

Qualitative Survey Analysis of Higher Education Students' Experience of Mindfulness - Thematic Analysis

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Abstract: The main objective of this article was to explore in depth the subjective experiences of higher education students in their mindfulness meditation practice, with a particular focus on the mental and emotional changes they perceive through their mindfulness practice in their daily academic life, as well as the specific challenges they encountered in the process. The study adopted a qualitative research methodology through semi-structured interviews in order to collect detailed personal narratives from students about their mindfulness meditation practice for thematic analysis. The study was conducted with nine higher education students who were undergraduate and postgraduate students, as well as students in the gap year between their undergraduate and postgraduate degrees, and all participants had either short- or long-term experience of mindfulness meditation. Interviews centred on how students began their mindfulness practice, the impact of mindfulness on their daily lives, and the challenges they encountered in their mindfulness practice. The results of the study revealed that students experienced two main themes in mindfulness meditation: the benefits of mindfulness and the challenges of mindfulness practice. The study showed that mindfulness meditation has significant positive effects among higher education students, such as reducing stress and anxiety, enhancing present moment awareness, and promoting self-reflection and emotional regulation. However, despite the multiple benefits of mindfulness, students still face many challenges in their practice, such as difficulties in sustaining a long-term practice, interference from environmental factors, and negative emotions arising from meditation. These challenges suggest that effective integration of mindfulness practices in higher education settings still needs to be further explored. The study suggests that future mindfulness intervention programmes should be more personalised, taking into account the actual experiences and feelings of students in mindfulness practice, and designing mindfulness programmes that can meet the needs of different students. In addition, future research should further explore gender and ethnicity differences in mindfulness experiences to improve the applicability and effectiveness of mindfulness interventions for different student populations.

Keywords: Mindfulness, Higher education students, Qualitative research, Thematic analysis.

1. Introduction

The introduction begins by describing the challenges faced by students in higher education and the introduction of mindfulness in education, and then analyses the shortcomings of current investigations of mindfulness as a way of leading to the main area of research in this paper - exploring the personal subjective experiences of mindfulness meditation among students in higher education (Benefits and challenges).

1.1. Challenges faced by higher education students

The college years are a major turning point in life, as students not only adjust to new responsibilities and expectations, but also face a high incidence of many common mental illnesses. During this phase, students must cope with multiple demands from personal, social, and academic sources, and often feel significant psychosocial pressure as a result [48]. If students are unable to cope effectively with these pressures, a range of unhealthy outcomes may result [30].

Studies have indicated that students often experience stress and anxiety as a result of juggling their personal, social, and academic responsibilities with the strain of transitioning to college life [62] [32]. A vague, enduring sensation of tension that develops when someone experiences prolonged or extreme stress is known as anxiety [67]. Reports of anxiety among college students have nearly doubled over the past 15

years, with 21.9% of students indicating that anxiety has negatively impacted their academic performance. According to Kang et al. [58] and DeBerard et al. [30], anxiety attacks can have a serious negative influence on a college student's memory, study habits, and general physical and mental health. They can also cause avoidance behaviours and other poor coping mechanisms. In addition to anxiety and depression, stress-related adjustment problems include maladaptive behaviours such as alcohol and drug use, which are not only detrimental to students' physical health, but also further exacerbate mental health problems [125] [81]. Therefore, it is more important than ever to meet the emotional needs of students during their time at university [56].

