

## CULTURAL ADAPTATION OF A MINDFULNESS-BASED INTERVENTION FOR YOUNG ADULTS: AN APPLICATION OF HEURISTIC FRAMEWORK

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### ABSTRACT

*The empirical evidence for Mindfulness-based interventions is auspicious. The socio-economic factors and political strife in low-middle-income countries puts young adults at heightened risk, which calls for preventive interventions grounded in cultural context. This study culturally adapted a mindfulness-based intervention for young adults by using the Heuristic framework. The outcome measures were also piloted. Study was carried out in four steps: First, information gathering, and second preliminary adaptation design. Third, preliminary adaptation testing was conducted by delivering the Mindfulness Training Course to students (n=8) and measuring preliminary pre-post intervention changes for stress, mindfulness, and psychological wellbeing. Feedback Interviews were conducted with stakeholders, to gain cultural equivalence, followed by the final adaptation refinement step. Results indicated universality in core principles of intervention components. However, major surface structure changes included language, length of the reading material, metaphorical expressions, and an additional orientation audio recording. Study provides a pragmatic methodological application for future intervention adaptation studies. Strong reliability of outcome measures and the post intervention improvement in young adults' wellbeing and stress indicate probability of conducting future feasibility and effectiveness trials.*

**Keywords:** Mindfulness, cultural adaptation, preventive intervention, young adults, stress, youth

### INTRODUCTION

Mindfulness is recognized as a life skill empowering individuals by nurturing mental health. It is a process of awareness emerging from paying intentional attention to the moment-by-moment unfolding of experience in the present through a non-judgmental, curious, open, and non-reactive attitude (Kabat-Zinn, 2003). This attitudinal presence can be cultivated through practice. The practice of mindfulness has been in existence since early times across both Eastern and Western cultures (Trousselard et al., 2014), with roots in different religious, spiritual, philosophical, and cultural practices (Grey, Furber & Thomas, 2018). The long-standing prevalence of mindfulness indicates its closeness to human nature and potential acceptance by different age groups including young adults.

Young adults and their mental health pose a global concern with increased reported stress, depression, and anxiety (Auerbach et al., 2016; Storrie et al., 2010). Given the transitory developmental stage of this community, empirical findings recommend an evidence-based intervention that fits within the eco-system of young adults where vulnerability and seeking help are not framed as "mentally weak" attributes (Hiemstra & Yperen, 2015). A large proportion of young adults worldwide are consolidated in university settings. The vast popularity of mindfulness-based interventions in universities, to some extent, lies in its perception as a life skill training and a self-development program rather than a mental health intervention (Barnes et al., 2017). Thus making MBI's a critical preventive intervention for youth.

Mindfulness-based interventions have been studied with young adults including students and shown significant improvements in stress reduction, personal growth, psychological wellbeing, resilience as well as academic performance (Sagone & Caroli, 2014; Galante et al., 2018). Given their effectiveness and use in different cultures (Zhu et al., 2019; Centeno et al., 2020), mindfulness-based

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interventions pose diversity and flexibility. However, there is little support for the actual adaptation process undertaken by researchers, which is required to build quality-based research evidence (Dawson et al., 2019) and necessary for the effective implementation of the intervention at policy level in similar cultures and settings.

Cultural adaptation to establish indigenous interventions with fidelity is vital for evidence-based practice due to its impact on the effectiveness of the intervention (Bernal et al., 2009). A planned, systematic, and organized approach stemming from community-based participatory perspective can achieve the intricate balance between the two (Castro, Barrera & Martinez, 2004). Such interventions have a greater chance of being entertained by policy making institutions. Researchers have developed guidelines and frameworks for cultural adaptation of interventions focusing on the elements needing change while keeping the main features of the intervention intact (Escoffery et al., 2018).

#### **Application of Heuristic framework for cultural adaptation**

In the heuristic framework, the cognitive-affective ecological model (Castro et al., 2004) addresses three dimensions: 1) *Cognitive-informational processing dimension*- focuses on the language, age, and developmental level of the target population. 2) *Affective- motivational dimension*- relates to gender, socio-economic status, and ethnic/religious background of the community. Interventions that are not relatable and are perceived as alien by the participants have a low effectiveness rate and might produce undesirable consequences (Castro, Barrera & Martinez, 2004). 3) *Environmental dimension*- includes ecological aspects of the local community.

