout the intervention as well as specifically focused in some sessions. Each session is divided into three major sections. (1) Psychoeducation. (2) Insight Inn (حکمت سراۓ); a series of activities related to introduced concepts where the individual practice what they learn; and (3) Heart to Heart (آؤ دل کی باتیں کریں), a narrative dairy for participants to identify what they have learnt, what strengths and weakness they have experienced during the session along with how they are feeling. The session titles are: 1. "Beyond the Clouds" (سوچ کے بار) 2. "Understanding the Hidden Struggle" (خود کو بہچاننے کا ہال ئدم") 3. "Healing from Within" (من کی گُرہ کھولنا) 4. "Bridging the Gap"(روح کی شناء) 5. "Lighting the Path" (امید کا سفر) 6. "The Minds Maze" (سوچ کی بھول بھلیاں) 7. "Rewiring the Mind" (سوچ کا سفر نامہ) 8. "Shaping the

Horizon")(خودی کا سفر نامہ) . Each session is facilitated by an animated character introduced through words and picture in the beginning of the guide and is named as *Cactiiiii*(کیکٹئی) . A picture of this facilitator is also included in the guide and is presented on each page as a small logo. The rationale behind this character is the resilient nature of the cactus and to keep the facilitator gender free so that the end user can assign any gender to the facilitator as per their cultural preference.

Evaluation of the Intervention
For evaluation of intervention data was collected from experts (N= 5) and potential end users through cognitive interviews (N= 20) and pilot testing (N=10). This included both qualitative and quantitative data. Evaluation was done in four steps.

i. Expert Panel
Expert panel consisted of three domain specific individuals (psychologists) and two language experts. The expert panel was given the drafts of intervention (English and Urdu) along with an information sheet about the objectives of the Wellness guide. A review form was given to the panel to elicit the feedback on both the versions of guide. For review the expert panel was given time duration of approximately 15 days.

ii. Cognitive interviews
After the prototype was modified in accordance to the feedback from the expert panel review and team review, Cognitive interviews were conducted. The potential end users were the participants from youth (age 18-25 years). For cognitive interviews, a protocol consisting of information sheet for the interviewer and probing questions was developed and used. Informed consent was taken from participants. Cognitive interviews were completed in two weeks. On average for each interview approximately 30 minutes were required.

iii. Pilot testing
For pilot testing a set of probing questions and checklist was created. Pilot testing was done in eight days. The average time taken by participants to complete each session was 13-15 minutes.

iv. Team review
Team review was conducted by the team members of the present study at multiple phases such as after first prototype of the intervention was completed, in parallel to the expert review, after modification of prototype in accordance with expert panel evaluation, after the cognitive interviews and lastly after pilot study.

Measures
The main instruments used in the study were the language and technical checklists for expert panel, Probing question guide for cognitive interviews and an evaluation checklist for the participants of pilot testing.

i. Expert panel checklists
The Expert panel checklists consisted of some subjective questions (General comments and Qualitative discrepancies) along with 10 item scored on Likert type scale (ranging from 1= poor to 5= very good). The higher was the score on checklist the more clarity existed in terms of language and technical aspects. The main objective of the developed checklists was to identify the discrepancies in terms of technical and language aspects. The technical checklist explored clarity and operationalization of concepts, cultural competence and sensitivity and theoretical groundings. The language checklist primarily focused on difficulty level and language sensitivity (stigmatizing jargon).

ii. Probing question guide
The probing question guide developed for cognitive interviews focused on areas of source of confusion and potential probing question for the area. This probing question guide was developed as per guidelines provided by Peterson and colleagues (2017). The probed areas of sources of confusion focused on description, understanding, retrieval, judgment, and response and construct adequacy of the content.

iii. Checklist for pilot study
The checklist developed to elicit feedback form of the participants of pilot study comprised of 10 items scored on Likert type scale ranging from 5= strongly agree to 1= strongly disagree along with 4 qualitative questions. The higher the score on checklist better was the rating of the quality of the intervention. The focus of checklist was on clarity of the concepts and language along with the visual clarity as well as cultural and age competence. The qualitative questions were more inclined towards the perception of the participants about strengths, concerns, points for modification and the effectiveness of the intervention to achieve the desired outcomes.