1.2. Introducing mindfulness into the field of education

Meanwhile, mindfulness has been widely introduced into educational sessions as a method that contributes to physical and mental health [98]. For instance, Jack Miller, a holistic educator at the University of Toronto, has been requiring students to practise mindfulness and present in his almost 30-year-long holistic education classes [50] [74]. Researchers have suggested integrating mindfulness meditation into stress reduction tools for college students to help them better cope with stress and increase academic motivation and resilience [77] [112] [114]. A recent book co-edited by Miller includes essays by his graduate students who practice positive thinking in his courses [75]. The Centre for the Study of Positive

Mindfulness Awareness was established in the US by scientist Susan Smalley and positive mindfulness instructor Diana Winston. The organisation offers practical mindfulness courses to students and conducts research on how mindfulness affects practitioners' brain activity [110]. Furthermore, prominent medical neurologist Dan Siegel has been researching the benefits of mindfulness meditation on the human brain, particularly on the growing teenage brain. The incorporation of mindfulness practice in educational environments where teenagers are seeking higher education is further supported by his findings that mindfulness practice promotes to neural integration and cognitive processing in the developing adolescent brain [105] [106].

1.3. Shortcomings of previous research on mindfulness

With the rise of mindfulness in education, more and more research has begun to focus on whether mindfulness is beneficial to students [104] [96]. However, there are limitations to the research methodology of these investigations. Most of these studies have taken the form of interferential neuroimaging measurements [15] or have only administered some questionnaires before and after meditation sessions [120]. Additionally, there are limitations in the measurement tools. Sedlmeier et al. [96] noted that important changes in mindfulness may be overlooked when relying on standardised research designs and instruments. With increased practice of mindfulness, practitioners are expected to make increasing progress in mindfulness and realise changes in awareness that are not well measured by retrospective personality or mood questionnaires [20]. Crucially, fewer studies have examined mindfulness process factors using qualitative data, such as attitudes and intentions associated with mindfulness [51]. According to Solhaug et al. [111], this kind of data is most suited for identifying subtleties and experiential characteristics that advance a more comprehensive comprehension of the paradoxical components of mindfulness training, or prospective difficulties. At the same time, Bamber et al. [2] suggests that a 'one-size-fits-all' approach does not apply to mental health or education, and that standardised mindfulness cannot be assumed to apply to all university students.

To address these shortcomings, this study will use a qualitative research methodology of thematic analysis and in-depth interviews to explore the subjective experiences and perceptions of students in different tertiary institutions as they experience mindfulness activities. The central question of the study focuses on: what are the main benefits and challenges experienced by students in higher education institutions when engaging in mindfulness practice? The study also adopted the process elements proposed by Shapiro et al. [102] as a conceptual framework, namely intention, attention and attitude. The focus of the interviews was centred around the students' intentions towards mindfulness, their attitudes and feelings towards mindfulness. In this way, the full potential of mindfulness can be recognised and barriers that may limit its effectiveness can be addressed.

2. Literature Review

2.1. Definition of mindfulness and forms of intervention

The mainstream concept of mindfulness in Western psychology originates from the Mindfulness for Stress

Reduction (MBSR) programme [55], which is based on Buddhist mindfulness practices and draws on the fundamental concepts of the Buddhist Four Noble Truths framework [103]. The Four Noble Truths are an important practical framework for Buddhist practice and represent the four foundations of Buddhist mindfulness [121]. They include body mindfulness: attending to and being aware of the body's posture, movement, breathing, and bodily sensations. Sensory mindfulness: being aware of and recognising sensations such as pain, pleasure or neutrality, and observing them without judgement. Positive mindfulness Positive mindfulness: being aware of the state of mind, emotions and thoughts, and understanding the nature and changes in positive thoughts. Phenomenal mindfulness: observing and understanding all phenomena, including sense objects, emotions and thoughts, and the relationship and nature of their relationships.

The holistic nature of mindfulness in Buddhism, which emphasises the need to practice across a range of complementary practices and perspectives, ensures that mindfulness is not just a technical practice, but a holistic approach to practice [59]. However, when mindfulness meditation was introduced into modern society, it underwent simplification and structuring in order to be more accessible and practiced by the general public. Often removed from its religious and philosophical context, modern mindfulness meditation is used as a psychotherapeutic technique designed to help individuals reduce psychological problems such as stress, anxiety, and depression, as well as improve overall mental health and quality of life. Modern mindfulness therapies such as mindfulness-based cognitive therapy (MBCT) and mindfulness-based stress reduction (MBSR) exemplify this simplification and structuring [104].