The above dimensions for adaptation are carried out systematically through a four-step model (Barrera & Castro, 2006; Barrera et al., 2012), including *Information gathering*: this foundational step serves the dual purpose of determining the justification of an adaptation and identification of specific components in need of modification, which can be achieved through a theory and data-driven path (Lau, 2006). The present study involved essential stakeholders in the intervention emphasizing a team approach embedded within the community (Skivington et al., 2021). *Preliminary adaptation design*: The information gathered from the first step helps modify the intervention both in content and form while keeping the core components in place. *Preliminary adaptation testing*: The preliminary adaptation draft is pilot tested in this phase. Continuous feedback from involved stakeholders can be constructive at this stage (Kumpfer et al., 2008). *Adaptation refinement*: The feedback gained through the previous steps is incorporated and the final draft of the adapted intervention is prepared. In their paper about when, why, and how to adapt MBIs, Loucks and colleagues (2022) have also highlighted that adapting MBIs does not occur solely by researchers, indicating the drier need to include all potential stakeholders in the adaptation process of MBIs.

#### **Intervention to be adapted**

The present study adapted Finding Peace in a Frantic World, a group-based, 8-week mindfulness-based intervention grounded in the book "Mindfulness: a practical guide to finding peace in a frantic world" (Williams & Penman, 2012). It incorporates the principles of both Mindfulness-based stress reduction and mindfulness-based cognitive therapy. The book has been used as a guideline to develop mindfulness courses and programs for students focusing on stress reduction, wellbeing, resilience (Galante et al., 2018), and emotional regulation (Chiodelli et al., 2018). It includes reading material, guided meditation audio recordings, and home practice worksheets. Each week follows a theme for the given week with formal and informal practices: waking up on the autopilot, keeping the body in mind, the mouse in the maze, moving beyond the rumor mill, turning towards difficulties, practicing kindness, when did you stop dancing and your wild and precious life.

#### **Young adults in low-and-middle-income countries**

Despite experiencing youth bulge,- 60% of the total population (WHO, 2015) - the low- and middle-income countries, provide limited mental health support to those in need; this is further complicated by associated stigma around mental health issues and help seeking (Shah et al., 2010). The growing economic strain also contributes to the low priority of mental health needs despite experiencing the challenges posed during transitory developmental stage (Parker et al., 2004).

Young adult community -especially in low-and-middle income countries- that faces stresses yet has a barrier to seeking help makes this population critically vulnerable. If left unattended, the normative vulnerabilities might develop into full-blown mental health problems, increased drop-outs, self-isolation, self-harm, and violent crimes ( UNDP Report Pakistan, 2017; Malik & Khan, 2016). In Pakistan 1.8 million are enrolled in 161 universities across the country (HEC, 2015). Given a large

number of young adults in one setting, universities seem a viable, cost-effective source of reaching out to a large number of young adults.

### **Need for Indigenous Preventive Interventions in low-and-middle-income countries**

Evidence-based preventive interventions need an impetus of empirically systematized adaptation of interventions, leading to effectiveness studies in LAMICs, including Pakistan. The existing stressors in the life of young adults are multi-fold, especially in LAMICs, where political uncertainty, job insecurity, poverty, shortage of essential need fulfillment, terrorism, and violence, over which the young adults have relatively little control (Gadit, 2009). Existing evidence for the prevalence of stress, depression, anxiety, and other mental health issues (Khan et al., 2006) indicates the need for curriculum-based preventive intervention programs for young adults consistent with cultural norms, practices, and values.

In low-and-middle-income countries with limited mental health professionals and minimal accessibility, introducing an evidence-based online MBI could be an integral step in making psychological services reachable. There is growing impetus for online group-based interventions given the cost-effectiveness and extensive outreach in the community utilizing fewer resources. Online group MBIs have also shown efficacy compared to control groups (Cavanagh et al, 2018; Morledge et al., 2013). The present study would be first to systematically adapt an MBI for online format, involving the target population in the process.

This study addresses the earlier lack of adaptation process reporting of MBIs by providing a detailed adaptation process utilizing the heuristic framework for cultural adaptation. In order to acquire dependable results from assessment of an intervention it is vital to have reliable outcome measures. Hence the study also aimed at piloting the outcome measures to ascertain their cultural relevance and appropriateness for measuring the adapted version of the MBI.

## **METHODS**

In the first phase, the translated outcome measures were piloted to establish their reliability for the study's population. The second phase comprised the detailed adaptation process of the MBI, Finding Peace in a Frantic World, for young adults.

### **Phase I: Pilot testing of outcome measures**

#### ***Sample:***

Since a large proportion of young adults is in university settings and it is cost-effective to approach students through various social media platforms, therefore the sample was taken from universities.