Data Analyses
Qualitative data was analyzed using thematic analysis procedures. The feedback taken form Expert panel was reviewed and analyzed by identifying the common themes from all the feedbacks of expert reviewers. Along with expert review, team review was also carried out which focused on overall review of Wellness guide including cultural appropriateness, language and theoretical foundation. The points highlighted in team review were addressed by focusing on the common modification points. This included addition, modification and subtraction in the components of the sessions. Similarly, cognitive interviews were analyzed by identifying the common themes from all the feedback of the participants. The results of pilot study were also

qualitatively analyzed. A descriptive analysis of the quantitative data from the checklists (expert panel and pilot study participants) was conducted in Statistical Packages for Social Sciences 29.

Results and Discussion

This section presents aspects of intervention development along with results of both qualitative and quantitative analyses of expert review, cognitive interviews and pilot study. In the present study a self-help indigenous intervention was developed for CMD (depression and anxiety) using IM approach for intervention development. Utilization of IM approach ensured the development to be systematic and comprehensive with sound theoretical basis. It also allowed the replication of theoretical and cultural aspects (Van Agteren et al., 2021).

The main themes that emerged from expert panel review include; the the necessity for clarity and accessibility in language, grammatical refinement, and contextual relevance in instructions, linguistic inaccuracies, use of words that are more common, addition of examples and changes in the title of sessions along with some modifications of the visual aspects of the session. This also involved some culturally targeted modifications which were addressed by adding specific modules like the module of values, inclusion of examples that are more relevant to targeted culture and inclusion of stories.

The main themes that emerged from the expert panel review, cognitive interviews and pilot study are collectively presented in the table given below.

Table 1: *Main themes emerging from expert panel review, cognitive interviews and pilot study.*

Sr. No	Theme	Subtheme	Description
1.	*Technical*	1. Symptomatic Expansion 2. Theoretical clarity 3. Psychosomatic Manifestations 4. Emotion Regulation Techniques 5. Escalated Complexity	These included addition of symptoms of depression and anxiety mentioned in the guide along with focus on incorporating the activities that were more practical. These also included alignment of the complexity of concepts according to the theoretical framework of the intervention.
2.	*Culturally specific modules*	1. Inclusion of stories 2. Symptomatic exhibition	These included addition of phrases in which certain symptomology was exhibited in Pakistani culture along with incorporation of culture specific values. Stories were included in the activities to make the guide more culture friendly.
3.	*Language*	1. Linguistic Refinement 2. Adaptation of Urdu Terminologies 3. Language Difficulty Variation	Language refinement for comprehension enhancement and variation in the language difficulty along with adaptation of some Urdu terminologies in English for improved accessibility was required.
4.	*Methodology*	1. Weekly Session Schedule 2. Homework Reduction Option 3. Biweekly Homework Assignment	The schedule of the sessions and homework were suggested to be modified along with reduction in homework of some sessions.
5.	*Formatting*	1. Activity Arrangement 2. Urdu Font Size Adjustment	These included adjustment of the visual aspects like font and the activities alignment.
6.	*Visual Presentation*	1. Session Color Palette 2. Image Replacement	The color pellet of the session needed to be gender neutral and some images needed to be replaced in order to enhance quality.

Following is the brief description and discussion of each theme along with excerpts of the qualitative comments given by expert reviewers, and participants of cognitive interviews and pilot study. Since expert reviewers and participants were bilingual, they gave feedback in both Urdu and English languages.

Theme 1. Technical

This theme revolved around enhancing the presentation of symptoms to better align with age and cultural aspects. It included incorporating culturally specific manifestations of depression and anxiety, particularly focusing on physical symptoms. For instance: "*Age group of 25 can be sexually active/ married hence another item of:* میں ہم بستری سے پرہیز کرنے لگا ہوں / میں ہم بستری سے ہوں *Usually in depression and anxiety people* , سادہ سا کام بھی مشکل اور بوجھ محسوس ہونا ہے " *Addition of one more item:* " پرہیز کرنے لگی *start "comparison" This needed to be added in symptoms*", " انزائٹی میں یہ بھی ہوتا ہے کے بہت سر درد ہوتا ہے... سوچ سوچ کے"

The participants of pilot study emphasized the need to add more somatic symptoms such as decreased sexual interest, excessive eating, and depersonalization. It is also evident from previous research findings that Asian individuals reported more somatic symptoms as compared to emotional symptomology of depression and psychological distress (Kalibatseva & Leong, 2018).

