

**PROMOTING WELLBEING IN UNIVERSITY  
STUDENTS THROUGH A WEB-BASED  
MINDFULNESS INTERVENTION**



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By

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## THESIS AND DEFENSE APPROVAL FORM

The undersigned certify that they have read the following thesis, examined the defense, are satisfied with the overall exam performance, and recommend the thesis to the Faculty of Social Sciences for acceptance.

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Candidate of **Master of Philosophy** at the National University of Modern Languages do hereby declare that the thesis "**Promoting Wellbeing in University Students Through a Web-based Mindfulness Intervention**" submitted by me in partial fulfillment of MPhil degree, is my original work, and has not been submitted or published earlier. I also solemnly declare that it shall not, in future, be submitted by me for obtaining any other degree from this or any other university or institution.

I also understand that if evidence of plagiarism is found in my thesis/dissertation at any stage, even after the award of a degree, the work may be cancelled, and the degree revoked.

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## ABSTRACT

The decline in wellbeing and rising dropout rates among university students have become serious global concerns. Consequently, there is an urgent need for effective interventions to support students' wellbeing and enhance their academic performance. The study aimed to evaluate the effectiveness of a web-based mindfulness intervention designed to improve psychological flexibility, mindfulness, quality of life and overall wellbeing among university students. The intervention developed specifically for Pakistani university students was based on six core principles of Acceptance and Commitment Therapy ACT (Hayes, 1980). Delivered online, the program consisted of eight weekly sessions, with the first session serving as introduction and the final session for feedback and suggestion. This study served as preliminary testing of indigenously developed intervention. A total of 176 (10.2% male) BS Psychology students were randomly assigned to either the intervention group (n=89) or waitlist control group (n=87). Data was collected pre and post intervention. The results showed that students in intervention group made significant improvements in mindfulness, psychological flexibility and overall wellbeing compared to the control group. The intervention group also showed considerable improvements in their academic performance and study habits. Participants in intervention group provided positive feedback, noting that intervention helped them manage academic stress and improved their daily life functioning. Many reported that they became more mindful and better able to handle challenges after completing the sessions. The findings of the study highlighted the effectiveness of an ACT based mindfulness intervention in promoting wellbeing and academic success in university students. This intervention has the potential for broader implementation within educational settings to support students' mental health and academic achievement.

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## **DEDICATION**

I dedicate this thesis to myself for believing in both myself and Allah, trusting His plan, and staying strong through every challenge.

# CHAPTER 1

## INTRODUCTION

The university years are often accompanied by the transition to adulthood which is marked by the development of new sense of independence and identity exploration, high academic demands and personal growth. (Arnet 2015, Mandracchia & Pendelton 2015, Srivastava et al., 2009). It is evident from the research that the transition from adolescence to adulthood—that is, when most people begin a higher education program—poses a higher risk of developing psychiatric disorders (Leppink et al., 2016). The life in university is very challenging with pressure from academic work, financial worries and social obligations that rest on the young students' shoulders. Stakeholders in higher education students may affect their mental health due to competition and multiple roles (Hunt, 2010). Previous studies show that university students' mental health has worsened over the recent past; common disorders are anxiety, depression, and stress (Auerbach et al., 2018). Studying at university entails a host of stress factors that may affect the mental health of the students. To many, it is the first practice in the changes that come with transformation from adolescence to adulthood such as transition to another place of residence, learning to adapt to the new environment with little or no supervision and mastering the art of self-reliance (Arnett, 2016). The desire to get good grades while at the same time be able to maintain friendships and be involved in other activities leads to stress and anxiety (Stallman, 2010). Also, aspects like, economical duress, marital discord and future contingency also helped exacerbate students' psychological morbidity (Eisenberg et al., 2007). Thus, concerns of mental health are not only significant for students' Quality of Life but also can negatively affect their academic achievement, attendance, and graduation. It showed that 42. 2%

students have stress, 28.4% students suffer from sleep disturbance, 20.9% students have depression and 32.5% students have anxiety as factors which inhibit learning and academic performance according to the survey conducted by the American College Health Association, 2016. Additionally, Byrd and McKinney (2015)'s study revealed that learners with mental health issues had lower GPAs and graduation rates more than learners without the problems. With these challenges comes dilemmas in issues to do with identity of the students, or their need to develop healthy esteem. The time of university means the further development and self-searching as a person is on the cusp of true adulthood and tries to find personal and professional identities (Schwartz et al., 2012). Nevertheless, this process can be challenging and accompanied by feelings of vulnerability and doubt because students have to determine their belonging and existential causes (Kenny & Hatters-Friedman, 2016). Students, at this period, are taken through extra responsibilities and new tasks; most youths are out of their parental homes, struggling to define themselves socially and academically independent individuals they have to make their decisions (Keri & Schulz, 2012). By doing so, Almeida and colleagues (2014) have evidenced that during such transition, social well-being, psychological well-being, as well as cognitive affective strength significantly drops while psychological disturbances together with cognitive affective susceptibilities on the increase. Thus, anxiety is observed from the beginning of students' studies at university and the literature review presented shows that their wellbeing can gradually decline (Salmela & Read, 2017).

Findings regarding university students in the early adulthood note that stressors are not limited to one aspect of life and can be transformative concerning the students' well-being. Dyson & Renk, (2006) posited that productivity pressures for instance course work, exams and performance are likely to exert pressure thus create stress in a student's life. However, moving to

university brings other, often developmental issues that concern change, access to a new environment, or development of social relations, and increased self-reliance (Arnett, 2015). Apart from academic issues, new student may encounter personal and interpersonal stressors such as seek for identity, dating, and managing money. Such stressors might affect a range of wellness factors, including physical and mental health and well-being as well as optimal functioning (Arnett, 2015; Dyson & Renk, 2006). The concern over psychological well-being of university students is on rise globally. A study shows that still, a significant proportion of students experiences increased stress, anxiety and depression while in university (Beiter et al., 2015, Ibrahim and his colleagues 2013). In Pakistan where the standards of education are tough, and society has high expectations these challenges are magnified (Yousaf et al., 2016).

The students that have mental health problems while attending the university may have lower academic scores, and a tendency to dropout (Mandracchia & Pendleton, 2015). These issues are more likely discontinue in adulthood, therefore increases the possibility of unfavourable health outcomes (Daw et al., 2017). Thus the university provides right setting for practising and putting up interventions that would enhance stress prevention, health and wellbeing among the community. These problems should therefore receive adequate attention while the individuals are in their university. The most recent theories are derived from Eisenberg, Golberstein, & Hunt, 2009; Hunt & Eisenberg, 2010. Previous research has pinpointed the importance of well-being for the different aspects of functioning of the university students. Research shows that academic self-achievement is directly tied to well-being, and that high well-being correlates with definite gains in academic performance, motivation, and completion of university programs. It is further aligned with other related findings constituted by Huppert and So (2013) and Suldo and colleagues (2014). On the other hand, it could be seen that students

with low level of well-being may not successfully cope with academic requirements and are likely to have more Academic Stress & Burnout (Suldo et al., 2014).

Apart from the academic outcomes, well-being defines students' quality of life and their ability to manage their mental health. Research has shown the relationship of psychological thriving with decrease in symptoms of anxiety, depression and stress among university students (Keyes, 2007; Stallman, 2010). On the other hand, low well-being, and higher stress have negative effects in the development or worsening of mental health related disorders (Stallman, 2010). Moreover, while well-being has traditionally focused on academic and mental health status it encompasses other aspects of students' lives in social relations, health and subjective wellbeing. Currently, the literature indicates that life satisfaction is positively correlated with social integration, healthy behaviours as well as the quality of life (Diener et al., 2018; Keyes, 2005). However, problems relating to students and how they influence learning via their well-being have not been brought to light in the course of developing curriculum adequately. Owing to the issues with transition, there are services that have to enhance students' wellbeing and these are required in the early phase (Conley et al., 2014). Recent studies show that the level of social and emotional skills influences academic performance (Durlak et al., 2011), and learning is associated with students' wellbeing (Asikainen et al., 2019).

Further, the literature review shows that majority of students do not have effective ways of learning and studying (Nieminen, et al., 2004; Asikainen, et al., 2013). In the context of higher education, it is crucial to help students while considering not only factors associated with their study skills and, for instance, future learning approaches (Postareff et al., 2017) but also with their wellbeing. It is for this reasons that effective strategies in increasing students' academic achievement and their overall health are thus called for.



Interventions applied in the context of universities are aimed at early identification of people with various mental health problems (depression, anxiety and suicidal thoughts) in an attempt at preventing psychiatric emergencies and enhancing overall health. The other function of intervention is that it is a universal prevention. Another study established that these types of intervention are effective (Conley et al., 2015). Furthermore, Conley et al. (2015) reveal that the student participants have displayed a significant behavioral shift, possess the learnt skills and have expressed their appreciation. Based on the cross-sectional analysis of students' psychiatric morbidity, it has been found that there is a possibility of reducing emotional distress and effectively supporting students in coping with difficulties related to the transition to university life if effective skill development intervention such as coping skills or mindfulness skills are taught to students (Conley et al., 2015). In addition to the direct gains in terms of students' academic performance and mental state, action regarding their well-being is essential in regard to the development of the positive attributes and skills that will help them become effective and happy in the future. There is also a significant potential in using mindfulness interventions enhancing students' well-being as it aims at developing abilities for self-awareness and emotional control. In this way, providing students with mindfulness skills, universities can help them to manage some difficulties in everyday life and cope with stress more effectively, as a result, create the groundwork for well-being and high achievement in students' lives (Bamber & Schneider, 2016).

Various pressures that students in university experience includes academic stress, social stress, and financial stress (Haque, & Sarwar, 2020). The standard education system is highly competitive, and the set standards are high this increases stress and anxiety among students (Ahmed et al., 2017). In addition, cultural expectations of success and achievement in academics

and career contribute to the pressure on students that makes them struggle with their mental health and decrease their well-being (Khan & Iqbal, 2017). In addition, mindfulness interventions can also contribute toward the management of perceived stigmatization on psychological deceleration in Pakistani societies where professional help on psychological issues is considered a taboo. The proposed mindfulness-based approaches within contexts of universities suggest that, through referencing support services and developing self-care coping strategies, could create conditions that will make students more inclined to effectively seek health help (Naeem et al., 2016).

In Pakistan, social expectations enhance intrinsic demands of academic achievement stress; hence the concern for university students' mental health. As the society in Pakistan starts paying attention to mental health issues, it is imperative that the practices and programs that focus on mindfulness be implemented into the universities in order to support students' growth and psychological well-being. In that regards, universities can assist students in developing the mindfulness skills like non-judgmental acceptance, present moment awareness and self-compassion and improve their ability to cope with academic and personal stress thus, improving their well-being and learning outcomes.

### **1.1 Rationale of the Study**

There are numerous challenges which affect the life quality and academic effectiveness of university students in Pakistan. A survey conducted in the past year depicts that, approximately 60% students of Pakistani universities are experiencing moderately severe level of stress and 45% has signs of anxiety and depression (Khan, Ahmad & Ghani, 2020). This data points out the need of students support service to improve the life experience of the college learners so that they may help the learners achieve all round success. The transition to university life is an

important period marked by significant changes and pressures, including social adjustments, academic demands, and the development of personal identity. This is perhaps why issues of character transformation for purpose of enabling the students to cope with this transition must be addressed to ensure that they are provided with some positive attributes to enable them cope with life challenges.

This study presents an innovative approach of the combination of mindfulness activities with the concepts of ACT in web based format. Mindfulness that refers to paying attention to the present moment can help students develop better concentration, self-regulation and stress management. ACT supports and extends the practice of mindfulness through encouraging aspects such as psychological flexibility and commitment to individual's values thus enabling students on how to relate with thoughts and emotions in a healthier friendly manner. The integration of mindfulness and ACT principles aims to equip students with positive traits such as resilience, emotional intelligence, and self-compassion. These are valuable skills that enable an individual to deal with life experiences using a problem solving and coping attitude. Studies have found that people with high level of psychological flexibility and mindfulness has enhanced problem solving skills, emotional regulation, and interpersonal relations (Hayes et al., 2006; Kabat-Zinn, 1994).

To that purpose, the proposed intervention is as easy to follow and feasible as possible and will be implemented through an online platform. This format makes it even easier for students to attend and participate in the program at their own free time hence will not disrupt their timetable. Furthermore, the online delivery mode is an inclusive option for diverse student population as it assists in overcoming barriers like time and geographical limits.

The key to encouraging positive growth during university years is to use evidence based interventions. Resilience and positive psychological attributes are developed through programs that can greatly enhance students' capacity to manage personal growth challenges, social dynamics and academic pressures. Increased life satisfaction, better academic performance and stronger coping mechanisms for future challenges are the expected results of this intervention. Furthermore, this intervention's promotion of wellbeing has wider implications for university environment. Through helping students in cultivating these advantageous characteristics, the program can make a beneficial and constructive impact on academic community. An emphasis on wellbeing can result in decreased dropout rates, increased participation in extracurricular and academic activities and more positive campus culture overall.

### **1.2 Statement of the Problem**

High levels of stress and mental problems are common among university students and these affect their results and health. Such stress may cause several psychological disorders as anxiety, depression, and burnout. There are many interventions exist for these issues but currently a gap in relation focused, cultural appropriate interventions to address such problems in non-Western context including Pakistan.

This study fills the gap of reporting mental health treatments focused on university students through assessing the-online mindfulness program derived from the six ACT principles. The intervention is planned to build the psychological flexibility, improve the level of mindfulness, and increase the general well-being, as well as decrease the level of distress. Through exercises and worksheets, the program is teaching the students how to decrease stress and work in a more effective way on their mental health.

The relevance of this study can be found in its possibility to provide a large number of

students, and broad access to the effective means of preventing and treating the occurrence of mental health issues. Thus, this study adds value to the existing body of knowledge on the application of a culturally suitable mindfulness approach for students in school and other institutions with the view of enhancing students' positive mental health. Apart from studying university students' mediation practice, this research endeavors to open a possibility for a positive intervention in order to improve students' mental health and wellbeing and ultimately their academic achievements and quality of life.

### **1.3 Objectives of the Study**

1. To develop an innovative and engaging web-based mindfulness intervention tailored to the specific needs of university students.
2. To evaluate the effectiveness of the Web based mindfulness intervention on enhancing wellbeing, psychological flexibility, and mindfulness among university students.
3. To determine the impact of intervention on students' overall quality of life.

### **1.4 Research Questions**

1. How effective is a web-based mindfulness intervention in enhancing psychological flexibility among university students?
2. Does the web-based mindfulness intervention significantly improve mindfulness levels in university students compared to a control group?
3. What impact does the web-based mindfulness intervention have on the overall quality of life of university students?
4. How do students perceive the benefits of the mindfulness intervention on their daily lives and academic performance?

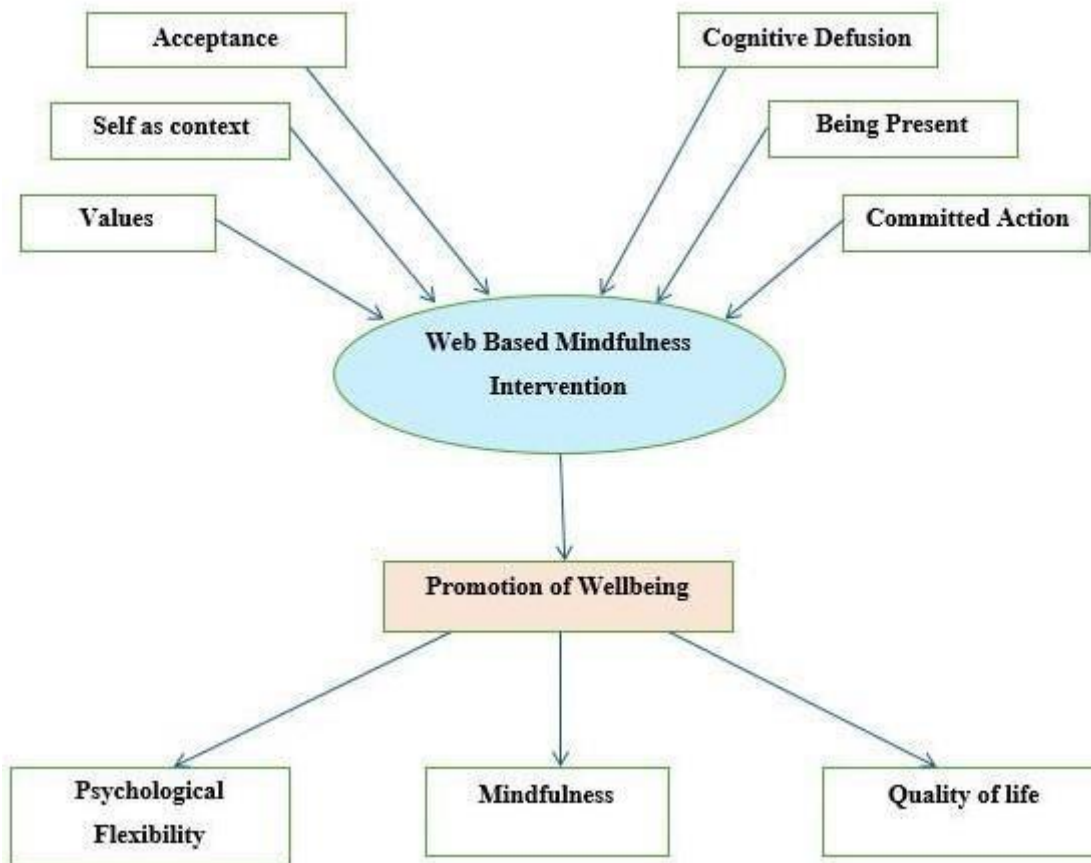
5. What specific aspects of psychological well-being and distress are most influenced by the web-based mindfulness intervention?

### **1.5 Research Hypotheses**

1. University students in the intervention group will have better psychological flexibility at post-test than the control group.
2. University students in the intervention group will exhibit improvement in mindfulness at post-test as compared to control group.
3. University students in the intervention group will have better wellbeing at post-test than the control group.
4. University students' overall quality of life will significantly improve after receiving intervention.

### **1.6 Conceptual Framework of the Study**

The conceptual framework of the study illustrates that how a web based mindfulness intervention is designed to enhance the promotion of wellbeing among participants. The intervention based on principles of Acceptance and Commitment Therapy (ACT) focuses on cultivating psychological processes such as acceptance, cognitive defusion, being present, committed action, values and self as context. These processes are incorporated into the intervention in order to foster psychological flexibility, mindfulness and quality of life. The framework graphically demonstrates that how the intended outcomes of intervention relate to each other. It is expected that mindfulness techniques within web based platform will result in significant improvements in various aspects of wellbeing. The intervention aims to increase participants' overall functioning and life satisfaction by improving these psychological outcomes which will ultimately contribute to their holistic wellbeing.



*Figure 1: Conceptual Framework of the Study*

### **1.7 Methodology**

The study involved two phases. In the first phase, a web-based mindfulness intervention was developed by the primary researcher, incorporating six core components of Acceptance and Commitment Therapy (ACT), mindfulness, and breathing exercises. The researcher received guidance from an intervention expert and a Ph.D. candidate with mindfulness program experience. The intervention and mindfulness exercises were recorded by the researcher and Ph.D. candidate, respectively. In the second phase, a Randomized Controlled Trial (RCT) was conducted with 176 psychology students from NUML Islamabad, who were divided into an

intervention group (n=89) and a control group (n=87). Randomization was used to assign groups, and pre- and post-assessments were conducted to evaluate the intervention's efficacy.

## **1.8 Operational Definitions**

### **1.8.1 Wellbeing**

Well-being is defined as a holistic assessment of an individual's quality of life, encompassing physical, mental, and social health dimensions. It includes the presence of positive emotions and moods, the absence of negative emotions, satisfaction with life, fulfillment, and positive functioning. Well-being reflects the extent to which an individual feels that their life is going well, both in terms of emotional experiences and in relation to personal and societal expectations and values (Diener, 2000).