However, as it has spread globally, particularly in North America and Europe, mindfulness has gradually transformed from a practice centred on spiritual disciplines to a business [88]. This phenomenon is known as 'McMindfulness', similar to 'fast food culture', which refers to the fact that mindfulness has lost its deep ethical and spiritual significance in the process of popularisation and commercialisation, and has become a superficial, simplified commodity [91]. The ethical and moral components of mindfulness, such as generosity, honesty, kindness and empathy, are often overlooked in its 'fast food' dissemination, and Kabat-Zinn [57] emphasises that these ethical foundations are essential for maintaining personal inner happiness and harmony in the world. However, with the simplification and commercialisation of mindfulness, these core values have been diluted or even completely ignored in many of today's mindfulness practices. Kabat-Zinn [57], one of the key figures in the promotion of mindfulness, acknowledges this trend of commercialisation. He points out that mindfulness has been oversimplified as a marketing tool and promoted as a panacea that can solve all kinds of psychological problems. However, this approach can end up frustrating consumers who are themselves in a vulnerable position.

Specifically, in educational and work scenarios, mindfulness is increasingly being used as an instrumentalist strategy, primarily to improve concentration and focus in order to achieve specific academic or professional goals. While this pragmatic approach to application may lead to some positive results in the short term, it has gradually diverted mindfulness from its original ethical and spiritual goals [49]. Many philosophers and educators have expressed concern about this, pointing out that the application of

mindfulness in contemporary education has been overly focused on performance outcomes, such as academic grades or job performance, to the detriment of its proper ethical underpinnings [26]. This approach not only defeats the original purpose of mindfulness, but may also have long-term negative consequences. Mindfulness is stripped of its proper depth and breadth, and becomes a simple performance-enhancing tool rather than a way to promote holistic personal development. Scholars such as Schoeberlein and Sheth [99] have also criticised this, arguing that this instrumentalising tendency may diminish the true potential of mindfulness and deprive it of its value as a transformative educational tool. Salzberg and Goldstein [93] state that the educational function of mindfulness should be aligned with the deeper goals of meditation, which are closely related to the meditation tradition. They argue that 'the function of meditation is to shine the light of consciousness on our minds' and that through the practice of concentration, individuals are able to break through the limitations of conditioned reflexes, see more options, and are able to make more informed decisions, an ability known as 'discursive wisdom'. This ability is known as 'discriminative wisdom'.

2.2. How mindfulness is practised

One of the most common ways to achieve this state of mindfulness is through the formal practice of mindfulness meditation in MBI programmes [6, 79, 54]. At the same time, the diversity of mindfulness practices has led to the development of a variety of mindfulness-based practices, including mindfulness meditation, walking meditation, mindful eating, compassion meditation, as well as breath-focused concentration meditations, other concentration techniques, and compound nostril breathing sequences (e.g., toning) [76] [8]. In addition, yoga can be used as a form of practising mindfulness. According to the earliest yoga classic, the Patanjali Yoga Sutra, yoga poses are described as meditative poses, further emphasising mindfulness meditation. Activities such as body scanning, seated meditation and yoga are referred to as formal meditative practices, which need to be planned and organised for a specific period of time to develop mindfulness, concentration and inner awareness Kabat- Zinn [55]. Whereas, incorporating the principles of mindfulness into daily activities in an informal manner, such as mindful eating and mindful walking, is referred to as informal meditation [13]. In addition, with advances in technology, mindfulness interventions can be delivered via web-based video as an alternative to traditional mindfulness-based stress reduction programmes, which require a significant time commitment [29]. Research has shown that video-based meditation increases user engagement [29]. In another study, a short video-based mindfulness programme was implemented for doctors, which was designed to teach deep breathing techniques to encourage mindfulness [87]. Thus, in this paper, students practise mindfulness with the aim of developing full awareness and acceptance of the present moment, and the practice can be done with breathing, body sensations, sound or other experiences that allow for a focus on the present moment.