A total sample of 30 students from different universities aged between 19 and 35 years ( $M=25$  years,  $SD=4.14$ ) was obtained. Of the 30 respondents, 13 (43.3%) were male, and 17 (56%) were female students. Of the respondents, 12 (40%) were enrolled in Bachelors, 12 (40%) were enrolled in Masters, and 6 (20%) students were enrolled in Ph.D. Nine students (30%) were currently employed, whereas 21(70%) were unemployed.

***Five Facet Mindfulness Questionnaires (FFMQ; Baer et al. 2006):*** FFMQ assesses different mindfulness aspects. It consists of 39 items, divided into five facets: non-reactivity to inner experience, observing, acting with awareness, describing, and non-judging of experience. Each item is rated on a 5-point Likert scale. Higher scores indicate an increase in the level of mindfulness. FFMQ has been found to have good psychometric properties (Baer et al. 2008). Urdu translation of FFMQ was used (Niazi & Adil, 2013).

***Clinical Outcomes Routine Evaluation-Outcome Measure (CORE-OM; Evans et al., 2000):*** CORE-OM is a 34- item scale used to assess overall psychological distress. In the present study, it is used as an indicator of stress reduction. Previously studies have used different measures of clinical symptoms (anxiety, depression, etc.) or wellbeing to measure stress (Galante et al., 2018; Phang et al., 2016). CORE-OM is a concise tool that covers three dimensions; subjective wellbeing, commonly experienced problems/symptoms, and life/social functioning. In addition, it contains items on risk to self and others. Each item of CORE-OM is rated on a 5-point Likert scale. Higher scores indicate an increase in stress. This study used the approved Urdu version of CORE-OM.

***Ryff's Psychological Well-being Scale (PWB-S; Ryff, 1989):*** Ryff's PWB-S consists of six subscales that measure different domains of eudaimonic wellbeing. The study used the 42-item version with seven items in each subscale. The subscales include autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. The items are scored on a 6-point

Likert scale. Higher scores on PWB-S indicate higher levels of psychological wellbeing. Urdu translation was used for this study (Aslam & Kausar, 2010).

**Procedure:**

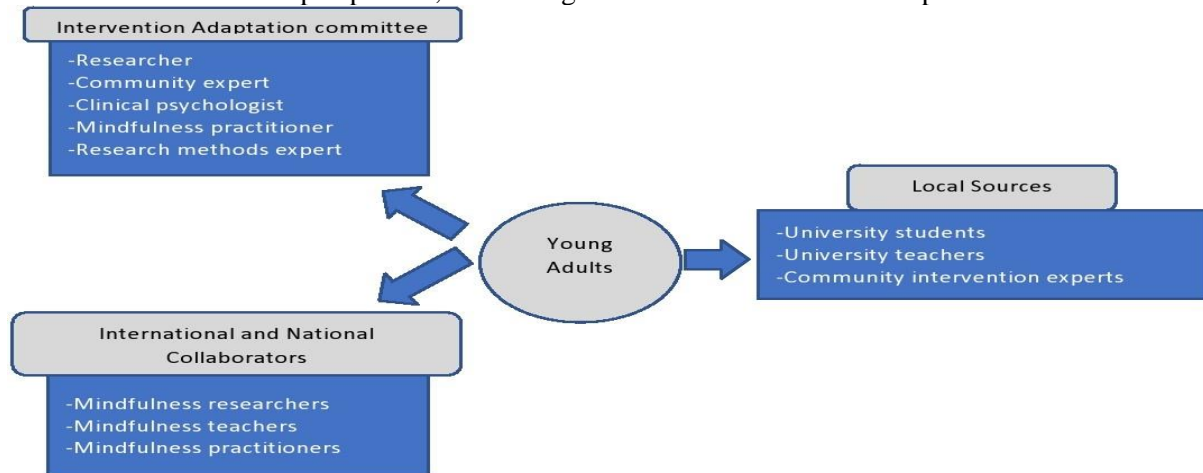
University students were recruited using convenient sampling based on age being above 18 years and currently enrolled in a university. The students from four universities in Pakistan were approached through email and WhatsApp student groups. The Urdu translated versions of the three questionnaires were sent to students through a single online survey link.

**PHASE II: Cultural Adaptation of Finding Peace in a Frantic World**

This phase incorporated the Heuristic Framework for Cultural adaptation of complex intervention (Barerra & Castro, 2006) to proceed with the active adaptation process of "Finding Peace in a Frantic World." The following steps were taken:

**Step 1: Information gathering**

Figure 1 shows all the individuals connected to the intervention and young adults, who play some role in understanding how young adults would receive the MBI. From a different standpoint, each stakeholder had a varied perspective, facilitating the researcher's effective adaptation of the MBI.