### **1.8.2 Psychological Flexibility**

Psychological flexibility means being able to stay present and open to your thoughts and feelings without trying to avoid or fight them. It involves being able to adapt to different situations, change your actions when needed, and stay committed to your goals and values. This concept is important in Acceptance and Commitment Therapy (ACT), which helps people deal with life's challenges in a healthy way (Hayes et al., 2006).

### **1.8.3 Quality of life**

Quality of life is defined as an individual's overall assessment of their well-being, which includes physical health, psychological state, level of independence, social relationships, personal beliefs, and their relationship to salient features of their environment. This comprehensive assessment reflects how an individual perceives their position in life within the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns (World Health Organization, 1995).



#### **1.8.4 Mindfulness**

Mindfulness is defined as a mental state achieved by focusing one's awareness on the present moment, while calmly acknowledging and accepting one's feelings, thoughts, and bodily sensations. It involves maintaining a non-judgmental, present-focused awareness and openness to experience, which can enhance emotional regulation, attention, and overall well-being (Kabat-Zinn, 1994).

## Chapter 2

### Literature Review

#### 2.1 Mindfulness

Mindfulness has been practiced at the individual, academic, and organizational level in the last decade as it's one of the crucial competencies at the workplace. Mindfulness is a concept that has been found to consist of better concentration and reduction of distractions and these can lead to better output and performances. Also, research has indicated that mindfulness reduces stress through enhancing mental focus and reducing relaxation, rejecting negative thoughts, as well as activating idea generation processes. Both universities and businesses need these qualities when trying to promote peak performance and the health of their employees and students. (Shapiro et al., 2018).

Mindfulness is truly critical and is employed in numerous different therapeutic arenas: medical and psychological realms among them. It primarily aims at calming people's minds while building up their self-acceptance, tearing down stress and tension. In addition, mindfulness is a healing strategy for diseases and disabilities and a method of teaching. Research shows that individuals who engage in the practice of mindfulness do so more effectively than other persons in the solving of problems in a creative manner (Stoops, 2005).

The work of Baer et al., (2006) defines mindfulness as a psychological perspective that allows individuals to pay attention to what they are doing, the environment and the current time and event without letting their minds wandered to the past or the future. This accept things as they are and is often associated with meditation. Meditation is the deliberate focusing of awareness on the present experience in a non-evaluative and non-reflexive manner (Kabat-Zinn,

1994; Van Dam et al., 2018). Purton (1998) in his attempt defined mindfulness as a ‘system of awareness’ as defined by Walsh (1980).

Moreover, it has been suggested that mindfulness is a cognitive structure or a mental mode as it has ability to be deployed different situations and contexts that require self-reflection and arising out of such reflection different cognitive and behavioral patterns. It is marked by openness to all the events occurring in the current period of time, as well as the most acute focus on such occurrences (Brown and Ryan, 2004). In a similar manner, Cardaciotto et al. (2008) defined mindfulness as a state whereby clients are receptive to experiences of the internal and external environment without making any evaluation. In addition, there are literally dozens of definitions of what is commonly referred to as mindfulness in the published literature. According to Ritchhart and Perkins (2000) some scholars categorize it under developmental feature since they construe it as psychological dispositional factor that subsumes skills and stances. There are those who see it as a process that involves mastering the art of being in a certain situations and has been known to follow practice such as yoga, meditation and relaxation. This perspective assumes that mindfulness practices can lead to changes in mental health that are large enough to be observed over a short period of time – this can be as little as eight weeks (Shapiro et al., 2008).

Furthermore, research conducted in the use of mindfulness procedure has found significant reduction in stress as well as enhanced psychological health among the college students. Because mindfulness improves self-awareness and prevents stress, it can assist the student in controlling test anxiety, dealing with academic pressures, and improving the mental health, thereby, promoting academic achievement (Shapiro et al., 2007). Many studies exist on academic achievement that associates with mindlessness within a university environment. As a

result of the meta-analysis, Schutte and Malouff (2019) identified moderate positive correlation of academic performance with mindfulness. In addition, MacKenzie et al. (2019) systematic review examined relationship between academic performance of the undergraduate students and mindfulness and found out there were number of empirical studies to support the rationale that mindfulness enhances samples; academic results such as examinations performance, GPA and overall academic achievement.

In addition to the benefits to learning, there is evidence that mindfulness has important benefits for mental health. Stress, anxiety and depression remains high among university students thus has a negative impact on their health as well as their academic achievements. Studies have shown that mindfulness can reduce symptoms of anxiety and depression and improve emotional self-regulation (Hofmann et al., 2010; Garland et al., 2015), which means that it may serve as effective approach to maintaining good student's mental wellbeing. Different features of Pakistani culture regarding mental health issues consist of traditional beliefs, religion, and norms of the society. Mental health is not prioritized, and people feel ashamed of themselves to seek for help they need for fear of being laughed at, or ignored. Somewhere down the line, most people have the notion that mental health issues imply that a person is weak or has sinned. Therefore, there is a tendency for people in these communities to solve their problems secretly or to address them to faith healers or traditional healers (AI Giasuddin, Minnaert & Akhter, 2015).

Popular mindfulness practices whereby individuals are trained to focus on present moment experiences without forming a negative or positive judgment about such experiences can be applied to the Pakistani culture. For instance, extrapolating religious concepts relevant to the Islamic faith such as 'sabr' and 'shukr' that is patience and thankfulness respectively, can help make mindfulness more culturally appropriate. Cultural references and societal analogies

can also be employed in making these practices more appropriate and efficient (Khan & Aleem, 2020).

In the same way, by developing cultural derivatives of ACT, it can be made more effective in Pakistan. ACT is concerned with the process of exposure to thoughts and emotions, as well as the determination to engage in valued behaviors. Taking this into consideration, potential Islamic values which are conducive for reception including tawakkul – acceptance of fate as well as jihād al-nafs – striving towards perfection of one’s self can be enthusiastically welcomed by a Pakistani person. Relating the concepts of ACT with the culturally comprehensible stories and analogies may be useful (Hussain, 2019).

Culturally tailored interventions should be used in multicultural populations as they yield better results than the other kinds, as noted by studies. For example, Rizvi, Khan, and Aslam (2020) reported a quantitative analysis of effects of online ACT program on Pakistani students and the results included a decrease in stress and increase in psychological flexibility. They adopted cultural and religious references within the context of the program, and this made participants to be more inclined. Similarly, Khan and Aleem (2020) found that mindfulness practices adapted to include Islamic teachings were well-received and led to better mental health outcomes among Pakistani students.

Pakistan needs to embrace cultural attitudes and beliefs when embracing MI and ACT strategies before hoping to get the results we need. Adapting such practices within the local community help in eliminating stigma, enhancing acceptability and overall improve the practices consequently improving the general wellbeing of university student population and the society. Of all the interventions, the mindfulness and acceptance based ones such as ACT (Hayes et al., 2011) have positive outcomes when dealing with university students; Chiefly so in relation to

stressed, anxious and depressed students (Pistorello et al., 2013; Chiodelli et al., 2018; Azevedo & Menezes, 2020). Edwards et al. (2019), Grégoire et al. (2018) and Paliliunas et al. (2018) suggest that these interventions enhance academic participation and personal well-being.

## **2.2 Web based Mindfulness Interventions**

Web-based mindfulness interventions have gone through many changes in the past decade owing to improving technology as well as consideration of mindfulness as an effective modality in enhancing psychological well-being. First, mindfulness practices were offered in the usual face-to-face way. But as the internet and mobile technology came into force, specific formats have been such as mobile applications, online courses and virtual therapy sessions. These include the following digital interventions which have made it easier and convenient for people to undertake the practice at their own preferred times. Two forms of delivery digital mindfulness are known to exist, namely guided mindfulness mobile apps and web-based MBSR and mindfulness courses. In this regard, the apps like Headspace and Calm contain the meditations that the users can follow every day. Online MBSR is a more extended programme that involves use of videos, practice sessions and interactive sessions. Use of goggles and headsets offer the users an environment that has a positive effect on the mindfulness practice through the virtual reality experiences that are calming to users in the program.

Researches involving effectiveness of internet based mindfulness interventions programs around the world have revealed positive outcomes. Studies indicate that these interventions can significantly reduce symptoms of anxiety, depression, and stress. For example, a meta-analysis by Spijkerman et al. (2016) found that online mindfulness interventions had moderate to large effects on reducing psychological distress. Similarly, a study by Khoury et al. (2013) reported

that online mindfulness programs were as effective as face-to-face interventions in improving mental health outcomes.

A literature search indicates that web-based mindfulness interventions have been implemented many a times across the world with implementing positive impacts on mental health. For instance, an experimental research conducted in the United States involved an assessment of online mindfulness programme that was conducted with the aim of resolving stress among healthcare workers. The study evidenced a marked reduction in perceived stress and a general health enhancement among the participants (Powell et al., 2020). In the similar study carried out in Australia with university students, those, who completed an online mindfulness course, had lesser anxiety and depression, higher mindfulness and life satisfaction (Mak et al., 2018). In Europe, a study done in the Netherlands used a randomised control trial to examine effect of having a web-based mindfulness programme for adults with chronic pain. A decrease in pain intensity, better control of emotions was also reported by the participants; this confirms the ability of digital mindfulness programs to manage chronic diseases (Peters et al., 2017). Experience of other developing countries suggests that cultural adaptation and provision of cripples friendly facilities are crucial. Recently in India, a culturally appropriate online mindfulness programme was used to show that stress and mental health of college students could be improved through the internet (Reddy et al., 2021). This study made it clear that use of culturally appropriate materials is important to modify the reception and outcomes. While, in Brazil, an online mindfulness intervention for low-income students also reveal effective reduction in their level of stress and anxiety. The program was developed to be responsive to the mobile interfaces and so the reach to the student population that would not own computers would be improved (Campos et al., 2019). This approach was good for pointing on the need to take into

account the accessibility of technologies when it comes to developing digital mindfulness based interventions.

In case of Pakistan, very few studies have been conducted specially regarding web based mindfulness interventions. However, researches carried earlier show promising results. In a Cross-sectional study by Anjum et al. (2019), they sought to establish the effect of an online mindfulness program in Pakistani University students. The results indicated significant reductions in stress and anxiety levels among participants. This study highlights the potential of digital mindfulness interventions to address mental health challenges in Pakistan's unique socio-cultural environment. Mental health Web-based mindfulness interventions are a realizable solution in enhancing the wellbeing of the population and university students in Pakistan. The following interventions are used in case there is stigma or lack of access to mental health services. Therefore, by allowing customization of programs in regard to period and culture to the context of the students, they can easily address the needs of the Pakistani students in the institutions. Future research and culture specific modifications of these interventions will therefore be essential in order to optimise their impact and enhance their functionality in the long run.

Another helpful framework which has been deployed also aligned to the online environment is Acceptance and Commitment Therapy (ACT). It is for this reason that ACT does not concentrate on the notion of ‘‘changing one’s mind’ or even on challenging personal emotions but aims at embracing thoughts and feelings as well as a commitment to behavior that is purposeful and valuable. It has therefore been applied on websites to give users tools that will help them with psychological flexibility, which is part of mental health.



Online ACT interventions are based on computerised, multimedia interventions including ACT modules, videos, and exercises on mindfulness, acceptance, and valued living. Such programs normally comprise features such as acceptance plans, cognitive re-arrangement tools, and mindfulness, to mention but a few, which are normally but not restricted to the minimization of experiential avoidance and enhancement of an existence. Research supports the effectiveness of online ACT interventions in various populations. For instance, Levin, Haeger, and Pierce (2017) showed that participating in an online ACT program would help the participants to undergo changes in their mental health for the better, including reduction of depression and anxiety, and improved quality of life. In the same way, an online ACT intervention study carried out by Brown et al. showed that there were positive changes to psychological inflexibility and wellbeing among university learners.

In Pakistan the implementation of ACT for online platforms is a potential area for helping the university students with the issue of their mental health. Engagement of web-based and/or self-administered intervention offer advantages due to the issues of stigma as well as limited accessibility of traditional mental health services.

A culturally adapted online ACT program often includes culturally appropriate examples and plausible situations which are easy to understand for the Pakistani students. Some initial support exists for the use of ACT in Pakistan. A recent quantitative pilot study by Rizvi and colleagues examined the effectiveness of an online ACT program for students in Pakistan. The study highlighted values such as reduction in stress and increase in psychological flexibility meaning that there is an opportunity for more internet based ACT intercessions in Pakistan. The following global case studies and examples serve as useful lessons for the procedure of deliverance of web based mindfulness interventions in Pakistan. Evidence of positive outcome of

such programs in various contexts points to the fact that similar impact benefits can be obtained for similar programs if culture is taken into consideration and national technological support acknowledged. The above evidence gives credit to the favourable possibility of web-based mindfulness interventions to positively enhance mental wellbeing among the university students in Pakistan and overall better health results for the community.

The willingness of mental health professionals to use ACT and modify their approach to better accommodate complex patient backgrounds meanwhile requires additional research as to improve those programs. Future work therefore should enhance these interventions, evaluate their sustainability and determine how these inventions can be incorporated and implemented within the structures of comprehensive behavioral health in the universities of Pakistan. Due to this, utilizing the principles of ACT through internet-based technology opens up the provision of adequate, viable, and accessible mental health support to the university students, and thus increase their overall psychological wellbeing.

### **2.3 Mindfulness and Acceptance and Commitment Therapy**

Mindfulness has been identified as one of the core processes in ACT – short for Acceptance and Commitment Therapy. In ACT, mindfulness is thought of as a mental process that is attained when a person brings his or her awareness to the present moment and without judgment and also accepts feelings, thoughts, and sensations. This practice is consonant with ACT's principles such as the 'being present' framework where people are advised to work through their present experiences without trying to avoid or deny them. (Hayes, Strosahl, & Wilson, 2012).

Mindfulness practice is thus a useful addition to ACT because it promotes this type of psychological flexibility, staying open to the presence of bad thoughts and feelings, and choosing

to move in accord with personal values, even if they are painful. In ACT techniques for meeting the patient's aim there are exercises which help the patient to notice and accept what is at the present moment, which helps to minimize the effects of thought or emotive processes. The approach is useful in disabling one's critical attitude toward their own states and accepting them as they are, thus aiding in each of the biological, emotional, and cognitive components of regulation (Harris, 2009).

Mindfulness is related in some way with a number of ACT's basic concepts. According to the tenets of ACT, 'acceptance' entails a client's willingness to experience thoughts and feelings without the purpose of trying to alter them or even escape them. Mindfulness enables this process by making people establish ways to notice their experiences without criticizing them. Likewise, the ACT concept of "cognitive defusion" can refer to changing the manner in which a client relates to or perhaps even responds to thoughts as a distinct process from reality. Mindfulness practices assist in establishing this psychological space so as to cushion oneself from the effects of negative cognitions (Hayes et al., 2012).

Mindfulness also supports the principle of "self as context", as does the entire framework of ACT. It refers to people viewing themselves as the environment in which their thoughts and feelings take place not referring to them. Techniques like the acts of formal and informal meditation as well as the method of mindful watching of the thoughts encourage this style of thinking, thus enabling the individuals treat their thoughts and moods as mental events instead of personal flaws – outcomes in improved self-acceptance and emotional versatility (Ciarrochi & Bailey, 2008). Mindfulness integrated with ACT principles improves the general outcome of the therapy. The integration enables the evaluation and the treatment of mental health from a perspective which encompasses not just the alleviation of the symptoms, but also the

improvement of overall quality of life through the achievement of acceptance. Research indicates that mindfulness-based ACT interventions can lead to significant improvements in mental health outcomes, including reductions in anxiety, depression, and stress, as well as increased life satisfaction and psychological flexibility (A-Tjak et al., 2015).

Mindfulness based programs that have been implemented on the internet and specifically those based on ACT prove to have had such effects on different samples. These programs utilize Web-based platforms to provide organized mindfulness and ACT interventions that people can extend. Levin, Haeger, and Pierce (2017) showed that an online mindfulness program based on ACT approaches led to enhanced mental health among college learners, decreased anxiety and depression levels excluded. An advantage of using online platforms is that the material can be accessed wherever and whenever and with no specific time limit and this enhances the ability of the target group to adhere to the material presented.

In the same regard, a randomized method was used by Fledderus et al. (2012) in the study of efficacy of an ACT-based internet intervention used for adults who have depressive symptoms. The outcomes revealed a decrease in average scores of depressive symptoms and the increase of psychological flexibility. The study pointed out that ACT-based mindfulness interventions accessed through the internet can get to those people who may not access traditional forms of psychiatric treatment.

The combination of mindfulness and ACT in online interventions also solves such practical issues as stigma and availability. Online programs can be especially effective because they offer a discreet and convenient means of interaction with the mental health practices, which are frequently causes people to hold back. This is especially useful given that (as discussed earlier) there is a high prevalence of mental health issues in many developing countries and

mental health problems are socially taboo. In ACT, mindfulness is helpful in facilitating the acceptance, cognitive distancing and awareness props. Mindfulness as applied to the ACT model strengthens the therapy process and serves as an additional dimension of the therapy approach to mental health. Several studies have revealed positive effects of mindfulness programs derived from ACT for assisting large populations to attain mental health effectively. New studies can be made about these programs in order to enhance the ability of making them more effective for the different categories of people who need its support.

#### **2.4 Theoretical Framework; Acceptance and Commitment Therapy (ACT)**

ACT is an elaboration of the cognitive behavioral theory which stemmed from the dissatisfaction with traditional CBT. Founded by Steven C. Hayes in the late of 1980s ACT was derived from the theory of Relational Frame Theory (RFT), which is a behavior analytical account of human language and cognition. RFT presupposes that the capacity to respond to stimuli in terms of other stimuli underlies such human behaviour as belief formation and suffering, for instance.

ACT was therefore designed in response to address different weaknesses that Hayes observed with the conventional CBT which focused so much on the changing of thoughts' content. Hayes and his colleagues claimed that the effort of using the mechanism of trying as well as the effort to suppress or eliminate the thoughts and feelings often exacerbates psychological distress. ACT does not focus on altering or eliminating such thoughts and feelings, but on the acceptance of them and on valuing and behaving in accordance with specific actions considered valuable by the individual, thus facilitating psychological flexibility (Hayes et al., 2012). ACT has been inspired by contextual behavioral science which strongly maintains that behavior has to be understood in relation to context. This is in line with the functional

contextualism where psychological events are seen as functional acts which are actually in progress and which cannot be isolated from their historical and situational antecedent (Hayes, 2004).

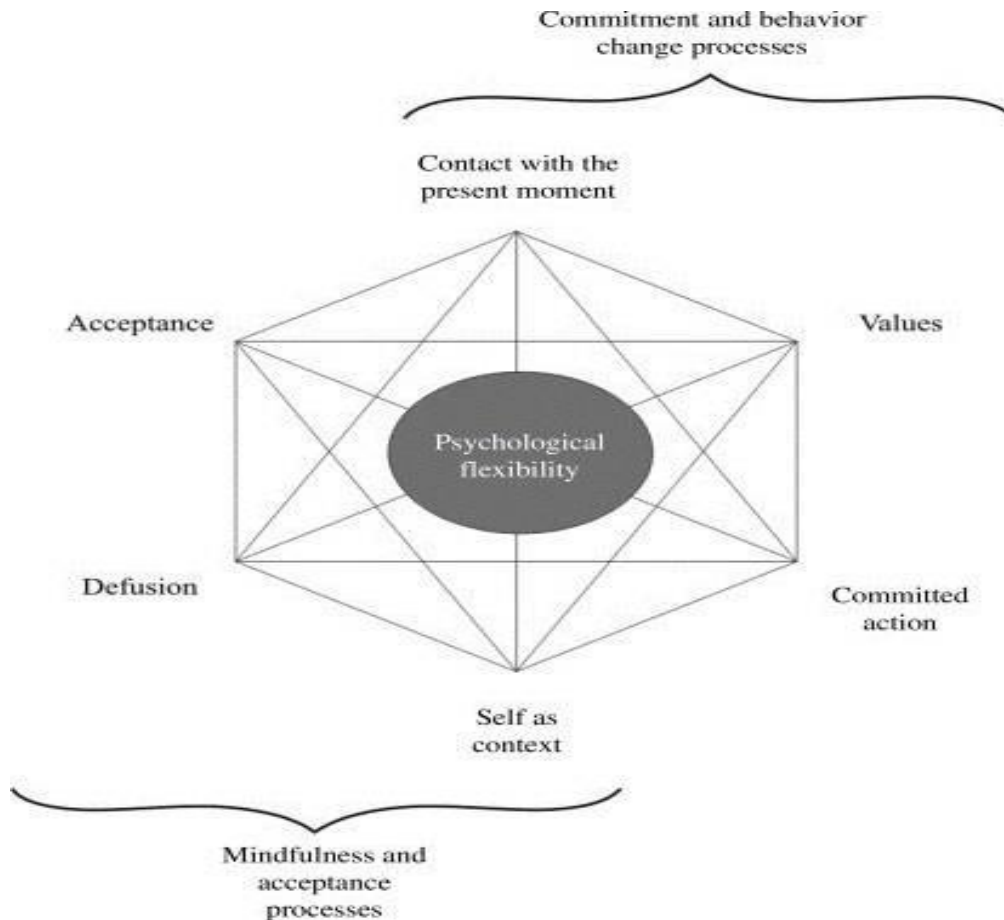
ACT integrates six core processes to enhance psychological flexibility: These include: acceptance, cognitive defusion, self- as-context, present moment, values, and committed action. These processes are mutual and cooperate in order to let the person accept thoughts and feelings without subsequent dubitation and to participate in the crucial activities even when there are such experiences (Harris, 2009).