2.3. The role of meditation

2.3.1. Mindfulness and Academics

Mindfulness fosters students' ability to be academically energised, which may enable them to better cope with serious

academic adversity. Academic vitality has been defined as a student's ability to cope with academic setbacks and challenges that are often associated with a student's daily life, such as test anxiety, dealing with conflicting priorities, and academic performance [73] [72].

Students report that when practicing mindfulness meditation for a period of time, they feel less anxious and are more able to focus in class, resulting in improved learning [45]. This improvement not only aids classroom engagement, but also promotes knowledge absorption and understanding. This benefit of reduced anxiety, stress, and improved concentration is not only seen in the classroom, but also on exams. Examinees report feeling calmer and less nervous, which enables them to "focus more on tackling difficult exams....." [46] or "be more meticulous and thorough when taking tests" [84]. In the meantime, empirical studies on mindfulness have revealed that students believe that mindfulness meditation (MBI) improved their ability to concentrate while studying and made studying easier. They also believe that when students are more aware of the present moment and can concentrate on a single idea, they can finish tasks more easily and without interruption [53] [4]. They were able to concentrate on the activity at hand even if they were sidetracked [64].

In surveys of medical students, it has been found that mindfulness meditation practice increased their self-confidence and reduced anxiety, leading to better preparation for their offline hospital practice sessions [5] [64]. According to Felton et al. [36], practicing mindfulness meditation enhanced the students' "ability to connect with their clients" (p. 165). During the doctor-patient encounter, students felt that mindfulness meditation improved their ability to empathise with and care more about their patients. According to Gockel et al. [45], this group of inexperienced trainees appeared to be able to make more deliberate and careful decisions about how to respond to customers thanks to the practice of mindfulness meditation. Through positive thinking, students learned to better manage and cope with strong or difficult emotions in their interactions with patients, and this increased ability led to calmer and more effective relationships with their patients, which in turn improved the overall therapeutic relationship [36].

But despite growing evidence that integrating mindfulness practices into higher education can have many beneficial effects on students, including reduced stress and anxiety, increased well-being, and greater ability to focus on academics, controversy over its implementation has arisen. Many students report conflicting experiences when training in mindfulness meditation. On the one hand, mindfulness training is considered a beneficial mental health tool, but on the other hand, students find it difficult to integrate mindfulness meditation into their daily lives, and some even feel that mindfulness practice increases their anxiety [62] [84]. This ambivalence may manifest itself in uncertainty, scepticism and worry about the effectiveness of the practice. Research has shown that students who fail to see positive changes in their mindfulness practice may feel more stress and anxiety, especially if they feel they are "failing" [89]. Additionally, time is a major barrier to completing mindfulness meditation assignments. Some students reported that if they spent time meditating, it was not productive [62]. Additionally, studies found that students found it difficult to finish meditation assignments because they thought they were too similar to schoolwork and that the exercises made them

feel hesitant [100] [111].

In summary, mindfulness meditation has the potential to have a positive impact among students by increasing academic vigour, reducing anxiety and stress, and enhancing concentration. However, there are many challenges in its implementation, and further exploration is needed to optimise the application of mindfulness meditation to better integrate it into students' daily lives and academic environments

2.3.2. Mindfulness and mental health

Positive emotions may be further classified as follows from the standpoint of mental relaxation: transcendence (wonder, amazement), awakening (mindfulness flow, stillness), positive energy (optimism, joy), and relaxation (tranquillity, drowsiness) [108]. Empirical studies have demonstrated the potential of meditation and other contemplative practices to augment feelings of well-being and relaxation [1] [60]. Students can acquire lifelong skills to take personal and social responsibility for their own health, well-being, and success while being compassionate, empathic, and tolerant of others through mindfulness meditation techniques like breathing exercises, progressive relaxation, journaling, imagery, and self-awareness.