**Fig 1** Stakeholders involved in the Information gathering step of the Adaptation process for MBI.

The sources are categorized as follows:

*The Intervention adaptation committee:* This committee consisted of the researcher, a mindfulness practitioner, a community expert, a clinical psychologist, and a research methods expert. To ensure that core components and the essence of the intervention remained intact, this committee critically reviewed all the steps involved in the adaptation. It also served to scrutinize methodological procedures followed, ensuring objectivity and transparency. The committee functioned through fortnightly meetings.

*Local Sources:* The local community stakeholders involved were university students, university teachers, and community intervention experts.

The Finding Peace in a Frantic World book, worksheets and guided audio meditation recordings were given to students ( $n=6$ ). An initial orientation session was held where they were briefed about the course. After that, weekly sessions were conducted to review their progress and address any concerns or questions they had. These sessions also included detailed feedback about the content. A total of 10 group sessions were carried out with the students (8 were course-themed sessions, one orientation session, and one termination session).

Four university teachers having more than 10 years of teaching experience (from natural sciences and social sciences domains) were given the same material to review and share their feedback regarding any required modifications. Six meetings resulted in detailed feedback regarding the understandability of the workbook, chapters, and course delivery in online sessions.

Two community intervention experts were given presentations of the FPFW course, with pieces extracted from the reading material, audio recordings, and worksheets. A total of 8 meetings were held with them to discuss their feedback about the acceptability and engagement of young adults and the relevance to community culture.

The information gathered from these three local sources was reviewed by the Intervention adaptation committee. Necessary modifications and omissions from the original MBI were outlined to be carried out in the next step.

*International and National Collaborators:* Both international and national Mindfulness researchers, practitioners, and teachers were approached through email or telephone. The collaboration was based on their expertise in mindfulness and experience working with young adults—comments on their adaptation process of standard MBIs, evaluations of their practice's content, and delivery-based modifications. The meetings were conducted through video conferencing or correspondence through emails.

The suggestions and insights from collaborators were evaluated in the intervention adaptation committee meetings. After reviewing, required modifications or additions to the original MBI were planned for the next step.

***Step 2: Preliminary Adaptation Design***

Based on the information, modifications to the original FPFW course were made, including the chapters, guided meditation audio recordings, and the home worksheets. All stakeholders in the adaptation process highlighted the need for language translation.

Four bilingual translators did the Urdu translation separately to add objectivity and diversity to the language translation. It was integral for the translation to be acceptable and relevant to the young adult community and capture the course's psychological component. The translators were selected as: a professional translator, a teacher with an understanding of psychological concepts, and two psychologists. The separate translations from these translators were reviewed, finalized, and compiled by the researcher and later reviewed by four reviewers. These multiple steps of translation reviews added transparency and rigor to the process. The intervention adaptation committee finalized the preliminary design to ensure that the core components were intact.

***Step 3: Preliminary Adaptation Testing***

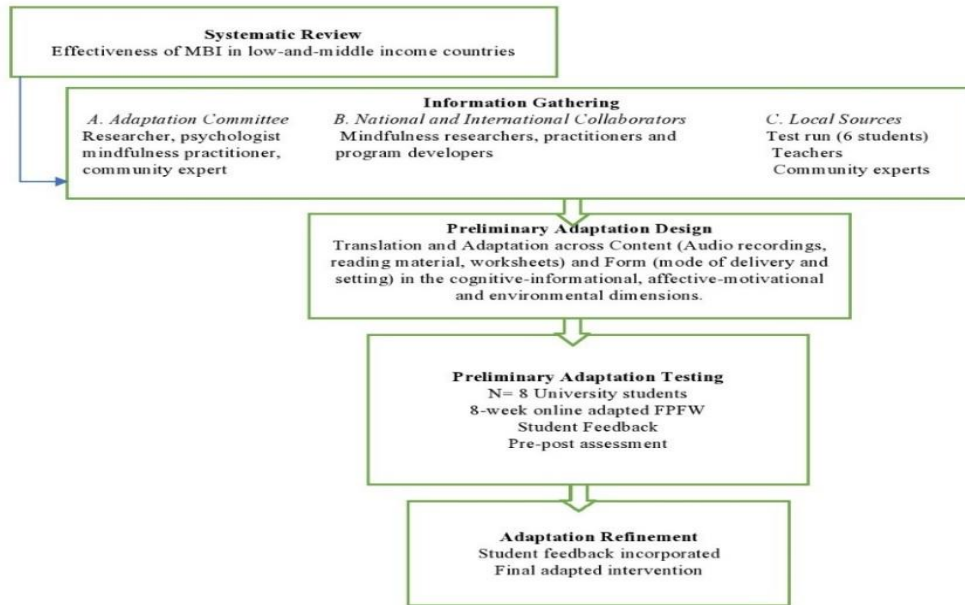
The complete finalized version of the adapted Mindfulness Training Course was conducted with eight university students to test the preliminary adaptation design. The students were recruited through advertisement in universities and were selected if the following eligibility criteria was met: a) aged 18 or above b) currently enrolled in a university, any program c) not having any diagnosed physical condition (such as chronic pain) or psychological condition (such as depression, anxiety, etc.) d) not undergoing any form of psychotherapy at the time of recruitment. This information was collected through a baseline survey.