ACT is based on Relational Frame Theory (RFT), which supports most of the interventions used in the approach. RFT postulates that due to the human ability of language and cognition one can frame experience relationally and as a result become psychologically inflexible when one identifies with the content of the respective thoughts. ACT techniques such as mindfulness and cognitive defusion aim to disrupt these rigid patterns by helping individuals see their thoughts as transient and context-dependent rather than as absolute truths (Levin, Hildebrandt, Lillis, & Hayes, 2012).

Amid developmental years, ACT has received considerable empirical sanction. Research has revealed its usefulness in each one of the mentioned psychological disorders as a well as some other disorders like anxiety, depression and chronic pain amongst others. ACT has been compared to other evidence-based therapies such as CBT both in the present meta-analysis and in other meta-analyses (A-Tjak et al., 2015; Powers, Zum Vorde Sive Vording, & Emmelkamp, 2009) and was shown to be effective.

ACT can therefore be described as a new therapeutic paradigm of therapy, since it goes beyond an exclusive concentration on the reduction of symptoms to include an improvement of the person's quality of life as well as his level of psychological functioning. Magnifying acceptance and commitment leads to clients' experience of the presence, open-hearted living and clients' defused values and chosen life goals (Hayes, Strosahl, & Wilson, 2012).

ACT is a contemporary form of psychotherapy based on acceptance and values, applied mindfulness, and committed action. ACT is another approach that was initiated in the 1980s by Steven C Hayes and forms a form of CBT but does not aim in modifying the content of the cognition but rather the process that patients have with their thoughts and emotions (Hayes et al., 2012).



*Fig 2: The facets of psychological flexibility according to model of change underlying ACT*

*(Steven C Hayes, 2004)*

One of the central tenets of ACT is psychological flexibility, which is the ability to remain in contact with the present moment and adjust or persist in behavior based on what the situation affords, aligned with one's values. Psychological flexibility is cultivated through six core processes that make up the hexaflex model of ACT: cognitive defusion, acceptance, contact with the present moment, self-as-context, values, and committed action (Harris, 2009).

**Cognitive Defusion:** Cognitive defusion is the process of altering the way individuals relate to their thoughts to reduce their impact and influence. Instead of getting entangled with thoughts, individuals learn to perceive them as mere events in the mind, thereby diminishing their power.



Techniques for cognitive defusion include observing thoughts as passing clouds or leaves on a stream, or repeating a troubling thought in a silly voice until it loses its meaning (Levin et al., 2012). This practice helps individuals recognize that thoughts are not facts and can be experienced without necessarily being acted upon.

**Acceptance:** Acceptance, another core process, involves allowing unwanted thoughts and feelings to exist without trying to avoid or suppress them. Acceptance is an active process that entails embracing one's inner experiences with openness and willingness. This can be facilitated through mindfulness exercises, self-compassion practices, and experiential activities that encourage individuals to confront and stay with difficult emotions rather than fleeing from them (Hayes, Strosahl, & Wilson, 2012). By learning to accept their internal experiences, individuals can reduce the struggle against them and redirect their energy towards meaningful actions.

**Being Present:** Contact with the present moment is the practice of staying aware of and engaged in the here and now. Mindfulness exercises play a crucial role in this process, helping individuals to observe their thoughts, feelings, and surroundings without judgment. This practice helps prevent the mind from becoming preoccupied with past regrets or future anxieties, allowing individuals to respond more effectively to their current circumstances (Harris, 2009).

**Self-as-Context:** Self-as-context refers to the concept of viewing oneself as the observer of thoughts and feelings, rather than identifying with them. This perspective fosters a sense of self that is separate from the content of one's experiences, which can reduce the impact of negative self-judgments and foster greater psychological resilience. Techniques for cultivating self-as-context include perspective-taking exercises and mindfulness practices that highlight the distinction between the observing self and the observed experiences (Hayes, Strosahl, & Wilson, 2012).

**Values:** Values in ACT are the qualities that one wishes to embody and the principles that guide behavior. Identifying and clarifying values is crucial because it provides direction and motivation for action. Values are not goals to be achieved but ongoing processes that reflect what is most important to the individual. In therapy, clients are encouraged to explore and articulate their values, which then serve as a compass for their actions (Wilson & Murrell, 2004).

**Committed Action:** Committed action involves taking concrete steps guided by one's values, even in the face of obstacles. It is about translating values into actionable behaviors. This aspect of ACT emphasizes goal-setting and behavioral activation, encouraging individuals to make and keep commitments to act in ways that are consistent with their values. Therapists often work with clients to set specific, manageable goals and develop strategies for overcoming barriers to action (Harris, 2009).

By integrating these six core processes, ACT helps individuals develop greater psychological flexibility, which is associated with improved mental health and well-being. Numerous studies have demonstrated the efficacy of ACT across a variety of populations and settings, showing its effectiveness in treating conditions such as anxiety, depression, chronic pain, and substance use disorders (A-Tjak et al., 2015; Powers, Zum Vorde Sive Vording, & Emmelkamp, 2009). The approach's emphasis on acceptance and mindfulness, combined with a focus on values and committed action, makes it a robust framework for promoting psychological well-being.

## **2.5 ACT for University Students**

Universities particularly provide a unique and effective means of delivering mental health promotion through different channels to reach out to students and to provide them with effective tools that modify their negative perceptions towards mental health care and enhance

their mental health (Block-lerner & Cardaciotto, 2016; Eisenberg et al., 2012; Hunt & Eisenberg, 2010). ACT has also been given to college and university students for the past few years. Because ACT-based therapies are transdiagnostic, can be flexibly delivered, and take context into account, they may indeed be ideal for this population and the environment (Hayes et al., 2013).

University students are frequently seen with more emergent problems, and sometimes more severe ones, which means that brief, time-limited therapy is the only viable approach if it is to be effective at all (Boone & Canicci, 2013). In our view, ACT can be delivered in groups to a wider range of learner with learning needs and targets core processes in psychological disorders (Boone & Canicci, 2013). As noted by Block-Lerner et al. (2017) acceptance based therapies focus on choice, active consent, and that interventions offered are described in a fashion that gives the participants volition in how they engage. Based on the study by Pistorello et al., (2013), ACT empowers university students through promoting self-reflection eliminating stigma, and avoiding mental health disorders. In more detail, course-based interventions can make a valuable contribution to increasing students 'ACT use awareness and its compliance, steps of which might be partially filled (Pistorello et al., 2013; Mullen et al., 2021).

ACT has been successfully adapted for college students several times. Using a sample of students who were randomly allocated to an acceptance based behavioural therapy ABBT workshop at first year that was incorporated into a first year experience course or a first year experience course as usual, the authors noted that the rate of decrease in depressive symptoms for the group receiving the ABBT was higher than the control condition sample over the course of the semester (Danitz et al., 2016). In another ACT intervention delivered through a first-year seminar, Pistorello et al. (2016) showed that ACT was safe, effective, and perceivably helpful for

students. While students' psychological flexibility did not improve as much as the authors expected, their other assets in terms of values for relationships and education did. Students clearly understood the concepts of acceptance and willingness and found the breathing supplied a lot of help. Undergraduate students in psychology took mindfulness and acceptance-based workshops from Barrasso-Catanzaro (2015) who noted that the course was engaging and well-received by the students as a creative way of introducing them to these procedures which also enhanced the accessibility and perceptions of mental health treatments.

In a recently published RCT by Mullen et al. (2021) it was investigated whether three one-session workshops (ACT, ACT+yoga, and teaching as usual) have beneficial effects. They reported that there were no alterations in psychological unwellness; however, they established a significant reduction in psychological rigidity. It is for this reason that course-embedded interventions help to meet the realization that students consider course based acceptance interventions as effective, acceptable, helpful and useful. They also equip students with skills and instruments for responding to them and for participating and value in a conceptually accessible manner and in a way that honors the self-authorship students bring into the classroom (Mullen et al., 2021). According to Levin, Haeger, Pierce and Twohig (2016) such settings make Postsecondary ACT applicable because it is transdiagnostic. Although some of them may suffer from specific mental health disorders, most of them address ordinary issues (stress, relationship issues, discrimination, etc.) Instead, most students are diagnosed with non-specified disorders as they address ordinary issues. Levin et al., (2016) opine that ACT can assist students in developing more psychological flexibility and may be useful in a range of psychological problems that students experience being in college and universities.

Computerized ACT was employed in postsecondary contexts in some instances, specifically ACT on the web. For example, the American college students received a 4-week online intervention by Levin et al. (2016). Malady and colleagues' randomised controlled trial distinguished that the ACT intervention for participants resulted in overall distress, depression, social anxiety, general anxiety, academic concerns, and post-intervention positive mental health more positive than the waitlist group. Räsänen et al. (2016) made use of a randomised controlled trial in order to evaluate the impact of a 7-week online intervention offered to university students in Finland. Relative to the students in the wait-list control condition, the participants in the intervention reported lesser amount of stress and depressive symptoms, and higher amounts of life satisfaction and well-being. It is pertinent to note that all these advantages are equally experienced during the observation period of the tires for one year. A 4-week intervention was made available to university students enrolled in three distinct Canadian universities by Grégoire et al. (2016). The intervention was evaluated using a pretest-posttest switching-replication design, which revealed that it improved students' psychological flexibility and mental health.

Several works have been devoted to the question concerning the efficiency of ACT interventions on the example of university students' well-being and academic achievements. ACT because of its continued focus on psychological flexibility and values based behaviours appear to be a viable approach to addressing the complexity of students' situation in higher learning institutions (Levin et al., 2012). The ACT-based intervention studied by Levin et al. (2012) found that students of a university who completed the intervention showed improvements in the psychological well-being, where there were reduces stress, anxiety, and depressive symptoms. Furthermore, students had higher level of academic activity and satisfaction with the university environment, thus, underlining the possibility of ACT positive influence on students'

everyday functioning and studying outcomes. In the same regard, a meta-analysis carried out by A-Tjak et al. (2015) practiced additional support for ACT intercessions in the university context. They study established that ACT based interventions have moderate to large effect size for mental health concerns of college students. Furthermore, effectiveness of the ACT interventions in the improvement of self-regulation was evidenced and it can be considered that ACT has the potential to play a role in supporting student success in the academic environment.

Additionally, research done on the ability of ACT in tackling issues of concern among university learners have been promising. For example, Hayes et al (2011) have investigated an ACT intervention designed for procrastination and academic functionality and revealed that the participants in the study noted significant changes in procrastination behaviours and academic performance. In the same vein, the research emphasizing on stress reduction and on the building of personal resources in students following ACT based interventions has pointed to the existence of positive consequences in terms of the students' quality of life and coping skills (Levin et al., 2014).

## **2.6 Wellbeing of University Students**

The concept of well-being is difficult to define due to the fact that it relates to all aspects of people's lives, can hardly be given in a nutshell. It comprises the physical, psychological, emotional, as well as the academic aspects with focus on university students. Well-being is not only about the absence of illness but also involves a positive state of flourishing and thriving in different areas of life.

In general terms, well-being can be categorized into subjective and objective dimensions. Subjective well-being refers to how people experience the quality of their lives and includes emotional reactions and cognitive judgments. This aspect of well-being is often linked to the

hedonic approach, which focuses on happiness and pleasure attainment, and the absence of pain (Diener, Suh, Lucas, & Smith, 1999). Hedonic well-being is typically measured by life satisfaction, the presence of positive affect, and the absence of negative affect (Kahneman, Diener, & Schwarz, 1999).

On the other hand, objective well-being includes indicators that are observable and measurable, such as income, education, and health status. These factors contribute to a person's overall quality of life but do not necessarily capture the individual's internal experience or satisfaction with life (Stiglitz, Sen, & Fitoussi, 2009). Another important distinction in well-being research is between hedonic and eudaimonic well-being. While hedonic well-being is about pleasure and happiness, eudaimonic well-being is concerned with living in accordance with one's true self and achieving personal growth and fulfillment. Eudaimonic well-being involves the realization of one's potential, self-acceptance, personal growth, purpose in life, and autonomy (Ryan & Deci, 2001; Ryff & Keyes, 1995). This type of well-being is often linked to activities that promote long-term fulfillment and meaningfulness rather than immediate pleasure (Huta & Ryan, 2010).

The World Health Organization (WHO) defines well-being as a state in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community (WHO, 2001). This holistic definition emphasizes the broad scope of well-being, encompassing both mental and physical health as well as social functioning. When focusing on university students, well-being encompasses academic well-being, which includes students' satisfaction with their educational experience, their engagement and motivation, and their academic achievements. Psychological and emotional well-being in students is influenced by factors such as stress

management, mental health, and social support systems. Physical well-being, which involves maintaining a healthy lifestyle through proper diet, exercise, and sleep, also plays a crucial role in students' overall well-being (Conley, Durlak, & Kirsch, 2015).

There is a wide range of variables that predict wellbeing which include social support, resilience, and coping strategies. In the context of this research, which involves Acceptance and commitment therapy (ACT), the predictors of improved wellbeing would be mindfulness, psychological flexibility and quality of life. ACT aims at improving one's psychological flexibility which is the ability to take guided actions that are based on personal values while experiencing contact with the present moment even in the face of unpleasant thoughts and feelings (Hayes et al., 2006). One of the core component of ACT is mindfulness, which involves focusing on one's thoughts or feelings without judgement about them and it has been associated with numerous benefits such as decreased stress, better mental health, and improved wellbeing (Keng et al., 2011). Quality of life is the third important predictor of wellbeing which involves individual's subjective evaluation of their place in the life in relation to the culture and value system, physical health, mental health, degree of freedom, social relationships, personal belief, and their access to important aspects of physical environment (WHOQOL Group, 1998).

Studies have shown that mindfulness, quality of life and academic performance have a positive effect on the wellbeing of university students. Practices that help people learn how to focus their attention to the present moment and avoid makes decisions have been identified to boost the cognitive functioning, decrease stress, and enhance emotional regulation. These benefits help with academic achievement and overall wellbeing (Frontiers, 2023). Schonert-Reichl et al. (2015) observed that in an elementary school mindfulness practices boosted the working memory and the executive memory by a big margin. Similarly, meta-analysis conducted



by May et al. (2014) showed that Mindfulness based therapies improved academic performance indicating that these practices can improve cognitive abilities for functioning in school.

Mindfulness has also been associated with improved mental health as regular practice of mindfulness exercises increases positive thinking and reduces negative thoughts. *Frontiers* (2023) revealed that mindfulness interventions had a significant impact in reducing stress, anxiety and depression among university students. This review involved 21 studies, 19 of which demonstrated significant positive effects on students' mental health. These improvements in mental health are vital to the life of students when they are experiencing high levels of academic stress, ultimately supporting their overall wellbeing.

Quality of life which includes physical, psychological and social dimensions is another important factor in wellbeing. Research also indicates that mindfulness leads to the improvement in quality of life by promoting one's emotional regulation and reducing psychological distress. For instance, Mindfulness Based Stress Reduction (MBSR) programs have been found to improve quality of life and social functioning (Oxford Academic, 2023). Academic achievement is not limited to grades, it also includes students' motivation, engagement and satisfaction with their educational experience. A study published in *BMC Psychology* (2023) found that mindfulness predicts academic outcomes like enjoyment of learning and effective study strategies. This means that students who regularly practice mindfulness are more likely to engage positively with their academic work and perform better overall. Studies have also proved that mindfulness, psychological flexibility and quality of life are important predictors of wellbeing specially in students' population. Several researches have explored that how these factors contribute to improved wellbeing. Academic success and general life satisfaction. Non-judgmental awareness of the present moment i.e. practice of mindfulness has been associated

with many positive outcomes. For example, a systematic study published in *Frontiers* (2023) found that mindfulness based interventions improved university students' general mental health by significantly reducing stress, anxiety and depression.

Smith et al. (2023) have also conducted research with the participants who went through a mindfulness-based positive psychology intervention and identified significant increases in eudaimonic and hedonic well-being, stress decrease and overall life satisfaction. These results demonstrate how mindfulness practices can improve a variety of aspects of quality of life including a sense of purpose and fulfilment. One of the core concept of Acceptance and Commitment Therapy ACT is psychological flexibility, which is the ability to remain in the present moment and adapt behaviour in accordance with one's personal values. Research has indicated that Psychological flexibility is a strong predictor of wellbeing. For instance, research by *Frontiers* in 2021 found out that psychological flexibility and self-compassion positively correlated with the well-being. This paper revealed that psychological flexibility is an effective way through which one can deal effectively with stress and maintain a coping perspective to life hence boosting his or her psychological well-being.

It was found that psychological flexibility and mindfulness played critical roles in reducing stress and enhancing psychosomatic functioning during COVID-19 pandemic. According to a study published in *International Journal of Environmental Research and Public Health* (2020) psychological flexibility improved psychosomatic health which in turn improved general wellbeing while mindfulness had a direct negative impact on anxiety levels. The goal of this research is to improve university students' mindfulness, psychological flexibility and quality of life thereby improving their overall wellbeing by using ACT-based intervention. In order to enhance students' wellbeing and enable them to manage the pressures of academic life more

skillfully, ACT places a strong emphasis on accepting internal experiences and committing to value driven behaviors.

## **2.7 Psychological Flexibility and Wellbeing**

Research has indicated that psychological flexibility is a strong factor that tends to influence quality of life in the general population and students. Staying in the present moment and adjusting behaviours according to one's personal values despite challenging thoughts and feelings i.e psychological flexibility plays critical role in enhancing overall wellbeing contributing to increase well-being.

Cross-sectional research with the general population has also revealed the benefits of accepting, endorsing, or being receptive to or open to experiences. Similarly, Kashdan and Rottenberg (2010) also noted that individuals showing higher level of psychological flexibility had lower level of anxiety and depression and more life satisfaction and emotional well-being. The study also highlighted that stress tolerance involves elements of psychological flexibility that ensures proper coping with challenges in daily life thus improving an individual's quality of life.

Additionally, Ruiz and Odriozola-González (2017) also showed in their study published in "Behavior Research and Therapy" that psychological flexibility leads to a decrease in job burnout, and also contributes to better mental health of an employee. The findings that were presented in the case showed that increased levels of psychological flexibility are associated with improved ability to cope with job-related stress and result in healthier psychological state and increased job satisfaction.

In the context of students, psychological flexibility has also been shown to be a critical factor in promoting well-being. For instance, Levin et al. (2014) observed that college students who experienced higher level of psychological flexibility had low stress and anxiety levels, high performance and life satisfaction in a study published in “Learning and Individual Differences”. Implications of the study arose from the fact that interventions that enhance psychological flexibility could potentially assist students to deal with academic demands and enhance psychological well-being. Also a study done by Ciarrochi et al. (2011) showed that the variable of psychological flexibility provided the link between mindfulness and the levels of well-being among students. This research showed that mindfulness and psychological flexibility leads to improved level of emotional well-being, reduced level of psychological distress, as well as enhanced academic performance among them.