In a specific study of mindfulness positive thinking exercises, Li et al. [69] developed a 4-week online LKM programme, which showed that LKM significantly increased levels of daily self-compassion. From a positive psychology perspective, kindness, abundance, growth, and resilience allow humans to live within the optimal range of functioning [41]. Increased self-compassion and a sense of meaning in life help people to reduce experiential avoidance (i.e., behaviours that alleviate suffering by avoiding or altering emotional experiences) which in turn has an indirect positive impact on mental health [126]. Conversely, those with strong positive psychological capital are more likely to persevere, look for solutions to their issues, and rule out suicide when faced with life stressors and failures [128]. Positive psychological capital gives those who feel powerless and despairing a more optimistic outlook on life and instills the conviction that things may get better. This optimism can act as a strong defense against thoughts of suicide [22].

Additionally, following mindfulness training, students reported feeling more at ease, at ease, and tranquil. According to research, MBI helped participants feel joyful, upbeat, and appreciative of the experiences; these calmer feelings also helped them lessen, regulate, and control their negative emotions [28]. This might be as a result of the fact that happy and contented feelings have the ability to undo the bad consequences that negative emotions, including fear and anger, have on the body and mind [41]. Student reports in empirical research [4, 64] indicate that following a difficult day, students are able to accept their emotions and who they are, defuse tension by using MBI techniques, and maintain emotional safety. According to Bond et al. [5] and Johnson [53], students' capacity to constructively and non-reactively regulate their emotions to manage stress and anxiety has grown.

2.3.3. Mindfulness and Physical Health

In terms of physical health, a previous study of 'mindfulness meditation' with resident doctors, teachers and nurses showed improvements in their health after several sessions of mindfulness practice [116]. The study showed that veteran mindfulness meditators differed significantly from beginners and controls in their sleep structure, and that long-term practice of mindfulness meditation improved sleep

organisation and enhanced slow-wave sleep (SWS) and rapid eye movement (REM) states, while reducing microarousals and arousals [65]. Additionally, as patients with insomnia may chronically lack the ability to regulate emotional distress [122]. Mindfulness meditation's may help with self-acceptance, mindfulness meditation helps with self-confidence and relaxation, relieving tension in a gentle manner, which in turn produces a calmer state of mind, contributing to better sleep, which in turn promotes better sleep [117].

However, research on mindfulness meditation's benefits on sleep has been mixed. A meta-analysis revealed no significant influence on sleep latency or efficiency [44]. Different durations of mindfulness programs have been demonstrated to have varying impacts on sleep outcomes. Short-term mindfulness meditation, for example, does not enhance sleep length [109], although two-month training may [42].

In summary, although mindfulness meditation shows potential for improving health and sleep quality, the discrepancy in findings reminds us that more research is needed to further explore its specific effects and mechanisms. In particular, factors such as the duration and frequency of mindfulness meditation, as well as individual differences, need to be taken into account in order to more fully understand its effects on physical health.

2.4. Challenges of mindfulness meditation practice

2.4.1. Lack of instruction in mindfulness practice

Furthermore, despite the established potential of meditation, there have been very few initiatives to include meditation or mindfulness meditation into higher education curricula [15, 74]. Tarrasch argues that the mastery of self-help strategies is often the personal responsibility of the student outside of the curriculum. However, practice can be difficult for those with little or no experience of mindfulness meditation [23]. Kindel [64] argues that practical, experienced tutors increase students' interest and effectiveness in engaging in mindfulness interventions. Additionally, the interaction of the mindfulness intervention counsellor was important for them to develop their mindfulness skills. Students perceive tutors as having an important role in providing supportive exercises [103]. Schwind et al. [100] found that the tone and pace of the tutor's voice during mindfulness exercises had a significant impact on the student's experience.