Incorporation of these elements in the intervention ensured a clear description of different concepts. It was also suggested to revise the way Cognitive Behavioural Therapy framework was explained to the end users. For instance it was recommended

that:*"CBT full form and explanation should be added in Urdu version of guide"*, *"PMR might not be known to many so needed to be explained immediately after it is being mentioned"*, *"Flow of sessions needed to be modified such as after introducing the concept of viscous cycle; ways to break the cycle needed to be discussed"*

This theme also addressed the issues with the difficulty level of the concepts introduced. The participants of cognitive interviews reported that the difficulty level of session 6 & 7 was very high. For example: *"Addition of examples in worksheet of behavioural activation"*,

" سیشن 6 بہت مشکل سے سمجھ میں آتا ہے" ، "سیشن 6 میں Sudden shift ہے"

It was also suggested to add explanation of atypical depression. Expert reviewer and participants of cognitive interviews and pilot study reported that: *"Many people having "atypical depression" or "depression without a trigger" will not be able to connect with it. It's a type of depression that doesn't necessarily result from a particular life event or external circumstance. Instead, it can be caused by a combination of biological, genetic, and psychological factors,* خوشی اور اداسی بلئے موسم کی طرح بال وجہ، یا بے وجہ آنے جائے ہیں جو بے چینی اور پریشانی کا باعث بنئے ہیں"

Feedback was also given about the animated facilitator *"Cactiii"*. Most of the respondents were able to understand the rationale behind facilitator character. Some team expert reviewers asked for the rationale in the feedback. The feedback from the expert reviews was either addressed with modification in the prototype or by providing the justification during team review. For example, by providing the justification about the facilitating character as being gender neutral. It must also be noted that 13/ 20 (65%) participants of cognitive interviews recommended keeping the cactus as a guide.

Theme 2. Culture Specific modules

This theme underscores the incorporation of culture specific modules within the intervention framework. Expert reviewer and participants of cognitive interviews reported that: *"Culturally specific modules should be included for example social validation for certain acts are needed in daily routine. How to deal in such situations with certain sentences or comments"*, *"Examples added should be more relevant to the cultural contest for example culturally appropriate examples for stressful life events"*, *"Please add different expressions of depersonalization (that has always been the most difficult for a patient to explain and they feel not being understood) e.g* " اپنے جسم سے باہر ہونے کا احساس "

This was aimed at enhancing the indigenous objectives of the intervention and fostering greater competence in the target culture. The resultant modules were designed to address unique cultural values, beliefs, and practices, thereby enhancing the intervention's cultural relevance and effectiveness. Inclusion of aspect of storytelling to make the intervention more cultural oriented was appreciated. For example it was suggested that:*"Story telling is good instead of simply the definitions of concepts", The stories and example are helpful as it helps in relating with oneself -* "احمد کی story سے زیادہ اچھا سمجھ آیا تھا۔ ایسی اور کہانیاں بھی ہونی چاہئے تو زیادہ اچھا سمجھ آتا ہے"

The literature evidence suggested that story telling is a common instruction preference in Asian cultures and storytelling is a powerful tool for incorporating values (Nguyen et al., 2016).

Theme 3. Language

This theme encompassed reducing language discrepancies evident in both versions of the guide, with a particular focus on translation accuracy and adjusting the difficulty level in Urdu version. Incorporation of English terminology to facilitate certain concepts in Urdu version effectively was recommended: "کچھ جگہوں پر اُردو بہت مشکل ہے" ، *"There are some terms that needed to be translated in better way to complete its meaning along with consideration of difficulty level",* *"Language needs reconsideration e.g* "اشکال", *"A better expression is needed"*, *"Urdu version has a lot of translation discrepancies"* , *"English could be made simpler for a non-native reader and instructions should be given clearly about asking to clarify any sentence in the gap"*

Research evidence also indicated that Pakistani population has become additive bilingual due to instrumental purposes and quite large number of individuals prefers English language as medium of instruction (Khalid, 2016).

Theme 4. Methodological

This theme focused on refining methodological aspects of the intervention, particularly addressing modifications necessary for optimizing its efficacy. The duration of intervals between sessions, the allocation of homework assignments, and the scheduling of sessions were targeted:

"It's better to continue the track if we have one session a week so we don't feel burdened, or it is not felt as an extra burdened", " ہفتے میں دو "میرے خیال میں ہر ہفتے میں ایک سیشن ہونا چاہئے"، " کچھ سیشنز میں ہوم ورک بہت زیادہ ہے ، اگر یہ دو ہتوں کے ,سیشنز بھی ہو سکئے ہیں " بعد ہو تو ٹھیک ہو گا"

In, cognitive interviews 50% participants were psychology graduates and remaining 50% participants were from other discipline. Most of the psychology graduates were concerned about the theoretical orientation of the guide while participants from other domains were more concerned about the difficulty level and contextual basis of the concepts.