. Overall, it can be clearly seen that psychological flexibility plays a crucial role in improving one’s wellbeing. This means that, through promoting psychological flexibility, one is able to address their distress, manage stress and have high levels of subjective well-being. Interventions such as ACT which is centered on the enhancement of psychological flexibility has been found effective in enhancing health wellness, and general well-being of societies and students. Previous research has suggested that psychological flexibility is also related to the overall quality of life, performance and job satisfaction (Bond et al., 2013; Hayes, 2019; Hayes et al., 2006). Hayes et al (2006) defined psychological flexibility as an ability to experience the present moment more fully as a human being and the ability to alter or maintain the current behavior when doing so serves valued ends.

Numerous studies have however established the correlation between psychological flexibility and a variety of aspects of students’ well-being. For instance, it has been revealed that

psychological flexibility is negatively related to psychological distress, fears and symptoms of depression among university students (Biglan et al., 2015; Gloster et al., 2017). Furthermore, psychological flexibility has shown an association with promoting resilience and coping level in students so that they are able to meet their academics demands and also have sound mental health in case of facing adverse situation (Miles et al., 2019).

Psychological flexibility is a crucial component in promoting well-being, particularly in the context of organized learning environments such as universities. Psychological flexibility, as defined by Acceptance and Commitment Therapy (ACT), is the ability to fully encounter an experience without unnecessary defense and, depending on the context, persist or change behavior in the pursuit of goals and values (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). These things are very important for a student who will experience various academic, social, as well as personal obstacles in their educational journey. In the setting of organized learning, psychological flexibility allows students to navigate stressors more effectively.

Students with higher levels of psychological flexibility cope with stress coming from examinations, assignments, and social dynamics. They can maintain their long term goals and values regardless the challenges they encounter. The capacity to remain engaged and committed to one's goals even when faced with negative stimuli makes a unique positive impact to performance and well-being (Bond et al., 2011).

Another study has proven that psychological flexibility has been found to relate with several facets of psychological wellbeing, self-acceptance, life satisfaction, minimized stress, and depressive symptoms. For instance, Kashdan and Rottenberg (2010) discovered that higher psychological flexibility was related to better handling of emotions hence facilitate timely management of academic and social demands prevalent within university learners. Due to this

regulation, students are able to develop an enhanced perception when handling various problems which results into better problem solving and reduced emotional disturbance. Besides its impact on mental health, psychological flexibility also enhances learning processes.

Flexible students are the ones to exhibit effective learning strategies such as problem solving approach, getting feedback and modifying study habits based on performance outcomes. This ability to know and change learning methodologies is crucial in higher education since the students are expected to gather and apply complex information (Biglan, Hayes & Pistorello, 2008).

Organized educational settings can promote psychological flexibility through program content that supports such processes as self-reflection, mindfulness and valued living. ACT concepts can be implemented during the development of educational programs to enable students to actively accept their thoughts and feelings as well as embrace behaviours that are in line with personal values and academic aspirations. For example, incorporating mindfulness exercise into class assignments will promote students' accepting attitudes towards their present experience thus improving focus and reducing test anxiety (Levin et al., 2017). In addition, environment that values open dialogue and sharing of emotions will facilitate psychological flexibility. If the students are allowed to come out with what they have to deal with and be encouraged to find out that there are ways they are being taught how to cope with it positively, then the chances of gaining some level of resilience in students will be high. Such supportive environment can be provided through the form of mentorship, peer support as well as counseling services based on ACT principles (Masuda et al., 2011).

Thus, the inclusion of the aspect of psychological flexibility as part of the organizational learning does not only serve the purpose of fostering the overall wellness of the learner but also

plays a factor in creating a healthy educational culture. Students who exhibit high levels of psychological flexibility to change the world positively ensure that they help their peers learn by adopting the right models of behaviors hence making the environment more appropriate for the learning process. This collective resilience can create more supportive and collaborative academic community further promoting wellbeing and academic success. In general, fostering psychological flexibility in learning contexts is one of the most effective strategy that improves well-being of learners. Hence, if students are taught how to manage their thoughts and emotions for better productivity, it can support their academic and personal development thus leading to more resilient and successful individuals.

Moreover, the psychological flexibility has been found out to be very important in the academic achievement and performance of the university students. Villatte et al. (2016) found out that students with high degree of psychological flexibility was more engaged, motivated, and persistent on their academic work. Further, Psychological flexibility has been correlated with learning ability, problem solving skills and goal accomplishment aspects that have a positive influence on student achievement (Kashdan & Rottenberg, 2010; Hayes, Bris, Lester-Kone, & Gifford, 2012). Most importantly, the kind of interventions that focus on increasing the psychological flexibility like ACT have been effective in positively responding to students' well-being and academic performance. Through acceptance, mindfulness and values based action ACT intervention assists students in attaining increased psychological flexibility and therefore resilience in academic challenges (Levin et al., 2012; Levin, Haeger, & Pierce, 2017). Furthermore, the ACT interventions help student to identify values, set valuable goals and take purposeful actions that reflect the identified values and, as a result, the program enhances purpose and experiential satisfaction in academic endeavours (Gloster et al. , 2017).

Acceptance is one of the main processes of ACT and entails the non-judgmental and verbal passivity to personal experiences such as thoughts, feelings and physical feelings without the purpose of changing or controlling them (Hayes et al., 2006). According to Hayes et al., (2006), research has indicated that embracing acceptance reduces a number of mental health issues and increased emotional well-being of students. Students are then able to learn how to accept uncomfortable thoughts and feelings which leads to a decrease in reactivity to stressors thus promoting psychological flexibility which would be important in coping with the demands that come with the university (Gillanders et al., 2014).

A second central feature of ACT is mindfulness which in ACT means paying attention to the present moment with openness, interest and accuracy (Kabat-Zinn, 2003). The application of mindfulness practices has been found to improve self-identity, self-control and executive control abilities of the students (Hofmann et al., 2010). This way mindfulness skills can be taught and practiced in order to enhance students' awareness of their internal processes and produce effective problem-solving related to academic setting (Shapiro et al., 2006).

Another process of ACT is defusion that aims at distancing the clients from their thoughts and understanding them as mere thoughts instead of facts (Hayes et al, 1999). The review of the literature has revealed that defusion techniques can help to decrease the effects of negative thinking patterns and thus enhance cognitive flexibility and skills among students (Masuda et al., 2010). In learning how to defuse from unhelpful thoughts, learners can thus release themselves from the cognitive traps and engage in their academic endeavours effectively (Gaudiano & Herbert, 2006).

Values clarification and committed action help students to determine and chase the core values that can define the students' personal philosophy of life (Hayes et al., 1999). Research has



also shown that goals derived from personal values leads to high motivation, persistence and academic engagement among the students (Lucas et al., 2014). Students are also able to become more fully realised and experience greater well-being in what they are doing in their studies by connecting with their values, and by promising to act in line with what they value; this is beneficial when it comes to academic achievement too (Harris et al., 2006).

In the recent studies it has been found that psychological flexibility has a positive connection with students' engagement and academic advancement (Asikainen, 2018; Asikainen et al., 2018; Salmela-Aro & Read, 2017). In addition, practical telephone-based interventions that focus on the facilitation of psychological flexibility have also been used in student counseling to complement students' wellbeing in higher learning (Howell & Passmore, 2019; Levin et al., 2017; Levin et al., 2020; Räsänen et al., 2016).

## **2.8 Quality of Life**

When referring to psychological research, quality of life (QoL) refers to the ability of an individual to self-assess the quality of his or her life in its psychological, physical, and social dimensions (WHOQOL Group, 1995). This one is achieved operationally through how people think about themselves and their place in life, considering the culture and values which they live by as well as the goals and expectations that they hold, standard-setting, and concerns. This broad and inclusive definition encompasses the different perspectives of the quality of life making the variable a focal point in research seeking to improve the quality of life through psychological interventions.

In the proposed model the construct of quality of life is defining as a multi-dimensional concept. The domains include physical health, psychological state, level of independence, social relationships, personal beliefs, and relationship to important aspects of the environment

(Skevington, Lotfy, & O'Connell, 2004). All of these domains play the role in enhancement of perception of well-being and life satisfaction. Physical health is the lack of diseases and the presence of wellbeing and strength. This is the extent of which the mental health of patients, their feelings, anxiety, pressures, and their brain in general. A sample of this scale includes the degree of independence also known as self-care that encompasses the capacity to accomplish tasks independently and be able to effectively manage one's own affairs. Social contacts reflect the extent and meaningfulness of the contacts as well as the social support resources. Attitudinal characteristics refer to beliefs on spiritual or religion as well as their effect on satisfaction with life. Last but not least, the environmental factors that comprise risks, housing, financial capacity, and opportunity to access services.

The findings from prior studies have indicated that mental health is closely related with the quality of life of individuals. Mental health problems affect life quality in a negative way and are reported to be of a lower quality as compared to people with no issues (Rapaport et al., 2005). That is why mental health interventions will always help in raising the quality of life on the subject. One of the indicated interventions is Acceptance and Commitment Therapy ACT, which has an influence of an increase in the quality of life in terms of improved psychological flexibility and mindfulness. According to Hayes et al. (2006), Psychological Flexibility is the amount of openness and willingness that an individual has in regards to his or her thoughts and feelings in a given activity as he or she pursues values-based actions. The positive changes that result from this flexibility help to avoid or lessen the negative effects of the stressors of life, respond to the needs of the human being, and develop interests that improve an individual's quality of life. The other feature of ACT is mindfulness which entails purposeful non-judgmental

awareness in the present moment of thoughts, feelings, body sensations and the physical environment (Kabat-Zinn, 1994).

In simple terms, mindfulness practices assist people to 'let go' from ordinary routines of responses to situations and develop new more purposeful, and conscious behaviours that are congruent with the individual's values and aspirations. ACT has been found to enhance quality of life in different clients irrespective of their ages, gender or the health condition they are facing. For instance, Bohlmeijer et al (2011) supported by their study that patients that underwent ACT experience enhanced quality of life, psychological wellbeing and decrease in the rates of depression and anxiety. Also, Ruiz (2012) meta-analysis revealed that ACT-based interventions result in improvement of quality of life and wellbeing in clinical and non-clinical adult samples.

Given the fact that most university students experience huge pressure and the resulting mental health problems, the general quality of life is likely to be improved by the application of ACT. There are various stressors inherent to the new university student's life such as, academic related stress, stress arising from social changes, and stress of attaining personal identity (Arnett, 2000). Since ACT enhances psychological flexibility of the students and learner's mindfulness, manage stressors hence enhance the quality of their psychological well-being and overall quality of life. Levin, Pistorello, Seeley, and Hayes (2015) evidenced a promising outcome of an ACT based intervention, as it enhanced the quality of college students' lives, and decreased psychological impairment. Thus, the use of ACT as a component in interventions targeting university students may help improve the quality of life in these people drastically. This improvement in quality of life should aid well-being and enable student to do well academically as well as in other aspects of their lives.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 Research Design**

The current quantitative research study comprised of two phases.

In the first phase a web based mindfulness intervention was developed which combined six core components of Acceptance and Commitment Therapy (ACT) alongside mindfulness and breathing exercises. The intervention was developed by the primary researcher with the help and guidance of the supervisor who is an intervention expert, a PhD candidate with experience in developing mindful parenting program and training from the University of Massachusetts Medical School. The researcher also completed an online course in Mindfulness Based Stress Reduction (MBSR) designed by a certified instructor based on John Kabat-Zinn's program at the University of Massachusetts Medical School. The researcher recorded the intervention sessions and the PhD student recorded mindfulness exercises.

In the second phase of the study, a Randomized Controlled Trial (RCT) was conducted to assess the developed intervention's efficacy. Three sections of psychology Department from NUML Islamabad received the intervention while three other sections served as control group. To ensure fair distribution the study employed randomization process to assign participants to either experimental or control group. To test the effectiveness of the mindfulness based intervention for university students, pre and post-assessments were conducted at Time 1 and Time 2 for both experimental and control group.

### **3.2 Objectives of the Study**

1. To develop an innovative and engaging web-based mindfulness intervention tailored to the specific needs of university students.
2. To evaluate the effectiveness of the Web based mindfulness intervention on enhancing wellbeing, psychological flexibility, and mindfulness among university students.
3. To determine the impact of intervention on students' overall quality of life.

### **3.3 Research Hypotheses**

1. University students in the intervention group will have better psychological flexibility at post-test than the control group.
2. University students in the intervention group will exhibit improvement in mindfulness at post-test as compared to control group.
3. University students in the intervention group will have better wellbeing at post-test than the control group.
4. University students' overall quality of life will significantly improve after receiving intervention.

### **3.4 Sample**

The sample for this study consisted of 176 BS Psychology students from the National University of Modern Languages (NUML) Islamabad. These students were randomly divided into an intervention group (n=89) and a control group (n=87). Six sections from the psychology department were randomly selected, with three assigned to the intervention group and three to the waitlist control group. The sample included 18 male and 158 female participants. Pre- and post-assessment data were collected from the same participants, and no dropouts occurred,

ensuring consistency in the sample across both assessments.

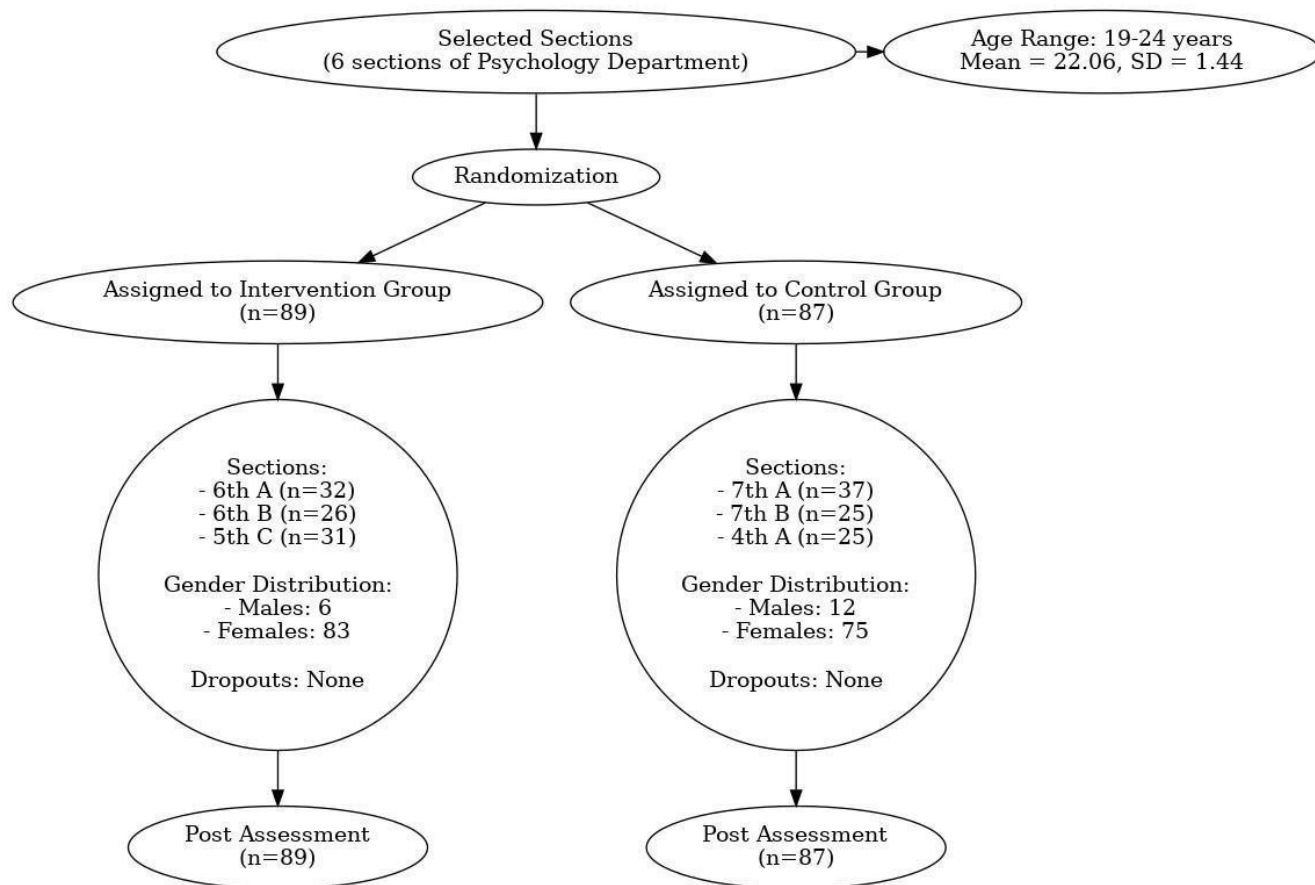


Figure 3: Consort flow diagram of the participants of the treatment group and control group

**Table 3.1***Demographic Characteristics (N=176)*

<b>Variables</b>	<b><i>f</i> (%)</b>	<b>Mean (SD)</b>
Age		22.06 (1.44)
Semester		
6th A	32 (18.2%)	
6th B	26 (14.8%)	
5th C	31 (17.6%)	
7th A	37 (21.0%)	
7th B	25 (14.2%)	
4th A	25 (14.2%)	
Gender		
Male	18 (10.2%)	
Female	158 (89.8%)	
Family System		
Nuclear	139 (79.0%)	
Joint	37 (21.0%)	
Financial Situation		
financially independent	18 (10.2%)	
partially financially dependent on family	39 (22.2%)	
fully financially dependent on family	119 (67.6%)	

The study sample consisted of 176 undergraduate students with a mean age of 22.06 years ( $SD = 1.44$ ). The participants were enrolled in various semesters, with 18.2% in 6th A, 14.8% in 6th B, 17.6% in 5th C, 21.0% in 7th A, 14.2% in 7th B, and 14.2% in 4th A. The

gender distribution was predominantly female, with 89.8% of the participants being female and 10.2% being male.

Regarding family systems, 79.0% of the participants came from nuclear families, while 21.0% were from joint families. Financial dependency varied among the students, with 10.2% being financially independent, 22.2% partially financially dependent on their families, and a majority of 67.6% fully financially dependent on their families. This demographic profile highlights the characteristics of the sample, showing a significant proportion of female students from nuclear family backgrounds and a high level of financial dependence on their families

### **3.5 Research Instruments**

Before the study began, all students were presented with online informed consent forms explaining the study's purpose, procedures, and confidentiality. They were asked if they were willing to participate, and all students provided their consent, agreeing to take part in the research. A demographic sheet was utilized along with all questionnaires which included age, family system, number of family members, monthly household income and financial status.

The current study employed the following measures.

#### **3.5.1 Five Facets Mindfulness Questionnaire (FFMQ)**

FFMQ is a 39-item self-report tool that attempts to measure mindfulness in the everyday life, concerning thoughts, experiences and actions. It evaluates five facets: Observing, Describing, Acting with awareness, Non reactivity and Non judgment to inner experience (Berking & Untchl, 2012). The FFMQ is recommended for those with minimum 16 years of age and can be utilized in and out- patient clinical population and research for evaluating the level of



mindfulness which is associated with decreased levels of distress and enhanced quality of psychological well-being.

Each facet consists of specific items:

- Observing (items 1, 6, 11, 15, 20, 26, 31, 36)
- Describing (items 2, 7, 12, 16, 22, 27, 32, 37)
- Acting with Awareness (items 5, 8, 13, 18, 23, 28, 34, 38)
- Non-reactivity to Inner Experience (items 4, 9, 19, 21, 24, 29, 33)
- Non-judgement of Inner Experience (items 3, 10, 14, 17, 25, 30, 35, 39)

In practice, the FFMQ scores are derived by summing high-frequency responses for each subscale and dividing by the number of items: the higher the score, the higher is the level of mindfulness (on the scale ranging from 1: rarely true to 5: always true). Cronbach's alpha coefficients for internal consistency range from .75 to .91; meanwhile, psychometric analysis for sensitivity to change is higher for the MBCT (Baer et al., 2006).