2.4.2. Mindfulness practice creates stress and negative emotions

Some participants felt a responsibility in mindfulness practice to do the exercise "correctly", akin to having to "do their best", and this sense of responsibility often created additional stress, causing participants to feel anxious and nervous during the exercise [31]. This means that this pressure can lead to a distortion of the mindfulness experience, making mindfulness practice an additional burden rather than a relaxing and accepting process.

Furthermore, Kerr et al. [61] noted that meditation can sometimes be unpleasant or disturbing. The reason for this current phenomenon may be that an excessive focus on sustained attention in mindfulness practice may be counterproductive and lead to psychological imbalance [34]. According to Epstein (1990), if mindfulness practice overemphasises sustained attention at all times, it can instead trigger negative emotions such as stress, anxiety and

restlessness. This outcome also runs counter to the goal of mindfulness - to promote relaxation and acceptance of the current state.

In addition, negative content, such as past trauma, unresolved emotional issues, or negative perceptions of the self, can emerge during meditation [70]. Teasdale et al. [115] also noted that mindfulness may exacerbate depression. This may be because depressed individuals who practice mindfulness may fall into negative, repetitive thoughts because they are unable to shift their attention effectively [70].

2.4.3. Maintaining mindfulness is a challenge

Indeed, the true benefits of meditation lie in long-term and sustained practice [71]. However, it seems to be the norm that despite starting new health behaviours with the best of intentions, people fail to maintain the desired positive health behaviours in the following months [90]. A follow-up study of adults who started a meditation practice for the first time found that 65% failed to maintain their meditation practice after 15 months [24]. In empirical surveys, there are also many students who find it difficult to maintain a sustained interest in meditation and who may give up after their initial attempts, lacking the motivation to integrate meditation into their daily lives [2]. This phenomenon may have arisen in relation to participants' frequent mood swings [86]. According to Chadwick et al. (2011), it is more difficult to perform mindfulness practice when they are in low mood, and this difficulty further diminishes their motivation and willingness to continue the practice [18].

Other reasons for difficulties in adhering to mindfulness meditation may be influenced by the culture of today's society. Williams and Kabat-Zinn (2003) acknowledge that when Buddhist meditation was introduced into the clinical and psychological fields [54], it "faced a challenging environment associated with significant cultural and epistemological shifts". Sloan et al. [107] notes that in a society characterised by hyper-consumerism, individuals are often more concerned with the immediate personal benefits and direct rewards of healthcare. This 'what's in it for me' mentality makes it difficult for many people to attempt a formal meditation practice [78]. Formal meditation practices usually require long-term commitment and consistent practice to see significant results, rather than being able to bring immediate visible rewards [71]. Therefore, for members of hyper-consumerist societies accustomed to seeking quick and instant gratification, such long-term, sustained practice methods may seem less appealing and less likely to be accepted and adhered to [78].

2.4.4. students have a misunderstanding of mindfulness.

Jacobson's seminal work (1938) emphasised learning to recognise and trust the direct proprioceptive experience of the sensory landscape in states of tension [52], rather than striving for more desirable states such as relaxation. Mindfulness is not about going somewhere else or solving something, nor is it just about achieving a certain goal; it is an all-encompassing, open acceptance that invites us to go deeper into the direct experience of each moment [54]. The MBCT program's designers, Segal et al. (2012), also contended that using mindfulness practices to escape, resolve, or avoid issues frequently does not result in long-lasting improvement and might be seen as a type of experiencing avoidance in and of itself [95]. However in reality, mindfulness meditation is frequently misunderstood as a method of managing stress and anxiety, and students frequently think that they should only practice meditation when they are under stress [2].