During pilot study, the participants reported that the examples that are presented in the guide are aligned with the issues and problems of the targeted age group. This indicated the principle of saturation; point of discontinuation of data collection (Saunders et al., 2017b). After pilot study the final draft of the intervention was subject to further testing to ensure its effectiveness.

Theme 5. Formatting

This theme comprised of a series of adjustments focused on optimizing the font style and size to enhance user-friendliness across both versions of the guide. It was suggested that: *I recommend, coloured illustrations in session 1",* *"Thought Record is presented in columns rather than rows as it can be compared and understood well. Please do reconsider"*, *"Work sheets can give the look of a planner and illustrations should be bigger"*. The participants also reported: "سیشن 4 کے flow charts یوں دیکھ کے مشکل لگی ہیں ۔ ان کو ایسے بنانا چاہئے کہ یہ دیکھنے میں اتنے مشکل نہ لگیں"

Attention was paid to the detail in arranging activities and refining their style. The selection of an appropriate font style and size aimed to promote legibility and readability, thereby facilitating seamless comprehension and engagement with the guide's content. In terms of formatting, the participants advised to increase the space provided for writing such as in section of heart to heart.

Theme6. Visual Presentation

Visual presentation primarily focused on refining the color palette, repositioning images, and restructuring the layout. The suggested modifications were aimed at enhancing the visual coherence and aesthetic appeal of the guide: *"This page needs a better and easier layout please"*, *Colors of session are very light they need to be bright as well, "The boxes of this activity should be bit large so one can easily write in it".* The participants also reported*:*

"اگر کوئی پہلے ہی پریشان ہے تو انہے colours سےاور ہی sad ہو جائیں "Colours"" بھوڑے, bright ہولے چاہئے"

The intervention was modified according to the extracted themes from expert review, team review, cognitive interviews and pilot testing. After modification the final draft of the intervention was developed and tested for its effectiveness.

The quantitative analysis was conducted in terms of calculating mean, standard deviation, maximum and minimum values of the total scores of each checklist are presented in Table 2.

Table 2 : *Descriptive statistics of technical and language checklists for expert and checklist for participants of pilot study*

Checklist	N	M	SD	Min	Max
Language Checklist	10	32.2	4.76	26	38
Technical Checklist	10	35.8	4.32	30	41
Pilot Checklist	10	26	13.52	12	50

N= No of items, M= Mean, SD= Standard Deviation, Min+ Minimum, Max= Maximum

The above table indicates that in case of technical and language checklists a significant proportion of the individuals scored close to the maximum score as indicated by small difference in mean and maximum. In terms of pilot checklist three participants scored below 20 while three individual scored above 20.

Recommendations

Wellness Guide is in booklet form thus in e format of guide is recommended. Therefore, the intervention may be converted in to app and audio format. Considering the indigenous nature of the intervention it should be incorporated in to local system and tested on larger scale. The age group for this intervention is 18-25 years so it can be widen for other age groups and its effectiveness can be determined.

Declaration: We confirm that the manuscript has been read and approved by all the authors. The requirements for authorship as stated earlier in this document have been met, and that each author believes that the manuscript represents honest work.

Authors' contribution SH: Conceptualization; data curation; formal analysis; investigation; methodology; writing – original draft; writing – review and editing.

TF: Conceptualization; data curation; formal analysis; investigation; writing – original draft; writing – review and editing. **NS:** Conceptualization; data curation methodology; data collection, writing – review and editing **N:** Conceptualization; data curation methodology, data collection **NK:** project administration; resources **IY:** project administration; resources, data collection

Ethical policy and institutional review board statement: The study was approved ethically by the Institutional Ethical Review Board at Capital University of Science and Technology (reference no CUST/ORIC/IERC 2023-03).

Declaration of patient consent: The authors certify that they have obtained all appropriate consent forms. In the form the participant(s) have given his/her/their consent for his/her/their information to be reported in the journal. The participants understand that their names and initials will not be published, and due efforts will be made to conceal their identity.

Conflicts of interest: There are no conflicts of interest to be declared.

Data availability statement: Data are available with the corresponding author (Haqqani. S., e-mail: sabahat.haqqani@cust.edu.pk) and can be presented on request.

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