Research evidence shows FFMQ as a valid tool for assessing present centered self-awareness ability helpful in enhancing positive thought process, mood and psychological well-being (Baer et al., 2006; Bohlmeijer et al., 2011). This makes it a useful tool in the evaluation of the efficacy of the mindfulness interventions.

### **3.5.2 Acceptance and Action Questionnaire – Version 2 (AAQ-II)**

The Acceptance and Action Questionnaire – Second Edition (AAQ-II) is among the principal tools to measure the extent of psychological flexibility, which constitutes its core concept, when used in ACT practice in terms of how effectively clients apply such obtained

flexibility skills in their real life. The AAQ-II has been designed by an international panel of ACT experts and it is better in terms of internal consistency than the previous scale.

The original AAQ was developed in the form of 10-item scale but the AAQ-II is a 7-item scale following its psychometric assessment. All the items in AAQ-II are measured on the 7-point Likert scale with 1 as 'never true', 2 as 'very seldom true', 3 as 'seldom true', 4 as 'sometimes true', 5 as 'frequently true', 6 as 'almost always true' and 7 as 'always true'. This tool measures the extent to which private events (thoughts, feelings, and physiological sensations) influence value-directed actions.

Confirmatory factor analysis was performed on three distinct samples: 433 undergraduate students, 290 individuals seeking outpatient help for substance abuse, and 583 UK bank employees. Results across these groups were consistent, with a mean alpha coefficient of .84 (.78 – .88) and test-retest reliability scores of .81 at 3 months and .79 at 12 months (Bond et al., 2011).

Specifically, higher scores of AAQ-II indicate higher psychological inflexibility and higher levels of experiential avoidance which may hint at psychological distress in patients. On the other hand, lower scores indicate higher levels of psychological flexibility. The AAQ-II also provides a normative percentile comparison, showing how the respondent's score aligns with a sample of normative undergraduates and adults (Bond et al., 2011). For example, a percentile rank of a 50th indicates that an individual possesses average amount of psychological flexibility while a 86th or higher percentile rank points that one's overall well-being is affected by serious degree of psychological inflexibility.

### **3.5.3 WHO-5 Well-Being Index**

The WHO-5 Well-Being index is a short simple self-administered tool to assess an individual's well-being for the last two weeks. It consists of five positively worded items that are responded on a 6-point Likert scale ranging from 0 'at no time' to 5 'all of the time'. The raw scores are then converted into standardized scores ranging from 0 to 100; where the lower figure of 0 represents poor subjective well-being. If the score is 50 or below, the patient's well-being may be considered poor, and they should be referred to a depression screening, or if the score is 28 or below, the patient might be depressed.

WHO-5 has been used cross population and context and its validity is established. Included were 678 nurses from Spain, Chile, and Norway who practiced during the COVID-19 outbreak, the study showed that WHO-5 demonstrated high reliability and validity. Other self-report measures included the Patient Health Questionnaire 2 (PHQ-2), generalised anxiety disorder 2 (GAD-2) and three questions considering Quality of Life (QoL). The research established that Cronbach's alpha coefficients of the WHO-5 varied between 0.81 to 0.90, underscoring its reliability and validity across different cultural contexts (Lara-Cabrera et al., 2021).

It is employed both in clinical and research setting because of its simplicity and usefulness in measuring SWB and as a depression-predicting indicator. Because of its ease of administration, it can be used both for mass surveys and specific diagnostic tests thus guaranteeing accurate and reliable estimates of well-being in any population.

### **3.5.4 Academic Psychological Capital Questionnaire (APCQ-12)**

The Academic Psychological Capital Questionnaire 12 (APCQ-12) is a self-report instrument designed to assess four components of academic psychological capital: It includes hope, efficacy, resilience and optimism. Martínez et al., (2021) developed the APCQ-12, that include 12 items

which is answered using a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Each component reflects a key psychological resource:

- Hope: Items 4, 5, 6, 7 (e.g., “I can think of many ways to reach my current goals regarding my studies”)
- Efficacy: Items 1, 2, 3 (e.g., “I feel confident contributing to discussions about strategies on my studies”)
- Resilience: Items 8, 9, 10 (e.g., “I usually take stressful things in stride concerning my studies”)
- Optimism: Items 11, 12 (e.g., “I am optimistic about what will happen to me in the future as it pertains to my studies”)

The APCQ-12 is structured with four first-order factors representing the HERO components (Hope, Efficacy, Resilience, Optimism) and one second-order factor representing overall academic psychological capital (PsyCap).

Martínez et al., (2021) also validated the APCQ-12 to reveal that it was reliable and valid. The Cronbach’s alpha values for the subscales were recorded to be varying between 0.76 to 0.89 which indicate a satisfactory internal consistency. Further validation in various academic settings including university students’ sample demonstrated that APCQ-12 is a reliable instrument for assessing students’ psychological capital.

Carmona-Halty et al. (2020) also showed the predictive validity of the APCQ-12 linking higher scores on this questionnaire with better academic outcomes and mental health. This tool is useful for both research and practical applications in educational settings assisting counselors and educators to discover and increase students’ psychological resources.

### 3.5.5 General Health Questionnaire (GHQ-12)

GHQ-12 is a commonly used generic brief self-report measure of common mental disorder and general psychiatric morbidity. Due to the relatively brief number of questions, it is particularly useful in time-sensitive clinical contexts and where patients may need help to fill in the questionnaire (Goldberg et al., 1997). GHQ-12 has been found to possess good factor validity and internal reliability in the different countries and sample including elderly population (Costa et al., 2006) and urological patient (Quek et al., 2001).

The GHQ-12 comprises 12 items and the Likert type response scale ranges from 'Never True' to 'More than usual.' Such a structure makes the GHQ-12 very brief to administer and very easy for the respondents to answer. The items of the questionnaire are a combination of positive and negative meaning to minimize response bias and increase reliability. Research has previously established that the GHQ-12 has both inter- and intra-observer reliability and validity.

For example, Werneke et al. (2000) maintained the internal consistency of the GHQ-12 across populations and the subsequent alpha value was commonly over 0.80. Furthermore, the GHQ-12 has proven to be valid in other cultures, indicating its global applicability and reliability. The GHQ-12 is particularly valued for its specificity to detect the intensity of psychological distress and mental health issues. The value of the tool lies in its capacity to quickly and accurately assess a person's mental status for clinical or research purposes. The findings of the questionnaire can help in further diagnosis and treatment of the patients, ensuring timely and appropriate care.

### 3.5.6 Utrecht Work Engagement Scale for Students (UWES-9S)

The Utrecht Work Engagement Scale for Students (UWES-9S) is a concise, nine-item self-report measure designed to assess academic engagement among students. Developed by Schaufeli et al. (2006), the scale is divided into three subscales:

- Vigor (items 1, 2, 5)
- Dedication (items 3, 4, 7)
- Absorption (items 6, 8, 9).

Each item is rated on a seven-point frequency scale ranging from 0 (strongly disagree) to 6 (strongly agree), capturing different aspects of student engagement.

The UWES-9S within-network construct validity was tested in a survey of 1502 Chilean university students (52% female), aged 18–25. The UWES-9S and its subscales showed reasonable internal consistency and construct validity of the scale. Furthermore, the gender invariance was confirmed by the multiple-group confirmatory factor analysis according to which the scale functions equally well in different genders (Schaufeli et al., (2006). The UWES-9S is currently, mostly applied in educational contexts for assessment of students' academic engagement.

Hence, it offers a precise understanding of students' attitude towards their studies in terms of involvement, energy and concentration. This data can be used to assess the effectiveness of interventions meant to increase students' engagement as well as pinpoint areas in which students might want further assistance.

To determine the level of academic engagement of the university students, the UWES-9S was adopted in this study. Through the use of this scale, the researcher was able to find the level

of students' vigor, dedication and absorption in their academic activities. This was useful in knowing the extent of the students' engagement and how some aspects affected their level of engagement. The scores obtained from UWES-9S allowed us to make correlations between engagement and other psychological constructs assessed in the present research.

### **3.5.7 WHO Quality of Life Scale (WHOQOL-BREF)**

The WHOQOL-BREF is a 26-item instrument designed to evaluate quality of life across four domains: physical health, psychological health, social wellbeing and environmental wellbeing. It also contains items measuring quality of life and health in general. These are scored on an ordinal scale of 1 (very poor) to 5 (very good) with scores converted to a 0–100 scale for interpretation (Skevington and Tucker, 1999; Harper and Power, 1999).

In the physical health domain containing seven items, the construct includes mobility, daily activities, functional capacity, energy, pain and sleep. The psychological health domain comprises six questions that ask about self-image, negative thoughts, positive thinking, self-esteem, learning ability, memory concentrating ability, as well as spiritual and mental condition. The social relationships subscale with three items includes the social support, personal relationship and sexual activity. The environmental health domain consists of eight items indicating financial issues, protection, health and social care availability, housing conditions, opportunities to gain new skills, recreational activities and such factors as noise and air quality (Nejat et al., 2006).

Items within the WHOQOL-BREF are categorized as follows:

- Physical health: Items 3, 4, 10, 15, 16, 17, 18
- Psychological health: Items 5, 6, 7, 11, 19, 26

- Social relationships: Items 20, 21, 22
- Environmental health: Items 8, 9, 12, 13, 14, 23, 24, 25
- QOL and general health items: Items 1, 2

The WHOQOL-BREF has been found to be reliable and valid in any cultural setting. For example, a study that affirmed the reliability and validity of the Iranian version of the WHOQOL-BREF showed that it is a robust tool to determine quality of life among various groups of people (Nejat et al., 2006). Because of its comprehensive nature, the scale can help to give a detailed pattern of a person's state of health, which makes it effective in both empirical and practical contexts.

It is especially useful in quality of life assessment concerning the effects arising from some health interventions and treatments, focusing on the aspects where further help may be needed. That is why it has been extensively validated, and it was proved that the test can be used in the same manner and with the same accuracy across different demographic groups.

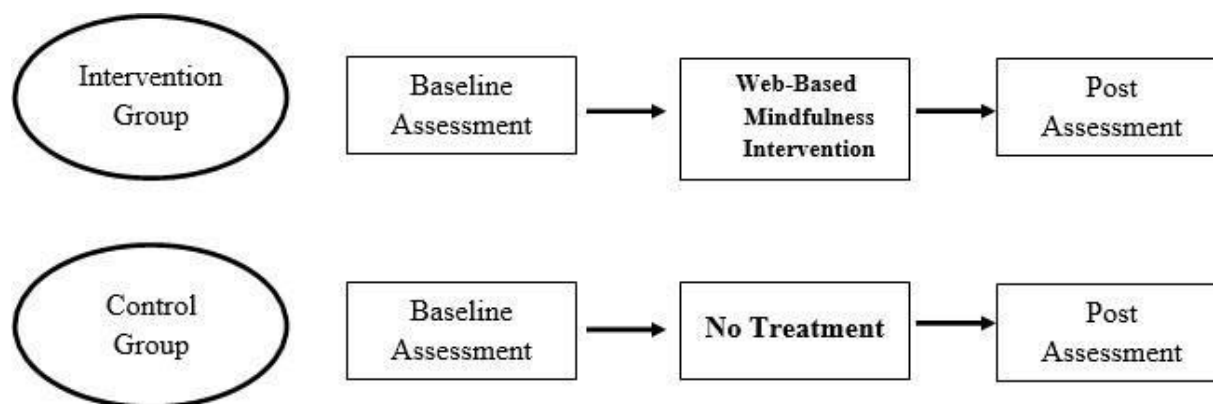
### **3.6 Procedure**

The research procedure began with the approval of the study's title by the Board of Advanced Studies and Research (BASR). Following this, the intervention was developed under the guidance of the supervisor and intervention experts. To collect data, students were first provided with informed consent forms, ensuring they understood the study's objectives, procedures, and confidentiality. Once consent was obtained, baseline data on study variables were gathered through standardized scales using google forms, and pre-test analysis was conducted using SPSS.

The intervention was then administered to the students in the intervention group over eight weeks. The first six sessions took place from February 19 to March 25, 2024. Afterward, students had a one-week midterm break, followed by a week of Eid holidays. The seventh



session resumed on April 15, and the final one-on-one feedback session was conducted online on April 22, 2024. Following the intervention, post-intervention data were collected from both the intervention and waitlist control groups through google forms. A post-test analysis was then performed to assess the preliminary effectiveness of the mindfulness-based intervention.



*Figure 4: Visual presentation of pre and post assessment*

### **3.7 Statistical Analysis**

The collected raw data was transformed into statistical information using SPSS for descriptive analysis, covering means, standard deviations, frequencies and percentages of sociodemographic variables and scales. Scale reliability was confirmed through Cronbach's Alpha. For hypothesis testing repeated measure ANOVA and ANCOVA were used.

### **3.8 Phases of the Study**

The study comprised of two phases

#### **3.8.1 Phase 1: Development of Intervention**

The development of the intervention followed a structured and collaborative process to ensure its relevance, effectiveness, and cultural appropriateness. First, a team was formed for the design and development of the intervention. The team included the researcher, supervisor, a

Ph.D. student who was trained in intervention design at the University of Massachusetts, and several other trained experts who contributed to the review process. This multidisciplinary team helped ensure a comprehensive and diverse perspective in crafting the intervention.

A thorough literature review was conducted to identify the most relevant theories, techniques, and practices for the intervention. In addition to reviewing existing literature on Acceptance and Commitment Therapy (ACT), the researcher completed an online course in Mindfulness-Based Stress Reduction (MBSR), designed by a certified instructor based on John Kabat-Zinn's program at the University of Massachusetts Medical School. This course helped the researcher deepen their understanding of mindfulness practices and refine the approach for the intervention.

The theoretical framework for the intervention was based on Steven C. Hayes' theory of Acceptance and Commitment Therapy (ACT). This theory emphasizes psychological flexibility and the importance of mindfulness in navigating challenges. The intervention was designed with activities and tasks aligned with the six core processes of ACT: acceptance, cognitive defusion, being present, self-as-context, values, and committed action. These principles guided the design of activities in each weekly session to promote well-being and mental flexibility.

After the content for all sessions was developed, expert reviews were solicited. Feedback from national and international experts ensured that the intervention was both theoretically sound and practical. The experts helped refine the content to enhance its effectiveness and ensure it addressed the needs of university students. In designing the intervention, the specific needs and issues of the students were carefully considered. The content was tailored to address common student challenges, such as stress, academic pressure, and personal concerns, while promoting mindfulness, psychological flexibility, and a sense of purpose.

Each weekly session was designed around a specific theme, with accompanying activities and tasks. By considering the cultural context and expert insights, the intervention was developed to provide a holistic, accessible, and practical approach to enhancing students' well-being. Following table depicts the overview of the intervention.

### **Overview of the Intervention**

<b>Week</b>	<b>Session Titles</b>	<b>Themes</b>	<b>In session visual insights</b>	<b>In session formal practice</b>	<b>Home practice</b>
Week 1	Introduction	Unveiling the Journey Ahead - Discovering Mindfulness and ACT	ACT Training- Finding your path overview (Video)	Body scan Meditation	
Week 2	Values	Identifying Core Values in Different Life Domains (e.g., Career, Relationships, Personal Growth) Aligning Actions with Personal Values	Value-focused vs goal-focused life (Video)	What do I value (meditation)	1. Values checklist activity 2. The Bull's Eye
Week 3	Being Present	Cultivating Mindfulness Enhancing Present-Moment Awareness Embracing the Power of Now	Power of mindfulness (Video)	Mindfulness of sounds, hearing and thinking	Mindful moments Diary

Week 4	Cognitive defusion	Breaking Free from Unhelpful Thought Patterns Gaining Distance from Negative Self-Talk Enhancing Cognitive Flexibility	Letting thoughts go (video)	Cognitive defusion techniques 1. Thoughts as passing clouds 2. Labelling thoughts technique 3. Thoughts as leaves on stream	Cognitive Defusion Reflection Diary
Week 5	Acceptance	Embracing Thoughts and Feelings Learning the Art of Non-Judgmental Awareness	The struggle switch (video)	Meditation of self-compassion	Acceptance Reflection log
Week 6	Self as context	Exploring the Concept of Self Detaching from Over-Identification with Thoughts and Emotions	The stage show metaphor (video)	Discovering your observing self	Journey to Self-Awareness: Exploring Self as Context
Week 7	Committed Action	Setting Values-Aligned Goals Designing Personal Action Plans Fostering Motivation for Positive Change	Understanding committed action (video)		Living your values log
Week 8	Feedback and reflection	Reflecting on Entire ACT Journey Sharing Experiences, and Providing Feedback for Improvement			

### 3.8.2 Intervention Course

The intervention designed for university students focused on increasing student's wellbeing and their academic performance by applying Acceptance and Commitment Therapy (ACT). This particular intervention entailed eight modules, with each module spanning a duration of one week.

The first module was the initial class where the students received basic information about the intervention type as well as goals and requirements of the given program. The next six modules were devoted to six core principles of ACT which includes acceptance, cognitive defusion, present moment awareness, self-as-context, values and committed action. Each of these modules delved into theoretical framework underlying ACT components; how this component would be relevant to the student's life; and how it could be practically applied.

The last module of the intervention was feedback and evaluation where the students were allowed to share some of the general experiences regarding the intervention, give feedback on the intervention and suggest ways that could improve the intervention. This final reflective session sought to let the participants appraise what they have learnt and ensure that their voices are heard in shaping future interventions.

It was a web based intervention where all the lectures and instructional materials were shared on Google Classroom. Once a week, students viewed lecture notes concerning the theme or activity component of ACT, engaged in video lessons offering further perspective, completed mindful exercises or meditation concerning the week's subject and received homework assignments or activities for home practice. These assignments were intended to make students put into practice in real life what they have learnt and then evaluate on the outcomes.

Also, intervention facilitated group discussions where students could discuss their progress, put questions and get support from their peers. WhatsApp group served as platform to understand the needs of the students and keep them connected to the facilitator and the other students outside the face-to-face contact hours. Three intact classes of students were enrolled in the intervention group. At the end of the program, the actively participated students were given five marks as their final project grades to acknowledge their effort and engagement in the program. Pre and post intervention standardized tools were used for data collection to evaluate the improvement in students' well-being, psychological flexibility, and academic performance.

In the *introduction session* of the mindfulness intervention program, researcher introduced the program, aims of the program and its structure. An initial part of the session was focused on defining what mindfulness is and explaining the benefits of their practice for students' well-being, study, and personal growth. Thus, the participants were first informed about ACT as well as about its function in enhancing psychological flexibility and resilience. To introduce and explain purpose of ACT in the session, there was the presentation of a video on how ACT works. Another activity that was shared with learners was scanning of the body focusing on the goal of increasing students' awareness of the body. In addition, the specific details as regards the program such as the assignments, the time table among other schedules and policies regarding group work were conveyed with a view of preparing the participants as shall be seen later. Participants were also educated on the fact that they would be required to fill self-developed and validated questionnaires that would help in evaluating their well-being and study skills before and after the study. As a way of creating interaction amongst them, an initial ice-breaking was done where participants introduced themselves and gave their views about the

program. Overall, the introduction session aimed to set the stage for the participants' journey toward greater mindfulness, well-being, and personal growth over the course of the program.

The theme of the *second session* was exploration and clarification of personal values. Students were introduced to the concept of values, defined as deeply important aspects that guide actions and behaviors. It was emphasized that values represent what individuals truly desire to stand for in life and reflect their heart's deepest desires for interactions with the world, others, and themselves. During the session, a YouTube video was shown to provide further insight into the distinction between values and goals, highlighting the importance of living a values-focused life. A meditation exercise was also introduced to cultivate mindfulness and help students connect with their inner values. As part of the session, students were assigned homework where they were tasked with identifying their personal values and indicating them on a bull's eye sheet. This activity aimed to encourage self-reflection and deepen their understanding of the values that resonate most with them.