Once recruited, the participants were asked to complete the pre-assessment survey (including the piloted questionnaires for measuring levels of mindfulness, reduction in stress, and psychological wellbeing). Weekly group-online sessions were held on zoom by sending them links through email. The weekly reading material, audio recordings, and worksheets were also emailed. Participants' feedback was taken during the sessions and the last termination session. Once the 8-week course was completed, the participants were asked to complete the post-assessment survey, including the same questionnaires as the pre-assessment survey.

***Step 4: Adaptation Refinement:***

Following the preliminary adaptation testing, the feedback from sessions and facilitator reflections were reviewed and processed in subsequent Intervention adaptation committee meetings. After due process, the final facilitator notes for each session, weekly chapters, audio recordings, and worksheets were finalized. Figure 2 illustrates the entire adaptation process.





**Fig 2** The Cultural Adaptation Process

## RESULTS

The results section first presents the scale reliability analysis of outcome measures. Second, it provides the specific modifications made in the original PFW.

### Phase I

Table 1 shows the alpha coefficients and skewness of the three translated and adapted instruments. The table shows strong internal consistency for the three questionnaires, indicating their relevance to the Pakistani young adult population represented by university students. The internal consistency for the subscales; observing for the FFMQ, and autonomy and environmental mastery for PWB-S is below the acceptable range of alpha coefficient. However, the overall internal consistency suggests that these translated instruments seem appropriate for use in this study and in future trials to study the effectiveness of the adapted mindfulness training course.

**Table No. 1** Descriptive statistics and alpha coefficients for outcome measures

Scales	No. of items	M	SD	$\alpha$	Range		Skewness
					Potential	Actual	
<b>FFMQ</b>							
Total scale	39	123.4	15.21	0.81	1-195	89-154	-0.25
Observing	8	27.10	4.26	0.46*	1-40	18-36	-0.74
Describing	8	27.4	5.73	0.80	1-40	12-40	-0.48
Acting with awareness	8	25.13	6.09	0.83	1-40	12-36	-0.10
Non-judgment	8	22.76	4.61	0.65*	1-40	13-35	0.33
Nonreactivity	7	21.0	3.98	0.55*	1-35	15-31	0.61
<b>PWB-S</b>							
Total Scale	42	174.33	25.94	0.88	1-252	134-222	0.20
Autonomy	7	27.1	4.7	0.36*	1-42	18-38	0.33
Environmental Mastery	7	26.20	4.43	0.34*	1-42	19-34	0.14
Personal Growth	7	31.3	5.88	0.66*	1-42	20-42	-0.09
Purpose in life	7	30	5.41	0.53*	1-42	20-40	-0.06
Positive relations	7	31.1	6.03	0.68*	1-42	21-42	0.18
Self-acceptance	7	28.53	5.95	0.69*	1-42	20-40	0.29
<b>CORE-OM</b>							
Total Scale	34	50.33	17.84	0.87	0-136	4-96	0.57

Subjective Well-being	4	4.86	3.41	0.62*	0-16	1-12	-0.20
Problems/Symptoms	12	17.7	10.5	0.89	0-48	0-39	0.32
Life functioning	12	16.03	7.71	0.77	0-48	4-34	0.26
Risk/Harm	6	2.73	3.99	0.81*	0-24	0-13	1.48

\*Subscales having items < 10, hence the acceptable  $\alpha \geq 0.50$ . FFMQ=Five Facet Mindfulness Questionnaire, PWB-S= Psychological Wellbeing Scale, CORE-

OM= Clinical Outcomes Routine Evaluation-Outcome Measure.

Further analysis was conducted, and the removal of low internal consistency subscales in the FFMQ and PWB-S did not change the internal consistency of the total scales (Table 2).

**Table No. 2 Alpha coefficients of total scale after retaining and deleting the low internal consistency subscales**

Scales	$\alpha$ of Main Scale	
	subscale retained (no. of items)	subscale deleted (no. of items)
<b>FFMQ</b>		
Observing	0.81 (39)	0.83(31)
<b>PWB-S</b>		
Autonomy	0.88 (42)	0.88(35)
Environmental Mastery	0.88(42)	0.88(35)

### Phase II

Adaptations were made to the original FPFW in all three dimensions across both form (delivery) and content of intervention (reading material, worksheets, audio recordings). This section first presents adaptations made to the form of the original intervention. Second, it gives specific adaptations in all three dimensions outlined in the heuristic framework. All adaptations were made based on steps 1 and 3 of the adaptation process.

#### *Adaptations in the form of intervention*

The delivery of the entire course was adapted for an online mode with 8 weekly group-based sessions (Table 3). The relevant course material (weekly chapters, weekly worksheets, and audio recordings) was emailed to the participants. The course facilitator was available for any participant queries between sessions through email. Accommodating the online mode, the facilitator was available 15 minutes before and after the official session.

Additionally, the study included the mode of communication with participants as part of investigation to increase response rate. Student responses and feedback revealed that email alone was not a very effective mode of communication; therefore, mobile (WhatsApp and SMS) was added to intervention refinement. In-session changes were made, which included starting with a recap of the last week instead of a meditation. This modification was made based on the facilitator's observation that students needed time to join and settle into online sessions before proceeding with meditations and other activities. An informal sharing of last week's experiences helped ground participants into the session.

#### *Adaptations in the Content of the intervention*

The original Finding Peace in a Frantic World content was adapted across the reading material, worksheets, and audio recordings (Table 3).

**Table No. 3 Adaptations made to the original Finding Peace in a Frantic World (FPFW) Course in Form and Content**

Form		Content	
Original FPFW	Adapted FPFW	Original FPFW	Adapted FPFW
<b>Delivery Mode</b>		<b>Reading Material</b>	
In-person	Online	12 chapters	Reduced to 8 weekly chapters
<b>In-session changes</b>		Chapter length	Reduced to 6-9 pages per chapter
Paired discussions	plenary Discussion with the entire group	Multiple examples/detailed	

			repetitive explanations	Repetitive reduced	Content
Starting meditation	with	Starting with a recap of last week	Audio meditation transcriptions	Removed from chapters	
90-minute duration for all sessions		90 min -1 <sup>st</sup> session 60 min-remaining sessions	English	Urdu	
			<b>Audio recordings</b>		
			-	Introductory audio added	
			Guided meditations	Duration reduced	
			English	Urdu	

### ***Cognitive-informational Dimension***

To make the reading material, audio recordings, and worksheets understandable and intellectually comprehensive for the participants, they were all translated into the Urdu language, where easy expressions were used. The purpose of the translation was to make it intelligible for students as a language they relate to in their daily lives, which is a mix of both English and Urdu. Terms better understood in English were retained or provided with their Urdu translation.

The metaphors, expressions, names, and examples used in the text were made culturally relevant. Single-word concepts, for which a single word in the Urdu language did not convey the meaning, were explained in the text (Table 4). For example, "non-judgment," translated in Urdu, relates to decision making, whereas judgment has a different connotation than mere decision making. Therefore, it was explained as refraining from making assumptions or opinions about self and others.

**Table No. 4 The aspects of the course explained while translating and adapting.**

<b>Integral components of the course</b>	<b>Important terms with varied connotations</b>
<b>Attitude</b>	Home practice
Non-judgment	Awareness
Non-critical	Noticing
Acceptance	Present moment
Gentleness	Allowing
Loving- Kindness	Inviting
Compassion	Giving space
Letting go	
Observing	
<b>Commitment</b>	
<b>Intentions</b>	
<b>Consistency</b>	
<b>Significance of words we use</b>	

An additional introductory audio recording was also prepared. It gave an overview of the course, explaining the attitudes integral to the practice of mindfulness. It rationalized essential terms that might have a different connotation or be perceived as unique concepts about self, body, and others in the culture (Table 4). The unique core concepts were re-iterated in sessions as well. For example, the terms "home practice," "tasks," and filling "worksheets" were taken by participants as the traditional concept of completing homework seen as a burden. Therefore, the nature of the "course"- as a time spent for themselves with room for flexibility was explained. Participants referred to it as "Me time." During sessions, significance of bringing mindful awareness towards their responses to the inability to do a task was also demonstrated.

Similarly, by coming into the "present moment," students inferred removing all thoughts and focusing on their breath. It was clarified that the present moment involves whatever is happening right here and now, within us and outside us, including thoughts (pleasant/unpleasant), feelings, etc. "Awareness" was initially seen as being aware of what's right and wrong (more akin to conscientiousness). It was described as being aware of one's feelings, thoughts, behaviors, body sensations, and responses with no judgment; seeing things as they are and not as we want them to be.