The theme of the *third session* was being present and practicing mindfulness. Throughout the session, students were introduced to the concept of mindfulness and its importance in enriching one's life. The session emphasized the prevalence of thoughts centered on past events or future concerns, highlighting how such mental patterns can lead to a disconnect from the present moment. Students learned about the benefits of being present, practical strategies to cultivate mindfulness and overcoming common obstacles to being present. In addition to the lecture, students engaged in a mindfulness meditation exercise, which involved focusing on sounds, hearing, and thinking. This exercise aimed to provide students with a direct experience of mindfulness and to deepen their understanding of the practice. Furthermore, students were introduced to a YouTube video that emphasized the power of mindfulness in everyday life. To

reinforce learning and encourage ongoing practice, students were provided with a homework worksheet. This worksheet prompted students to reflect on their experiences of being present throughout the week. Students were asked to describe situations in which they practiced mindfulness, share their present moment experiences, express their feelings, and reflect on any insights or lessons gained from the practice.

The theme of the *fourth session* was breaking free from unhelpful thought patterns. The session included an overview of cognitive defusion, emphasizing the importance of seeing thoughts as transient mental events rather than fixed realities. Students were shown a YouTube video focusing on letting go of thoughts to complement the lecture. Practical cognitive defusion techniques were taught to the students through exercises aimed at creating distance from thoughts and fostering mindful observation. Understanding and applying cognitive defusion techniques can help students manage negative thoughts and distractions, allowing them to maintain focus and concentration while studying. Additionally, a home-based activity was assigned in the form of a worksheet to help students apply cognitive defusion techniques throughout the week, encouraging them to reflect on their experiences and insights gained from practicing these techniques in their daily lives.

The theme of the *fifth session* was centered around acceptance and willingness in the context of Acceptance and Commitment Therapy (ACT). Through various metaphors and examples, the lecture emphasized the importance of adopting a stance of non-judgmental awareness towards thoughts, feelings, and bodily sensations. The concept of acceptance was illustrated through the metaphor of welcoming guests at a party, highlighting the distinction between wanting and welcoming experiences. Additionally, the lecture emphasized the role of willingness in embracing inner experiences without resistance or avoidance. The session



included a YouTube video presentation on the "struggle switch," using cartoon characters and metaphors to teach the concept of accepting emotions. This video provided visual aids to enhance understanding and engagement with the topic. A meditation exercise on self-compassion was incorporated into the session to encourage students to cultivate kindness and understanding towards themselves. This meditation provided practical techniques for applying acceptance and compassion in daily life. Furthermore, a worksheet on acceptance was distributed to the students as a home-based activity, prompting them to reflect on their experiences and practice acceptance throughout the subsequent week. This worksheet served as a tool for reinforcing the concepts covered in the lecture and encouraging ongoing engagement with the material.

The theme of *sixth session* was "Self as Context," which emphasized the distinction between the observing self and changing internal experiences. Through metaphors and practical exercises, students learned to detach from their thoughts and feelings, gaining a more stable perspective. This understanding can benefit students in their wellbeing by reducing attachment to negative thoughts and emotions, fostering resilience, and promoting emotional regulation. Through mindfulness exercises, participants were encouraged to develop awareness of the observing self, which serves as a steady viewpoint from which to observe inner experiences without becoming overwhelmed. Practical exercises, such as silently listening to one's thoughts and questioning whether one is the thoughts or the observer of them, were introduced to foster awareness of the distinction between the self and thoughts. An experiential exercise called "There Go Your Thoughts" was conducted to further reinforce the concept of observing one's thoughts from a detached perspective and a worksheet for home practice was provided to reinforce the concepts learned during the session. By practicing mindfulness and self-awareness

techniques introduced in the session, students can cultivate a healthier relationship with their inner experiences, leading to improved overall wellbeing and academic performance.

The theme of the *seventh session* was "Committed Action," which emphasized translating values into meaningful, purposeful behaviors. Through practical steps and strategies outlined in the session, students learned to identify high-priority domains for change, clarify values, set realistic goals, and take action mindfully. The session addressed common barriers to action, such as fusion with negative thoughts, excessive goals, avoidance of discomfort, and remoteness from values, offering strategies to overcome these barriers. The session concluded with a message of gratitude for students' participation and encouragement to continue applying the principles learned in the program to their lives. This session connected back to the values students indicated in the second session by providing a framework for aligning their actions with those values, thereby fostering greater well-being and fulfillment. Additionally, a worksheet was provided to support students in applying the concepts discussed in the session to their own lives.

The theme of *eighth session* was feedback and reflection. The session held online via Zoom, students shared their experiences and provided feedback on the program. Almost all participants appreciated the intervention, stating that it significantly helped them manage daily life circumstances and academic challenges. Notably, many reported improvements in their sleep quality. Students shared personal stories of how the intervention aided them in addressing various problems and overwhelmingly suggested that the program should be integrated into the curriculum.

### **3.8.3 Phase 2 Preliminary Testing of the Intervention**

The second phase of the study was the preliminary testing of the developed mindfulness-based intervention. This phase involved a randomized controlled trial (RCT) with six sections of

the psychology department at our university. The study involved 176 students from the psychology department, divided into two groups: an intervention group (n=89) and a control group (n=87). The sections were chosen randomly to avoid selection bias.

**Intervention Group:** This group consisted of 89 students who received the web-based mindfulness intervention.

**Control Group:** This group included 87 students who did not receive any intervention and served as the comparison group.

## **CHAPTER 4**

### **RESULTS**

The present study aimed to evaluate the effectiveness of a culturally specific mindfulness-based intervention tailored to university students. The intervention aimed to enhance mindfulness, psychological flexibility, quality of life, and overall well-being, grounded in the principles of Acceptance and Commitment Therapy (ACT). The development of the intervention involved a collaborative process with a team of experts, including the researcher, supervisor, and trained professionals, ensuring the content was culturally relevant and theoretically sound. Preliminary testing of the intervention was conducted with a sample of university students, and various measures were used to assess changes in the key areas of focus. The collected data was analyzed using SPSS to determine the intervention's effectiveness in achieving its objectives and to evaluate its impact on students' psychological well-being and academic performance.

The results of the study are given below.

**Table 4.1**  
*Psychometric Properties of Study Measures (N=176)*

Measures	k	M	SD	$\alpha$	Range		Skew
					Potential	Actual	
<b>Mindfulness</b>							
Five Facets Mindfulness Questionnaire	39	119.94	13.62	.75	39-195	76-158	0.014
FFM Observing	8	25.78	5.43	.71	8-40	11-40	-0.44
FFM Describing	8	23.6	5.28	.74	8-40	9-37	-0.16
FFM Acting with awareness	8	26.02	5.96	.81	8-40	10-40	-0.11
FFM Non-judgment	8	23.61	4.49	.67	8-40	14-35	0.367
FFM Non-reactivity	7	20.93	3.82	.67	7-35	9-30	-0.33
<b>Student Engagement</b>							
Utrecht Work Engagement Scale	9	33.13	8.01	.82	0-54	10-52	-0.51
Vigor	3	10.27	3.35	.68	0-18	0-17	-0.38
Dedication	3	11.91	3.22	.71	0-18	1-17	-0.47
Absorption	3	10.95	2.86	.67	0-18	1-17	-0.47
<b>Psychological Flexibility</b>							
Acceptance and Action Questionnaire (AAQ-II)	7	29.47	10.58	.92	7-49	7-49	-0.24
<b>Wellbeing</b>							
WHO Wellbeing Index	5	13.7	4.79	.80	0-25	4-25	-0.17
<b>Academic Psychological Capital</b>							
Academic Psychological Capital Questionnaire	12	48.84	8.52	.87	12-72	21-68	-0.56
Hope	4	16.18	3.41	.77	4-24	4-24	-0.61
Efficacy	3	12.53	2.83	.76	3-18	5-18	-0.4
Resilience	3	11.91	2.39	.67	3-18	3-16	-0.78
Optimism	2	8.22	1.79	.65	2-12	3-12	-0.45
<b>Psychological Distress</b>							
General Health Questionnaire	12	15.46	5.63	.81	0-36	1-29	0.06
<b>Quality of Life</b>							
WHO Quality of Life (WHOQOL)	26	85.71	12.33	0.88	26-130	36-119	-0.56
Physical Health	7	21.74	3.44	0.68	7-35	7-30	-0.71
Psychological Health	6	19.81	3.38	0.67	6-30	7-27	-0.66
Social Relationships	3	10.22	2.05	0.67	3-15	5-15	-0.25
Environmental Health	8	26.75	4.82	0.79	8-40	11-40	-0.15
General Health	2	7.2	1.61	0.69	2-10	2-10	-0.73

Note: Skew=Skewness

The above table summarized the psychometric properties and descriptive statistics of various scales, indicating that most scales and subscales demonstrated moderate to high internal consistency. The Five Facets Mindfulness Questionnaire, Utrecht Work Engagement Scale, Acceptance and Action Questionnaire, WHO Wellbeing Index, Academic Psychological Capital, General Health Questionnaire, and WHO Quality of Life total scores all showed acceptable to good reliability coefficients ( $\alpha$  ranging from 0.65 to 0.92) and reasonable descriptive statistics, supporting the validity of these measures in assessing the targeted psychological construct.

**Table 4.2**

*Baseline comparison between control and intervention group on outcome variables (N=176)*

Variables	Control (n = 87)		Intervention (n = 89)		t(174)	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
<b>Mindfulness</b>									
Observing	24.86	5.13	26.68	5.59	2.25	.026	0.22	3.42	0.34
Describing	23.35	4.55	23.84	5.91	0.61	.542	-1.08	2.06	
Acting	25.81	6.08	26.21	5.85	0.44	.660	-1.38	2.17	
Non-Judgment	23.55	4.23	23.67	4.75	0.18	.857	-1.22	1.46	
Non-Reactivity	20.54	3.74	21.30	3.88	1.33	.186	-0.37	1.9	
<b>Psychological</b>	30.29	9.94	28.65	11.16	-1.03	.303	-1.5	4.79	
<b>Flexibility</b>									
<b>Wellbeing</b>	13.43	4.83	13.96	4.76	0.73	.465	-0.9	1.96	
<b>Academic Psychological Capital</b>									
Hope	15.93	3.52	16.41	3.30	0.94	.348	-0.53	1.5	
Efficacy	12.18	2.89	12.86	2.73	1.61	.110	-0.16	1.52	
Resilience	11.58	2.47	12.23	2.26	1.82	.071	-0.06	1.35	
Optimism	7.94	1.81	8.48	1.73	2.02	.045	0.01	1.07	0.31
<b>Psychological</b>	15.43	5.35	15.48	5.91	0.05	.957	-1.63	1.73	
<b>Distress</b>									
<b>Student Engagement</b>									
Vigor	9.70	3.23	10.82	3.38	2.24	.026	0.133	2.10	0.34
Dedication	11.86	2.98	11.95	3.44	0.19	.849	-0.87	1.05	
Absorption	10.78	2.84	11.12	2.89	0.79	.430	-0.34	1.2	
<b>Quality of Life</b>									
Physical Health	21.79	3.22	21.68	3.65	-0.21	.836	-1.13	0.92	
Psychological Health	20.0	2.84	19.61	3.82	-0.75	.454	-1.39	0.62	
Social Relationship	10.41	1.88	10.02	2.18	-1.27	.206	-1.0	0.22	
Environmental	26.72	4.30	26.77	5.30	0.07	.944	-1.39	1.49	
Health									
General Health	7.32	1.46	7.07	1.73	-1.0	.317	-0.72	0.23	

The t-test analysis comparing the experimental (n=89) and control (n=87) groups revealed significant differences in a few key variables. The experimental group scored significantly higher in Observing (t=2.25, p=.026), Optimism (t=2.02, p=.045), and Vigor (t=2.24, p=.026).

However, no significant differences were found for other variable.

**Table 4.3***Baseline comparison between control and intervention group on demographic variables**(N=176)*

Demographic Variables	Control Group	Intervention Group	<i>t</i> / $\chi^2$	p
	% /Mean(SD)	% /Mean(SD)		
Age	22.21.87(1.32)	22.24(1.52)	1.73	.08
Gender				
Male	9(50%)	9(50%)	.959	.57
Female	78(49.4%)	80(50.6%)		
Family members	6.67(3.37)	6.74(2.34)	.145	.88
Family system				
Nuclear	68(48.9%)	71(51.0%)	.793	.47
Joint	19(51.3%)	18(48.6%)		
Financial Situation				
Financially independent	7( 38.8%)	11(61.1%)		
Partially financially dependent on family	20(51.3%)	19(48.7%)	.638	.38
Fully financially dependent on family	60(50.4%)	59(49.6%)		

The table presents a baseline comparison of demographic variables between the control and intervention groups to assess sample equivalence. The results indicate that there were no significant differences between the two groups in terms of age, gender, number of family members, family system, or financial situation. Specifically, the t-test for age ( $t = 1.73$ ,  $p = .08$ ) and chi-square tests for gender ( $\chi^2 = .959$ ,  $p = .57$ ), family members ( $t = .145$ ,  $p = .88$ ), family system ( $\chi^2 = .793$ ,  $p = .47$ ), and financial situation ( $\chi^2 = .638$ ,  $p = .38$ ) all show p-values above .05, indicating no statistically significant differences. These findings confirm that the sample was randomly distributed, establishing equivalence between the groups on demographic variables.



## **Effectiveness of Intervention**

A comparison of pre-test and post-test results was done to evaluate the effectiveness of the intervention. A repeated measures ANOVA was used to assess within-group changes over time and between-group differences between the control and intervention groups. This analysis examined whether significant improvements occurred in mindfulness, psychological flexibility, quality of life, and overall well-being following the intervention, compared to the baseline measurements.

**Table 4.4:**

*Repeated measures analysis of variance for control and experimental group for pre-treatment and post-treatment mindfulness measures (N=176)*

Variables	Groups	n	Pre Treatment		Post Treatment		F	Time		Group			Time x Group		
			M	SD	M	SD		p	Cohen's d	F	p	$\eta^2$	F	p	$\eta^2$
<b>Mindfulness</b>															
Observing	Intervention group	89	26.68	5.59	27.64	6.66	2.71	.103		8.34	.004	.046	2.83	.094	.01
	Control group	87	24.86	5.13	24.82	5.10	.527	.470							
Describing	Intervention group	89	23.84	5.91	27.23	6.85	17.62	.000	0.53	8.91	.003	.049	17.32	.000	.09
	Control group	87	23.36	4.55	23.34	4.56	.198	.657							
Acting with awareness	Intervention group	89	26.21	5.85	29.44	6.73	24.94	.000	0.51	5.35	.022	.030	24.56	.000	.12
	Control group	87	25.82	6.08	25.79	6.10	.180	.672							
Nonjudgment	Intervention group	89	23.67	4.75	27.30	5.37	33.65	.000	0.72	9.78	.002	.053	33.83	.000	.16
	Control group	87	23.55	4.23	23.49	4.18	2.307	.132							
Non reactivity	Intervention group	89	21.30	3.88	21.61	3.99	4.476	.037	0.08	2.72	.011	.015	5.95	.016	.03
	Control group	87	20.52	3.74	20.48	3.76	5.244	.024	-0.01						
Overall Mindfulness	Intervention group	89	121.7	14.04	127.11	15.85	40.759	.000	0.36	9.32	.003	.051	40.84	.000	.19
	Control group	87	118.12	12.99	118.04	13.01	1.832	.179							

The repeated measures ANOVA showed that the web-based mindfulness intervention significantly enhanced various facets of mindfulness among university students. For the observing facet, the intervention group scored higher than the control group at post-treatment, indicating a real effect. The describing facet showed significant improvements over time, with the intervention group experiencing greater gains. For acting with awareness, non-judgment, and non-reactivity, the intervention group improved significantly more than the control group. Additionally, the total FFMQ score demonstrated overall enhancement in mindfulness for the intervention group compared to the control group. These results suggest the intervention effectively increased mindfulness among the participants.

**Table 4.5**

*Repeated measures analysis of variance for control and experimental group for pre-treatment and post-treatment wellbeing measures(N=176)*

Variables	Groups	n	Pre Treatment		Post Treatment		Time			Group			Time x Group		
			M	SD	M	SD	F	p	Cohen's d	F	p	$\eta^2$	F	p	$\eta^2$
<b>Wellbeing</b>															
WHO Wellbeing	Intervention	89	13.96	4.76	17.60	6.09	51.47	.00	0.66	10.33	.002	.056	50.78	.000	.22
	Control	87	13.43	4.83	13.41	4.81	.49	.48							
Psychological Flexibility	Intervention	89	28.65	11.16	33.45	12.56	74.54	.00	0.40	.22	.637	.001	73.58	.000	.29
	Control	87	30.29	9.94	30.26	9.91	.81	.36							
Psychological Distress	Intervention	89	15.48	5.91	15.23	5.89	.82	.36		.17	.676	.001	3.03	.083	.017
	Control	87	15.43	5.35	15.98	6.01	2.20	.14							
<b>Quality of life</b>															
Physical Health	Intervention	89	21.68	3.65	25.12	4.93	57.724	.00	0.79	9.34	.003	.051	56.68	.000	.24
	Control	87	21.79	3.22	21.77	3.25	.283	.59							
Psychological Health	Intervention	89	19.61	3.82	22.32	5.45	30.21	.00	0.58	3.36	.068	.019	29.70	.000	.14
	Control	87	20.0	2.84	19.98	2.85	.19	.65							
Social Relationship	Intervention	89	10.02	2.18	10.11	2.19	8.69	.00	0.41	1.11	.293	.006	9.36	.003	.05
	Control	87	10.41	1.88	10.36	1.84	2.02	.15							
Environmental Heath	Intervention	89	26.77	5.30	26.67	5.20	1.90	.17		.00	.974	.000	.46	.496	.00
	Control	87	26.72	4.30	26.67	4.34	2.02	.15							
General Health	Intervention	89	7.07	1.73	7.75	1.81	22.31	.00	0.38	.17	.674	.001	21.87	.000	.11
	Control	87	7.32	1.46	7.31	1.53	.198	.65							

The repeated measures ANOVA revealed that the web-based mindfulness intervention significantly improved various well-being measures among university students. For WHO well-being, psychological flexibility, and Quality of life physical and psychological health, there were significant improvements over time and greater gains in the intervention group compared to the control group.

QOL social relationships also improved significantly over time, with a notable time by group interaction, indicating better outcomes for the intervention group. However, there were no significant changes or differences for psychological distress and WHOQOL environmental health. These results suggest the intervention was effective in enhancing several aspects of well-being, particularly in areas like overall well-being, psychological flexibility, and certain domains of quality of life.

**Table 4.6**

*Repeated measures analysis of variance for control and experimental group for pre-treatment and post-treatment academic measures(N=176)*

Variables	Groups	n	Pre Treatment		Post Treatment		Time			Group			Time x Group		
			M	SD	M	SD	F	p	Cohen's d	F	p	$\eta^2$	F	p	$\eta^2$
<b>Academic Engagement</b>	Intervention	89	33.89	8.45	39.07	8.61	37.07	.01	0.61	13.76	.000	.073	30.39	.000	.14
	Control	87	32.34	7.48	32.32	7.60	.003	.953							
Vigor	Intervention	89	10.82	3.38	13.75	4.89	56.71	.000	0.70	23.59	.000	.119	54.20	.000	.23
	Control	87	9.70	3.23	9.72	3.20	.49	.483							
Dedication	Intervention	89	11.95	3.45	11.98	3.4	1.29	.259		.05	.821	.000	.58	.446	.00
	Control	87	11.86	2.98	11.86	3.00	.00	1.00							
Absorption	Intervention	89	11.12	2.89	11.34	2.88	25.50	.000	0.07	.56	.454	.003	.01	.914	.00
	Control	87	10.78	2.84	11.03	3.44	.95	.332							
<b>Academic Psychological Capital</b>	Intervention	89	50.00	7.87	55.25	8.27	51.89	.000	0.75	25.66	.000	.129	74.33	.000	.29
	Control	87	47.64	9.01	45.50	8.49	23.41	.000	-0.24						
Hope	Intervention	89	16.41	3.30	20.53	5.74	67.75	.000	0.88	41.27	.000	.192	112.21	.000	.39
	Control	87	15.93	3.52	13.63	4.23	46.61	.000	-0.59						
Resilience	Intervention	89	12.23	2.26	16.66	5.89	55.57	.000	0.99	70.47	.000	.288	94.16	.000	.35
	Control	87	11.58	2.47	9.66	3.01	53.79	.000	-0.69						
Efficacy	Intervention	89	12.86	2.73	17.38	6.60	48.41	.000	0.89	31.31	.000	.153	47.69	.000	.21
	Control	87	12.18	2.89	12.16	2.84	.497	.483							
Optimism	Intervention	89	8.48	1.73	8.69	2.09	3.40	.047	0.10	8.99	.003	.049	5.78	.017	.03
	Control	87	7.94	1.81	7.59	2.19	2.89	.093							

The repeated measures ANOVA demonstrated that the web-based mindfulness intervention significantly improved various academic measures among university students. Academic engagement, vigor, academic psychological capital, hope, resilience, efficacy, and optimism all showed significant main effects of time and significant time by group interactions, indicating greater improvements in the intervention group compared to the control group. The main effect of group was also significant for these measures, suggesting overall higher scores in the intervention group. However, for dedication and absorption, the main effects of time and group, as well as the time by group interactions, were not significant, indicating no substantial changes or differences between the groups. These results suggest the intervention was effective in enhancing several aspects of students' academic engagement and psychological capital.

**Table 4.7**

*Analysis of covariance (ANCOVA) for mindfulness and academic measures at pre-treatment and post-treatment (N=176)*

Variables	Intervention Group (n = 89)				Control Group (n = 87)				F	p	Cohen's d
	Pre Treatment		Post Treatment		Pre Treatment		Post Treatment				
	M	SD	M	SD	M	SD	M	SD			
<b>Mindfulness</b>											
Observing	26.68	5.59	27.64	6.66	24.86	5.13	24.83	5.11	4.66	.032	0.47
<b>Academic Psychological Capital</b>											
Optimism	8.48	1.73	8.69	2.09	7.94	1.81	7.59	2.19	7.52	.007	0.51
<b>Student Engagement</b>											
Vigor	10.82	3.38	13.75	4.89	9.70	3.23	9.72	3.20	53.70	.000	0.97

Analysis of covariance (ANCOVA) was conducted to evaluate the effectiveness of the mindfulness-based intervention, while controlling for baseline differences in some variables between the intervention and control groups. The results revealed significant group differences in mindfulness ("observing"),  $p = .032$ , with a medium effect size (Cohen's  $d = 0.47$ ).

Similarly, academic psychological capital ("optimism") showed significant improvement,  $p = .007$ , with a medium effect size (Cohen's  $d = 0.51$ ). Furthermore, student engagement ("vigor") demonstrated the most substantial change,  $p < .001$ , with a large effect size (Cohen's  $d = 0.97$ ).

These findings suggest that the intervention significantly enhanced mindfulness, optimism, and vigor compared to the control group, underscoring the intervention's effectiveness in fostering these outcomes.



## Discussion

The increasing demands and pressures faced by university students can significantly impact their mental health and overall well-being. This is more potent especially in the arena of Pakistani students who struggle to function as learners and very often encounter issues in educational processes which may be augmented by cultural and/or family demands.

Mindfulness has been increasingly practiced as a clinical intervention in the management of stress and general distress among university students. The present study aimed at assessing the efficacy of mindfulness-based intervention model that was developed for university students with the view to improve their well-being.

This research consisted of two phases: in the first phase, the researcher moved forward in the establishment of culturally tailored mindfulness-based intervention. This intervention was developed according to the six ACT principles; this intervention also involved mindfulness and breathing exercises. This web-based intervention was designed by the researcher in consultation with a supervisor, who is an expert in designing interventional strategies, and consultation with a Ph. D. student with specialization in mindful parenting programs for children and who also undertook physical training at the University of Massachusetts Medical School. The researcher completed an online MBSR course by a fully accredited MBSR teacher based on MBSR programme of Jon Kabat- Zinn playing at University of Massachusetts Medical School, professionally videotaped the intervention sessions. Also, the mindfulness exercises were being recorded by the Ph. D. student involved in the study. This phase was designed in an attempt to develop an acceptable intervention culturally appropriate for university students in the region, as well as because the systematic experimental study of such a kind of intervention is scarce in the region and can be used as an evaluation criterion in the next phase.

The establishment of the mindfulness-based intervention in this study was prompted by the fact that university students experience various mental health issues. University life is usually characterised by stress in terms of academic performance, social life and development crises. These stressors could culminate into the several mental health disorders such as anxiety disorders, depression, and burnout. The intervention was designed to help students gain strategies to reduce stress and enhance their quality of life by focusing on mindfulness and components of ACT. The purpose of this intervention was to improve the positive psychological outcomes such as mindfulness, psychological flexibility, quality of life and well-being of the university students. The reason for the use of an indigenously designed intervention was because of the dimension of culture and relevance. Culture plays a key role in the reception of and outcomes of delivered psychological interventions. To enhance effectiveness of the intervention and its adoption, we targeted the cultural aspects of the students as the students' culture as is evident in the study.

To the best of our understanding, there is no experimental research on the efficacy of mindfulness-based interventions in the context of our culture. Past studies have established that MBIs are an efficient in decreasing stress levels and enhancing mental well-being (Kabat-Zinn, 1990; Shapiro et al., 2008). However, these studies have been mainly undertaken in the developed Western countries. Because of the cultural differences in addressing the mental health problems, it was necessary to design the culturally appropriate intervention. The present study innovates in its design of a mindfulness-based intervention that incorporates ACT and that has been developed for our students.

The intervention was based upon six fundamental processes of ACT: cognitive acceptance, present moment concentration, self-awareness, values, and behavior change plans (Hayes et al., 2012). These principles were integrated with mindfulness exercises and

breathing techniques to form an intervention. In the development process, the author worked with a supervisor specializing in interventions in the field and a Ph. D. student studying mindful parenting programs. This way, it was possible to guarantee that the intervention was informed by best practices in therapeutic care.

Another aim of the current research was to assess the effectiveness of the mindfulness-based intervention. The rationale for the above intervention was founded on the assumption that the students' levels of mindfulness, psychological flexibility, quality of life, and well-being would significantly improve with the intervention. The intervention was meant to make the students be more aware of their thoughts and feelings, also accept them and be willing to act according to their values. These skills were to be strengthened in order to reduce stress levels as well as promote better mental health in the clients. Such an intervention is called for because students in universities are known to be struggling with mental health challenges. It has also been established that mindfulness based interventions have the possibility of helping in the alleviation of anxiety and depression, attention and concentration, and magnify on the management of emotions (Baer, 2003; Chiesa & Serretti, 2009). Nevertheless, one of the most profound shortcomings that have been noted in literature is the lack of implementation of these interventions on non-western populations. This research seeks to fill this gap by designing and implementing an intervention that would suit the cultural context of our students.

It is worthy of note that, to date, there is a dearth of literature on the use of MBIs in non-Western countries. Although a previous review has shown that many controlled papers found significant effects of MBIs in reducing stress and enhancing mental health in Western samples (Keng et al., 2011), the ways through which such interventions function in different cultural contexts is relatively understudied. Christopher et al. (2014) argues that, there is a

need to have more culturally tailored MBIs, and while doing this he notes that most of the studies do not address the cultural aspect of both perception and coping with mental health problems. This underlines the necessity for the creation of new and validation of already existing MBIs relevant to certain cultural setting.

This is a culturally specific study of mindfulness-based interventional approach, which makes this study unique. Integrating ACT principles with mindfulness practices make the intervention a one-stop approach to mental health. It is intended that these elements should promote both psychological flexibility and mindfulness in the student and provide him or her with a broad range of options for managing stress and optimising psychological well-being. This approach is especially important given the background of our culture, where conventional forms of psychological intervention can sometimes be detrimental or are not well received.

This mindfulness-based intervention was developed due to the lack of culturally appropriate and evidence-based mental health interventions for university students. The theoretical integration of ACT and mindfulness practices in the overall design of the intervention provides a versatility approach to training in mindfulness, increasing in psychological flexibility, improvement in quality of life, and overall well-being. In terms of the research contribution, this study can be seen as offering empirical evidence of utilising an empirically supported mindfulness based intervention that was developed to reflect the culture of a non-Western society and has not been tested in this population before.

The participants were 176 undergraduate students, all from the institution taking their Bachelor of Science in Psychology. These participants were randomly divided into two groups: The researchers have divided the participants into the intervention group comprising 89 students and the control group of 87 students. The intervention group underwent the

mindfulness based intervention while the control group did not receive any form of intervention in the course of the study.

The mindfulness-based intervention was developed by the researcher and was based on principles of Acceptance and Commitment Therapy (ACT). In general, the intervention was structured in eight weekly sessions which were delving into different aspects of ACT. This was an introductory session to the study, the next 6 sessions were therefore based on 6 ACT components. The last of the sessions addressed the feedbacks and recommendations from the students in order to make the intervention student-centered.

The research question that guided the present study was therefore; how effective is the mindfulness-based intervention in improving the well-being of university students? The study hypothesis was that the intervention would cause a significant increase in mindfulness and in students' academic engagement, and also in psychological flexibility and well-being, besides a decrease in psychological distress and an improvement in quality of life. These variables were assessed in the participants before and after the intervention to obtain the data.

### **Sociodemographic Characteristics of participants**

The socio-demographic characteristics of the study sample provide important context for interpreting the results. The study included 176 undergraduate students with a mean age of 22 years. The participants were distributed across various semesters: 18.2% in 6th A, 14.8% in 6th B, 17.6% in 5th C, 21.0% in 7th A, 14.2% in 7th B, and 14.2% in 4th A. This distribution indicates a broad representation of students at different stages of their academic programs. Sections 6<sup>th</sup> A, 6<sup>th</sup> B and 5<sup>th</sup> C were assigned to intervention group and 7<sup>th</sup> A, 7<sup>th</sup> B and 4<sup>th</sup> A were assigned to control group.

The gender distribution was predominantly female, with 89.8% of the participants being female and only 10.2% being male. This imbalance reflects the gender composition of the students enrolled in the psychology program at the university and may influence the generalizability of the findings. Regarding family systems, 79.0% of the participants came from nuclear families, while 21.0% were from joint families. This is reflective of the changing family dynamics in Pakistan, where nuclear families are becoming more common. Financial dependency varied among the students: 10.2% were financially independent, 22.2% were partially financially dependent on their families, and a majority of 67.6% were fully financially dependent on their families. This high level of financial dependence highlights the economic challenges faced by many students and underscores the importance of financial stability for academic and psychological well-being.

These socio-demographic characteristics provide a comprehensive profile of the study participants, offering insights into their backgrounds and living conditions. The predominance of female participants, the high proportion of students from nuclear families, and the significant financial dependence on families are important factors to consider when interpreting the results of the study and understanding the context within which the intervention was implemented. The sample was evenly distributed between the control and intervention groups across key demographic variables, including age, gender, family size, family system, and financial situation. There were no notable differences between the groups, confirming that participants were comparable in these demographic characteristics. This equivalence supports the random distribution of the sample.

### **Mindfulness**

The findings of this study show that the mindfulness-based intervention in the present study was effective in enhancing different aspects of mindfulness in the group that received

intervention more than the group that did not. This outcome is in agreement with the findings of other studies which have noted the usefulness of mindfulness based interventions in improving mindfulness skills. For instance, Khoury et al. (2015) showed that mindfulness-based interventions improve mindfulness specially the observing, describing, acting mindfully, and non-judgmental mindfulness which is parallel to the findings of the current study.

Observing self, describing self, acting with awareness, and non-judgment were seen to be higher in the intervention group after treatment as compared to the pre-treatment scores. This is an implication that supports other related studies, of the effectiveness of mindfulness training. For example, in a meta-analysis, Keng, Smoski, & Robins (2011) conducted a study which reveals that mindfulness training enhances the totality of mindfulness proficiencies and enhances the total psychological upshots which include diminishing of signs of anxiety and depression, a feature that supports our research study. Therefore, the increase in the total score of the FFMQ among the participants of the intervention group corresponds to the results of research in which a wide range of positive changes after the use of mindfulness-based interventions was observed. Several studies including the one by Carmody & Baer (2008) posited that similar interventions foster mindfulness in different domains hence enhancing general human well-being and psychological hardiness.

The fact that our study accepts the hypothesis that the students in the intervention group would be more mindful as compared to the control group also adds to the usefulness of culturally appropriate mindfulness programs in school. These findings thus extend knowledge in line with the assertion that mindfulness based interventions should be embraced as a useful tool in prevention and treatment of psychological inflexibility with students.

## **Students' Wellbeing and Psychological Flexibility**

In the current study, this showed that the web-based mindfulness intervention enhanced on several well-being measures in university students. More precisely, the subjects of the intervention group improved their results for WHO well-being, psychological flexibility and physical and psychological health according to WHOQOL compared to the control group.

This major increase in WHO well-being correlates with prior research that have found that MBIs are effective in increasing well-being because of its present-focused attention and its ability to decrease negative affect (Brown & Ryan, 2003). This implies that, the mindfulness elements enhanced in the intervention helped enhance well-being among the participants. Thus, psychological flexibility assessed with the Acceptance and Action Questionnaire was also found to be significantly increased in the intervention group. This is in compliance with the literature that attributes the improvement in psychological flexibility of clients to Acceptance and Commitment Therapy (ACT)—a component of this intervention. ACT based interventions have been found to enhance the levels of psychological flexibility, and hence enhance the overall psychological health and decrease distress (Hayes et al., 2006).

The findings of the present study are consistent with the previous studies conducted on different domains of WHOQOL, especially on the positive effects in physical and psychological health of the patients. As for the impact on physical health, mindfulness practices have been shown to have a beneficial effect on stress reduction and immune system; on psychological health, they help to decrease levels of anxiety and depression (Kabat-Zinn, 2003, Khoury et al., 2015).



But the study did not reveal any improvement in psychological distress or the domain of environmental health of the WHOQOL. The failure to observe large effects on psychological distress might be explained by the extent of the intervention which might have been too short to make a difference in terms of distress. Studies have found that mindfulness may help to decrease distress and that the degree of change could be related to time spent on the intervention and the clients' characteristics (Vøllestad et al., 2012). The insignificant outcomes in the environmental health domain may be because of the nature of this domain which encompasses items such as safety, financial and home. The above aspects are not easy to be modified by a mindfulness intervention since the latter is focused on internal psychological processes (Kabat-Zinn, 2003).

All together, these findings are consistent with the hypothesis of the current study that the mindfulness intervention would enhance different aspects of well-being, especially mindfulness and psychological flexibility. The study is consistent with other studies that have established the benefits of mindfulness-based interventions in enhancing well-being but more investigation is needed on the implication on psychological stress and the physical health of the environment.

### **Academic Outcomes**

Academic measures suggest that the mindfulness based intervention was beneficial across a range of academic variables such as academic boredom, vigor, academic psychological capital, hope, resilience, efficacy, optimism. These findings support other research that has shown that mindfulness interventions can have a favourable impact on academic achievement and psychological health.

For instance, Shapiro, Brown and Astin (2011) discovered that the use of mindfulness-based interventions improved attention, reduced stress and thereby promoted

emotional regulation, thereby increasing the academic performance of students. This might help enhance the students' involvement with academic tasks and vigor as highlighted in the present study by the positive changes recorded in the intervention group after the attention had been relieved. Also, Dyrbye et al. (2011) investigated the aspect of academic resilience, arguing that students, who practice mindfulness, develop greater resilience hence can effectively handle pressure and therefore have higher grades. This is further evidenced by the statistical improvement in the resilience scores in the children in the intervention group that is most likely have contributed to the overall statistical improvement in the academic psychological capital of the children.

The changes indicated in the hope and optimism of the participants in the intervention group are also in line with findings from other literature. For example, Feldman and Dreher (2012) have shown that mindfulness practices can make students' expectations and perceptions more positive and thus affect positively their motivation and perseverance. Also, the increase in the academic efficacy in the intervention group supports the work done by Hoogendoorn et al. (2019) that sought to know how mindfulness training enhances students' ability to confidence in their learning ability through increasing awareness and decreasing self-doubt. Nevertheless, one can explain the lack of significant variations in dedication and absorption by the fact that the intervention was designed to improve psychological well-being and overall engagement per se. It implies that, although the intervention was useful in enhancing the general academic scores, there might be some particular academic behaviours that may need more management.

In sum, based on the results of this study, it can be concluded that the mindfulness based intervention helped in improving academic outcomes of university students by improving several psychological and academic assets. This is in concordance with the

assumption that exercises of mindfulness can be employed to enhance results in learning hence improving the quality of life of students.

Enhancement of academic performance is well correlated with the students' general health and well-being of university students, because academic achievements are the major source of feeling competent, effective, and satisfied with one's life. It has been found out that there is a positive correlation between academic achievement and self-rated psychological health, perceived stress and overall perceived quality of life. In one research by Suldo, Riley, and Shaffer (2006), academic success leads to increase level of life satisfaction and reduced symptoms of depression and anxiety. This indicates that students' performance is very crucial in boosting their psychological health and welfare. Furthermore, academic success can promote sense of achievement and meaning, which are the aspects of well-being (Schutz, Hong, Cross, & Osbon, 2006).

Secondly, MBIs are effective in enhancing academic performance as well as psychological health implying reciprocal effects. For instance, Shapiro, Brown, and Astin (2011) conducted a study in which students who underwent mindfulness training had not only enhanced their academic achievements but also the level of stress was lowered, and the level of well-being was increased among the students. This suggests that there is a direct correlation between training students to be mindful and an improvement in the performance of students as well as student health. Therefore, the hypothesis that better academic results mean better well-being within the university students is true as improved academic results increase perceived competence, decrease stress and increase the life satisfaction. Hence, the programs that enhance learning, for instance, mindfulness based programs, can be very helpful in the wellbeing of students.

## Feedback and Suggestions

The last session of the intervention was about getting students' input and suggestions. Many participants expressed that intervention helped them staying in the present moment and focus on their studies instead of allowing their worries about the past or future to overtake them. One student reported, *"After practicing mindfulness exercises, I found myself better able to focus during my study sessions"* Someone else said, *"I used to get distracted by thinking too much about what I should have done in the past but this intervention helped me to focus on the present moment"*

A number of students expressed their satisfaction with the meditations' recordings efficacy, praising the soothing voice and clear explanations in both Urdu and English languages. A student mentioned, *"The voice was so calming. It made the whole experience deeper and more engaging and I really appreciate the clear explanation in both languages"*. Another student added, *"The way each concept was explained in simple words made it easy to follow and understand the practices"*.

A few married female students also talked about how the intervention positively impacted their lives beyond studies. A participant noted, *"Balancing studies and home life is challenging as a married student, but these mindfulness practices helped me to manage my time better and stay focused"*. A single parent mother added, *"Before the intervention I often thought, 'Why me? Why do I always have to suffer? However, after attending the sessions, I found myself concentrating more on my child and the good things in life. I am more grateful and hopeful now that I recognize the positive things in my life. It has made a real difference in how I approach each day"*. Another student added, *"I was overburdened by my studies and worried about my future all the time before the intervention. However, I learned to stay*

*present and manage my stress better through the sessions. I am less concerned about the future and more concentrated on my work right now”.*

A male student who was doing part term job reported, *“Before the intervention, I was having a lot of difficulties at work. My performance suffered as I felt constantly stressed and could not handle the pressure. I was always anxious about meeting deadlines and dealing with my boss. However, I learned how to stay calm and focused on the present after the sessions. I started applying mindfulness techniques at work and it had a significant impact. Now I manage stress better and I am more confident in handling challenges. My situation truly improved thanks to the intervention”.* Another student reported, *“I used to feel exhausted and lost since I used to struggle with balancing my personal life and academics. After taking intervention’s sessions I have started to prioritize my wellbeing and make more specific goals It has made me feel more confident in managing my personal life as well as my studies”.*

However, a few students argued that if the intervention had been delivered in person it might have had an even greater impact. *“I think it would have been more effective if we could have these lessons in a physical setting”.* One student commented. Another stated, *“This should be part of our regular syllabus; it would be beneficial for so many students if we integrate this in our daily lives”.*

The majority of the students who responded in the feedback session expressed gratitude for the intervention’s significant positive effects on their personal life as well as academics.