"Noticing" was understood as concentrating or focusing, with deliberate removal of anything other than the meditation's focal instructions, which added further stress and feelings of being unable to do mindfulness right. This was also explained as a simple observation of what is appearing without any intention to alter it. Some terms were received as novel and later on as liberating by students, for example, the expressions of "inviting" and "allowing" sensations, thoughts, and feelings. Their explanations were added in the introductory audio and the sessions.

***Affective-motivational Dimension***

The rationale for different attitudes and practices were described in the text, the introductory audio recording, and highlighted in sessions to make the concepts emotionally in tune with students and cultivate a motivational sync. The attitudes explained were; non-judgment, non-criticism, acceptance, openness, gentleness, kindness, gratitude, noticing, allowing, and inviting. When brought up by participants, these attitudes were related to religious teachings on the way of "being" and the concept of reaping personal rewards of satisfaction, contentment, and liberation from constant suffering.

Value conflicting examples were changed from the text (such as drinking, bars, etc.) to more culturally appropriate ones (cafeteria, tea/juice/coffee). Student relevant examples were added (assignments, presentations, group project collaborations, teacher-student conversations, friends, and family).

***Environmental Dimension***

In line with socio-economic conditions and lowered accessibility and availability of mental health resources and professionals in Pakistan, the course was delivered by the researcher, a clinical psychologist. The pre-requisites of credibility to teach the FPFW were met by taking a one-on-one 9-week mindfulness-based stress reduction course from an internationally certifying body, "the mindfulness network." After which, the researcher engaged in personal mindfulness practice and supervision with a certified mindfulness teacher.

The course has been adapted for an online delivery mode to increase its outreach. Second session onwards, the duration was reduced from 90 minutes from 60 minutes based on the feedback given by students in the information-gathering phase. Email reminders were sent to students with poems and quotes relevant to session proceedings and last week's theme. They found the poems connecting and grounding. Critical feedback from the students was to send alerts and reminders on their mobile numbers.

In the Preliminary adaptation testing step, the eight-week online adapted Mindfulness Training course was delivered to 8 university students. Table 5 shows the pre and post-assessment mean scores on outcome measures. The table scores indicate a relative decrease in levels of psychological distress (stress reduction), as measured through CORE-OM. It also suggests increased psychological well-being and mindfulness levels as measured through PWB-S and FFMQ. These relative changes in the pre and post-mean scores of mindfulness, psychological well-being, and stress suggest that the adapted Mindfulness Training Course has the potential to improve stress and wellbeing in university students.

**Table No. 5 Descriptive statistics for pilot testing of adapted FPFW in pre and post assessment outcome measures**

Outcome Measures			N	Pre		Post	
				M	SD	M	SD
Clinical evaluation-Outcome (CORE-OM)	Routine Outcome measure		8	64	5.07	46	4.36
Ryff's Scale-PWB-S	psychological Well-being		8	156	18.34	168	16.67
Five Questionnaire-FFMQ	Facet Mindfulness		8	108	13.63	123	9.55

**DISCUSSION**

The wider dissemination and practical application of evidence-based preventive practices require cultural adaptation of original intervention. The present study provides a systematic cultural adaptation

of a mindfulness-based intervention using the Heuristic Framework for cultural adaptation of complex interventions. To our knowledge, this is the first mindfulness-based intervention study to use a systematic cultural adaptation framework, with clear adaptation descriptions of the entire process at both form and content levels across the three dimensions, thus ensuring culturally sensitive adaptations. Including important stakeholders at every stage of adaptation is an integral element of this study, providing more sustenance and credibility in the community. The recommendations and feedback from the students, teachers, practitioners, and community workers were incorporated into the adaptation, bringing science and practice together. Stakeholder inclusion forms the basis of translational and community-based participatory research where the cultural and global practice is carried together through comprehensive adaptation models, consequently enhancing their effectiveness.

The piloting of outcome measures suggested strong internal consistency for all three measures except the observing subscale of FFMQ and the autonomy and environmental mastery subscale on PWB-S. The low internal consistency of the FFMQ observing subscale can be explained by the fact that it consists of 8 items which might have contributed to lowered alpha coefficient. It could also be understood in terms of the initial validation of FFMQ, which was done with the Freiburg Mindfulness Inventory that was developed initially for meditators (Buchheld et al., 2001). Observing involves noticing internal and external experiences, which are not commonly understood by the general population (Rudkin et al., 2017), before experiencing mindfulness and the post-mindfulness-based intervention. FFMQ observing scores may indicate increased internal consistency (Gu et al., 2016). Therefore, retaining this subscale can be helpful in pre and post-assessment of a mindfulness-based intervention in a future RCT.