Along with positive feedback on mindfulness and concentration a lot of students also shared that they often fell asleep during lectures and meditation activities. Many participants mentioned this unexpected outcome as surprising benefit of intervention; majority of them

reported improvement in their sleep quality. *“I would fall asleep almost instantly whenever I listened to the meditation exercises”*, A student added. *“The voice was so soothing, these sessions made me relax completely and I slept better than ever”*. Another student added who had a similar emotion. *“I had difficulty falling asleep before the intervention because my thoughts wouldn’t stop racing. But after the sessions I learned how to calm my thoughts, and now I sleep much better and feel more rested when I wake up”*. A student explained.

This improvement in sleep can be supported by previous research, which has found that mindfulness practices, particularly those involving guided meditation, can enhance sleep quality by reducing stress and promoting relaxation. Several researches have demonstrated that mindfulness based therapies can effectively treat insomnia and enhance general sleep patterns by fostering a calm state that makes falling sleep easier (Black et al., 2015, Gross et al., 2011). This is consistent with what the students experienced, indicating that intervention’s calming effects went beyond the improvements in psychological wellbeing and academic performance to include improved sleep quality.

Overall the feedback of intervention indicates that it did not only improve students’ ability to stay focused and present but it also unexpectedly improved their quality of sleep, which further highlights the diverse benefits of mindfulness exercises. This result emphasizes the intervention’s broad effect on students’ wellbeing and the calming nature of recorded sessions.

## **Limitations and Suggestions**

This study had several strengths that contributed to its robustness and potential impact. The culturally specific design of the intervention, tailored to address the unique needs and challenges of university students, was a notable strength, as it enhanced relevance and engagement among participants. The study employed rigorous statistical analyses to

accurately assess the intervention's effectiveness over time. The use of both quantitative measures and qualitative feedback enriched the findings, providing a comprehensive view of the intervention's impact on students' well-being.

However, despite these strengths, the study has certain limitations and areas for improvement, as outlined below.

- First, the study's sample size was restricted to 176 students from psychology department only, therefore cannot be considered as a representative of the whole university's population. More studies should be conducted in large and diverse samples to increase the external validity of the research.
- One limitation of this study was the absence of booster sessions and follow-up assessments for students, which may have affected the long-term sustainability of the intervention's effects. Future researchers should consider incorporating booster sessions and conducting follow-up evaluations to reinforce learning, support continued practice, and assess the lasting impact of the intervention over time.
- Situational factors, such as students' academic workload, personal stressors, and social obligations, were not taken into account, which may have influenced their engagement with the intervention. Future studies should consider these contextual factors when designing and scheduling sessions to better accommodate students' varying circumstances and optimize their participation and outcomes.
- There was lack of control for external factors in terms of personal stressors or other therapies at the same time which could have impacted the results. Future research should aim to monitor or control for these external variables, potentially through screening questions or additional data collection, to better isolate the effects of the intervention and improve the accuracy of the findings.

## **Conclusion**

The purpose of the current study was to evaluate the effectiveness of culturally tailored mindfulness based intervention grounded in Acceptance and Commitment Therapy (ACT) for university students. The researcher considered cultural background of participants while designing the intervention which included mindfulness and breathing exercises to promote psychological flexibility, mindfulness and general wellbeing. The findings showed significant improvements in these areas as the students in intervention group professed a higher improvement in comparison to those in control group. In addition to improving students' psychological flexibility and mindfulness the proposed intervention also improved students' academics and overall quality of life. Feedback from participants showed that they found the intervention beneficial as the content was presented in both Urdu and English languages and was easy to understand. Several students reported increased concentration on studies and present moment awareness; some of them said they would prefer face-to-face modalities and integration into curriculum. These conclusions drawn from the present study emphasize the usefulness of the ACT-based intervention in enhancing university students' well-being and academic achievements, highlighting its potential for broader application and integration into educational settings

## **Implications of the Study**

- The study shows the effectiveness of web-based mindfulness interventions for university students and therefore may be used to improve the wellbeing of students.
- Similar types of interventions could be implemented in educational institutions with an aim of improving students' mental health, their quality of life and academic performance.



- The study encourages more research into digital mental health resources by highlighting positive impact on mindfulness, psychological flexibility, academic psychological capital and decreased distress.
- It highlights the significance of adaptable and culturally relevant intervention designs.
- The study suggests integrating mindfulness exercises in academics to proactively promote students' resilience and wellbeing.
- Future implications highlight the advantages of incorporating mindfulness and wellbeing techniques in educational settings to support students' emotional resilience, foster good personal development and equip them with lifelong skills.

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## **APPENDIX I**

### **Consent Form**

I am a student of MPhil Psychology, and I aim to conduct research to evaluate the effectiveness of a mindfulness-based intervention designed to enhance well-being, mindfulness, psychological flexibility, and quality of life. The intervention, based on the principles of Acceptance and Commitment Therapy (ACT), includes mindfulness exercises and breathing techniques to help individuals focus on the present and manage their thoughts effectively. As part of this study, you will participate in a series of sessions and provide feedback to assess the impact of the intervention on your daily life and academic performance. Your participation is completely voluntary, and you can withdraw at any time without any negative consequences. All the information you provide will remain confidential and will be used solely for the purpose of this research.

Do you agree to participate in this research?

- Yes
  
- No

**APPENDIX II****Demographics****Wellbeing in University Students****Email.** \_\_\_\_\_**Semester** \_\_\_\_\_**Roll no.** \_\_\_\_\_**Age** \_\_\_\_\_**Gender**

- Male
- Female

**Family system**

- Nuclear
- Joint

**No. of family members** \_\_\_\_\_**Monthly household income (approx)** \_\_\_\_\_**Which of the following best describes your financial situation?**

- financially independent and earn my own income
- partially financially dependent on my family and earn some income
- fully financially dependent on my family and do not earn my own income.



### APPENDIX III

#### Five Facets Mindfulness Questionnaire

Please rate each of the following statements with the number that best describes your own opinion of what is generally true for you.

	Statements	Never or very rarely true	Rarely true	Sometimes true	Often true	Very often or always true
1	When I'm walking, I deliberately notice the sensations of my body moving.	1	2	3	4	5
2	I'm good at finding words to describe my feelings.	1	2	3	4	5
3	I criticize myself for having irrational or inappropriate emotions.	5	4	3	2	1
4	I perceive my feelings and emotions without having to react to them.	1	2	3	4	5
5	When I do things, my mind wanders off and I'm easily distracted.	5	4	3	2	1
6	When I take a shower or bath, I stay alert to the sensations of water on my body.	1	2	3	4	5
7	I can easily put my beliefs, opinions, and expectations into words	1	2	3	4	5
8	I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.	5	4	3	2	1
9	I watch my feelings without getting lost in them.	1	2	3	4	5
10	I tell myself I shouldn't be feeling the way I'm feeling.	5	4	3	2	1
11	I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	1	2	3	4	5
12	It's hard for me to find the words to describe what I'm thinking.	5	4	3	2	1
13	I am easily distracted	5	4	3	2	1
14	I believe some of my thoughts are abnormal or bad and I shouldn't think that way.	5	4	3	2	1
15	I pay attention to sensations, such as the wind in my hair or sun on my face.	1	2	3	4	5

16	I have trouble thinking of the right words to express how I feel about things.	5	4	3	2	1
17	I make judgments about whether my thoughts are good or bad.	5	4	3	2	1
18	I find it difficult to stay focused on what's happening in the present.	5	4	3	2	1
19	When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.	1	2	3	4	5
20	I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.	1	2	3	4	5
21	In difficult situations, I can pause without immediately reacting.	1	2	3	4	5
22	When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.	5	4	3	2	1
23	It seems I am "running on automatic" without much awareness of what I'm doing.	5	4	3	2	1
24	When I have distressing thoughts or images, I feel calm soon after.	1	2	3	4	5
25	I tell myself that I shouldn't be thinking the way I'm thinking.	5	4	3	2	1
26	I notice the smells and aromas of things.	1	2	3	4	5
27	Even when I'm feeling terribly upset, I can find a way to put it into words.	1	2	3	4	5
28	I rush through activities without being really attentive to them.	5	4	3	2	1
29	When I have distressing thoughts or images, I am able just to notice them without reacting.	1	2	3	4	5
30	I think some of my emotions are bad or inappropriate and I shouldn't feel them.	5	4	3	2	1
31	I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow	1	2	3	4	5
32	My natural tendency is to put my experiences into words.	1	2	3	4	5
33	When I have distressing thoughts or images, I just notice them and let them go.	1	2	3	4	5

34	I do jobs or tasks automatically without being aware of what I'm doing.	5	4	3	2	1
35	When I have distressing thoughts or images, I judge myself as good or bad depending what the thought or image is about.	5	4	3	2	1
36	I pay attention to how my emotions affect my thoughts and behavior.	1	2	3	4	5
37	I can usually describe how I feel at the moment in considerable detail.	1	2	3	4	5
38	I find myself doing things without paying attention.	5	4	3	2	1
39	I disapprove of myself when I have irrational ideas.	5	4	3	2	1

## APPENDIX IV

### Utrecht Work Engagement Scale for Students(UWES-9S)

**Note:** Read all the items carefully and mark the appropriate response that fully describes you. Answer as honestly as you can.

	<b>Statements</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Some-what Disagree</b>	<b>Neutral</b>	<b>Some-what Agree</b>	<b>Agree</b>	<b>Strongly Agree</b>
1.	When I'm doing my work as a student, I feel bursting with energy.	0	1	2	3	4	5	6
2.	I feel energetic and capable when I'm studying or going to class.	0	1	2	3	4	5	6
3.	I am enthusiastic about my studies.	0	1	2	3	4	5	6
4.	My studies inspire me.	0	1	2	3	4	5	6
5.	When I get up in the morning, I feel like going to class.	0	1	2	3	4	5	6
6.	I feel happy when I am studying intensely.	0	1	2	3	4	5	6
7.	I am proud of my studies.	0	1	2	3	4	5	6
8.	I am immersed in my studies.	0	1	2	3	4	5	6
9.	I get carried away when I am studying.	0	1	2	3	4	5	6

## APPENDIX V

### Acceptance and Action Questionnaire (AAQ-II)

**Note:** Read all the items carefully and mark the appropriate response that fully describes you. Answer as honestly as you can.

	<b>Statements</b>	<b>Never true</b>	<b>Very seldom true</b>	<b>Seldom true</b>	<b>Sometimes true</b>	<b>Frequently true</b>	<b>Almost always true</b>	<b>Always true</b>
1.	My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6	7
2.	I'm afraid of my feelings.	1	2	3	4	5	6	7
3.	I worry about not being able to control my worries and feelings.	1	2	3	4	5	6	7
4.	My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6	7
5.	Emotions cause problems in my life.	1	2	3	4	5	6	7
6.	It seems like most people are handling their lives better than I am	1	2	3	4	5	6	7
7.	Worries get in the way of my success.	1	2	3	4	5	6	7

**APPENDIX VI**  
**WHO Wellbeing Index**

Please respond to each item by marking one box per row, regarding how you felt in the last two weeks.

	<b>Statements</b>	<b>All of the time</b>	<b>Most of the time</b>	<b>More than half the time</b>	<b>Less than half the time</b>	<b>Some of the time</b>	<b>At no time</b>
1.	I have felt cheerful in good spirits.	5	4	3	2	1	0
2.	I have felt calm and relaxed.	5	4	3	2	1	0
3.	I have felt active and vigorous.	5	4	3	2	1	0
4.	I woke up feeling fresh and rested	5	4	3	2	1	0
5.	My daily life has been filled with things that interest me.	5	4	3	2	1	0

## APPENDIX VII

### Academic Psychological Capital (APC-12)

**Note:** Read all the items carefully and mark the appropriate response that fully describes you. Answer as honestly as you can.

	<b>Statements</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Somewhat Disagree</b>	<b>Somewhat Agree</b>	<b>Agree</b>	<b>Strongly Agree</b>
1.	I feel confident in myself when it comes to expressing what I think about my studies	1	2	3	4	5	6
2.	I feel confident in participating in conversations about the strategies that should guide my studies	1	2	3	4	5	6
3.	I feel safe sharing information about my studies with other people	1	2	3	4	5	6
4.	If I were in trouble with my studies, I could think of many ways to get ahead.	1	2	3	4	5	6
5.	Currently I think I am being quite successful in my studies.	1	2	3	4	5	6
6.	I can think of many ways to achieve my current goals in studies.	1	2	3	4	5	6
7.	At this moment, I am achieving the goals I have set for myself in my studies.	1	2	3	4	5	6
8.	If necessary, I could “make it on my own,” so to speak, in studies.	1	2	3	4	5	6

9.	Normally, I take the stressful aspects of my studies in stride.	1	2	3	4	5	6
10.	I can overcome difficult times in my studies, because I have faced difficulties before.	1	2	3	4	5	6
11.	When it comes to my studies, I always see the bottle as half full.	1	2	3	4	5	6
12.	When it comes to my studies, I am optimistic about what the future holds for me.	1	2	3	4	5	6



## APPENDIX VIII

### General Health Questionnaire (GHQ)

**Note:** Below are various statements about how you feel and how true are the statements for you personally?

	Statements	Never True	Somewhat True	True	More than Usual
1.	Able to concentrate	0	1	2	3
2.	Loss of sleep over worry	0	1	2	3
3.	Playing a useful part	0	1	2	3
4.	Capable of making decisions	0	1	2	3
5.	Felt constantly under strain	0	1	2	3
6.	Couldn't overcome difficulties	0	1	2	3
7.	Able to enjoy day-to-day activities	0	1	2	3
8.	Able to face problems	0	1	2	3
9.	Feeling unhappy and depressed	0	1	2	3
10.	Losing confidence	0	1	2	3
11.	Thinking of self as worthless	0	1	2	3
12.	Feeling reasonably happy	0	1	2	3

**APPENDIX IX**  
**WHO Quality of Life (WHOQOL)**

Read the question, assess your feelings, for the last two weeks, and circle the number on the scale for each question that gives the best answer for you.

		Very poor	Poor	Neither poor nor good	Good	Very good
1	How would you rate your quality of life?	1	2	3	4	5
		Very dissatisfied	Fairly Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2	How satisfied are you with your health?	1	2	3	4	5
	The following questions ask about how much you have experienced certain things in the <b>last two weeks</b> .	Not at all	A Small amount	A Moderate amount	A great deal	An Extreme amount
3	To what extent do you feel that physical pain prevents you from doing what you need to do?	1	2	3	4	5
4	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
5	How much do you enjoy life?	1	2	3	4	5
6	To what extent do you feel your life to be meaningful?	1	2	3	4	5
		Not at all	Slightly	Moderately	Very	Extremely
7	How well are you able to concentrate?	1	2	3	4	5

8	How safe do you feel in your daily life?	1	2	3	4	5
9	How healthy is your physical environment?	1	2	3	4	5
		Not at all	Slightly	Somewhat	To a great extent	Completely
10	Do you have enough energy for everyday life?	1	2	3	4	5
11	Are you able to accept your bodily appearance?	1	2	3	4	5
12	Have you enough money to meet your needs?	1	2	3	4	5
13	How available to you is the information you need in your daily life?	1	2	3	4	5
14	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5
		Not at all	Slightly	Moderately	Very	Extremely
15	How well are you able to get around physically?	1	2	3	4	5

The following questions ask you to say how satisfied have you felt about various aspects of your life over the **last two weeks**.

		Very Dissatisfied	Fairly Dissatisfied	Neither Satisfied nor Dissatisfied	Satisfied	Very satisfied
16	How satisfied are you with your sleep?	1	2	3	4	5
17	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5


18	How satisfied are you with your capacity for work	1	2	3	4	5
19	How satisfied are you with yourself?	1	2	3	4	5
20	How satisfied are you with your personal relationships?	1	2	3	4	5
21	How satisfied are you with your sex life?	1	2	3	4	5
22	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24	How satisfied are you with your access to health services?	1	2	3	4	5
25	How satisfied are you with your transport?	1	2	3	4	5
	The following question refers to <b>how often</b> you have felt or experienced certain things in the <b>last two weeks</b> .	Never	Infrequently	Sometimes	Frequently	Always
26	How often do you have negative feelings such as blue mood, despair, anxiety or depression?	1	2	3	4	5

## APPENDIX X

### Permissions

Permission to use FFMQ Inbox x

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 **Memoona Usman** <memoonausman981@gmail.com>  
to rbaer ▾ Feb 13, 2024, 12:14AM ☆ 😊 ↶ ⋮


Respected Madam,  
Hope this email finds you in good health. I am an M. Phil Scholar studying in the National University of Modern Languages, Islamabad, Pakistan. As a requirement of my degree, I am conducting research on the well-being of students through mindfulness intervention under the supervision of Dr. Asia Mushtaq Assistant Professor, Applied Psychology Department, NUML, Pakistan.

I will be using Five Facets Mindfulness Questionnaire (FFMQ) (Baer, 2006) to measure mindfulness. Therefore I require permission for the use along with the protocols of the above-mentioned scale.  
Thanking in anticipation.

Regards,  
Mphil scholar  
Memoona Usman  
[memoonausman981@gmail.com](mailto:memoonausman981@gmail.com)

Dr. Asia Mushtaq  
Assistant Professor  
NUML University, Islamabad  
Email: [asmushtaq@numl.edu.pk](mailto:asmushtaq@numl.edu.pk)

---

 **Baer, Ruth A.** <rbaer@email.uky.edu>  
to me ▾ Mar 4, 2024, 4:40AM ★ 😊 ↶ ⋮

Hello,

You're welcome to use the FFMQ. You can find it on my website: [www.ruthbaer.com](http://www.ruthbaer.com), on the Academics page under Questionnaires.

Best of luck with your project,

Ruth Baer

from here forward will be termed the AAQ-II).


**NOTE: The AAQ-II started out as a 10-item scale, but after final psychometric analysis has been reduced to a 7-item scale (2011). Please be sure to download the 7 item version, below.**

It was designed to assess the same construct as the AAQ-I and, indeed, the two scales correlate at .97, but the AAQ-II has better psychometric consistency. The reference for the AAQ-II is:


Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire - II: A revised measure of psychological flexibility and experiential avoidance. *Behavior Therapy, 42*, 676-688.

**Use of the AAQ-II:** Permission is given to use the AAQ-II for research and with clients, and does not require additional author permission. If, however, the AAQ-II was to be used in any type of money making enterprise (e.g., consultancy to organizations), seeking permission is requested by the authors. - Frank Bond, Goldsmiths College, London

Permission to use UWES-S Inbox x ↕ 🖨 ✉

 **Memoona Usman** Nov 7, 2024, 6:00 PM (3 days ago) ☆  
 Respected Sir.Hope this email finds you in good health. I am an M. Phil Scholar studying in the National University of Modern Languages, Islamabad, Pakistan. As

---

 **Schaufeli, W.B. (Wilmar)** Nov 7, 2024, 8:06 PM (3 days ago) ☆ 😊 ↶ ⋮  
 to me ▾

Dear Memoona,

Thank you very much for your interest in my work.  
 You may use the UWES free of charge, but only for non-commercial, academic research. In case of commercial use, we should draft a contract.  
 Please visit my website (address below) from which the UWES can be downloaded, as well as all my publications on the subject.  
 Good luck with your research.

With kind regards,

Wilmar Schaufeli

[Activate Windows](#)  
 Go to [Settings](#) to activate Windows.



### Academic Psychological Capital Scale

1 message

**Isabel María Martínez Martínez** <imartine@uji.es>  
 To: Dr Asia mushtaq <asmushtaq@numl.edu.pk>

Wed, 20 Sept 2023 at 8:16 pm

Dear Asia,  
 The original version of this questionnaire was in Spanish. I also send you a version adapted to the English language.

Good luck: Isabel

\*\*\*\*\*

**Isabel M. Martínez Martínez**

*Profesora Titular de Psicología del Trabajo.*

Equipo de Investigación WANT Prevención Psicosocial y Organizaciones Saludables

[Activate Windows](#)