The subscales of autonomy and environmental mastery also showed lowered internal consistency; however, the overall reliability of the PWB-S was not affected by removing these subscales. Each subscale contains seven items, which might contribute to the lowered alpha coefficient. The lowered internal consistency could also be explained by the constructs being taken in a relatively different connotation in collectivistic cultures like Pakistan (Jibeen & Khalid, 2012).

In a primarily non-English speaking country like Pakistan, the first focus of this study's adaptation was language. Based on the recommendations from stakeholders, which interestingly brought together both Urdu and English languages, given how experience shapes our spoken and understood language bringing neural changes at cognitive levels, influencing our semantics (Bialystok, 2018). Language adaptation is considered the most basic type of cultural adaptation as a common language is essential between the participants and the facilitator. However, concept adaptation (Bernal et al., 2009), where complex constructs are explicitly explained in culturally appropriate ways, is often an overlooked adaptation in research (Castellanos et al., 2020). The inclusion of the introductory audio recording describing the significance of the attitudes required for mindful practice is an important milestone achieved in mindfulness research, where theoretical foundations of mindfulness have been explicitly incorporated into the intervention (Proulx et al., 2018; Kabat-Zinn, 2003). The study's emphasis on mindfulness being seen as a way of life with every human having the capacity to be mindful is understood in every culture and religion under different names and traditions, thus signifying the universal nature of mindfulness (Trousselard et al., 2014). This emphasis helps frame mindfulness in a stigma-free, promoting mental health and self-growth context, which is essential for preventive interventions to thrive. The student feedback on including phone-based reminders was vital as it has the potential to increase attendance and engagement with the intervention (Mani et al., 2015). The standard time for MBI sessions is 90-120 minutes. However, the session time has been used flexibly based on the group's needs. Studies have used 35-60 minute duration for sessions (dos Santos et al., 2016; Chiodelli et al., 2018). The reduction in session time can be further studied in future effectiveness trials.

The second focus of this adaptation was an online mode of delivery. With the increased interest in the effectiveness of guided online mindfulness-based interventions (Spijkerman, Pots & Bohlmeijer, 2016) along with the limited mental health and financial resources in low- and middle-income, coupled with the rise of COVID-19, the adaptation of the original intervention to online mode is a crucial step towards systematic pragmatic research increasing the outreach to students across the country (O'Driscoll et al., 2019). The adapted course may also be expanded to bilingual (English and Urdu) students residing outside Pakistan, which could be further subjected to future research. Due to the online nature, an appropriate adaptation made to the session format was the start of the session with an informal

recap of last week instead of meditation, which gave students time to settle in and get ready for the session.

Another important aspect of this adaptation was the 9 week training of a clinical psychologist as a mindfulness facilitator, which lightens the burden of 4-year long expensive mindfulness teacher certification courses, limiting the benefits of mindfulness to specific populations only (Blignault et al., 2021). This adaptation provides a scalable mindfulness course that can benefit a larger population by utilizing community resources. Along with the above mentioned strengths, this study had the limitation of small sample size at the adaptation testing phase (n=8) which could be addressed in future trial studies.

## **CONCLUSION**

Translation of science into practice and vice versa is the main goal and a challenge for preventive intervention research, emphasizing the systematic cultural adaptation of interventions. The present study highlights essential aspects of culturally sensitive mindfulness-based intervention modifications. First, the feedback of participants and stakeholders on the course content indicated universality in the core principles of the components. However, adaptations in cognitive, affective, and environmental domains both in the Content and form of the intervention were made, highlighting the flexibility of MBIs. Second, the transparent approach toward the adaptation procedure can serve as a clear guideline for other researchers culturally adapting interventions globally. Third, the MRC and heuristic frameworks have been used separately in adapting health and psychological interventions but not incorporated in systematically adapting a student-based mindfulness training course. Hence, this expands the two frameworks and provides more methodological transparency in a systematic adaptation of interventions. Fourth, the systematic adaptation process provides the groundwork for future pilot and effectiveness trials to explore the feasibility and effectiveness of the adapted Mindfulness Training Course for young adults in Pakistan. More comprehensive dissemination of the training course and bringing it into policy and mainstream education across Pakistan, it is imperative to study the feasibility of the course in a pilot RCT which would address issues of feasibility and acceptability of the course at a countrywide level. It is also integral to understand which components of the mindfulness course are effective in the local context. Robust study designs with larger samples incorporating qualitative methods could provide more meaningful information. Lastly, the pilot testing offers cultural relevance for the outcome measures for university students in the local context.

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