3. Methodology

3.1. Positionality

It is vital to consider and reflect on my position when conducting research into the experience of mindfulness meditation amongst higher education staff. As a researcher with a keen interest in mindfulness meditation practice, I bring not only academic expertise but also personal experience and belief in the benefits of mindfulness meditation. I have practiced mindfulness meditation on several occasions and have experienced first-hand the potential of mindfulness meditation to enhance well-being, reduce stress, and improve concentration. These experiences have given me a unique perspective on meditation, but there is a risk of bias. My positive experiences may subconsciously influence my interpretation of participants' descriptions and my analysis of their experiences. To minimize this potential bias and ensure the integrity of the study, I committed to ongoing reflection throughout the study. This reflection included examining my judgments, prejudices, and beliefs and maintaining ongoing awareness and criticality. By regularly reflecting on how my personal experiences and preconceptions influenced the research process and results, I endeavored to balance my personal views with a rigorous and objective analytical approach.

In addition, my educational background has equipped me with active listening and transpersonal skills, which were invaluable when conducting semi-structured interviews and enabled me to create a supportive environment. However, I had to remain vigilant and aware that my role as an interview initiator could influence the dynamics of the interview. By clarifying my position and engaging in reflective practice, I endeavored to navigate the dual role of researcher and observer. This approach not only increased the credibility of the research but also enhanced the depth and authenticity of the insights gained through studying the mindfulness meditation experiences of higher education practitioners.

In summary, through this reflective lens, I hope to develop a nuanced and balanced understanding of how mindfulness meditation impacts the lives of higher education practitioners, whilst also recognizing my influence on the research process. This ongoing reflection and self-examination will help to ensure the objectivity and reliability of the findings, making the final research conclusions more valuable and credible.

3.2. Ontological and epistemological approaches

Ontology is a branch of philosophy that studies the nature of existence and its basic categories. It explores the fundamental questions of what existence is, its forms, and their relationships [35]. When studying the experience of mindfulness meditation, ontology determines how we view the participant's meditative experience. For example, Interpretivism's ontology assumes that people are influenced by social norms, values, and expectations and that each person's experience is subjective and unique [92]. Interpretivism ontology is more appropriate when studying mindfulness meditation because it focuses on the individual's subjective experience and emphasizes each participant's unique understanding and feelings about meditation. Other ontological approaches such as realism argue that there is an objective reality independent of human perception. Realism may be more suited to natural science research, aiming to reveal universal laws and objective truths. However, for

subjective practices such as mindfulness meditation, realism may not be able to adequately capture the inner experience of the individual. In contrast, Interpretivism's ontology emphasizes the uniqueness and complexity of individual experience, which better reflects the diversity and depth of meditation. Therefore, Interpretivism ontology is more reasonable and applicable to this study.

Epistemology is a branch of philosophy that examines the nature, source, acquisition, and validation of knowledge; it explores how we know what we know, the source and justification of knowledge [83]. In examining the experience of mindfulness meditation, the epistemology of constructionism suggests that knowledge is co-constructed through social interaction and cultural context [9]. This perspective is suitable for exploring the subjective experience of individuals as it emphasizes that knowledge and meaning are constructed by individuals within a particular social and cultural context. When studying the experience of mindfulness meditation, constructionism epistemology allows us to gain a deeper understanding of how participants construct and interpret the meditation experience within their cultural and social context.

In addition, other epistemological approaches such as objectivism emphasize objective, measurable knowledge, arguing that knowledge should be acquired through empirical validation and the scientific method. Positivism applies to the natural sciences but appears limited when studying subjective experience. Positivism has difficulty in capturing the inner feelings and subjective experiences of individuals, which are at the heart of the study of mindfulness meditation. Therefore, the epistemology of constructionism is more reasonable and effective in this research.

At the same time Interpretivism's ontology, which assumes the existence of diverse and subjective realities, and constructionism's epistemology, which emphasizes the social construction of knowledge, complement each other and provide an integrated framework [19] that enables the researcher to understand the participants' meditative experiences through their perspectives. While Interpretivism ontology focuses on the uniqueness of individual experiences, constructionist epistemology explains how these experiences are constructed through social and cultural contexts.

Thus, by adopting an Interpretivist ontology and a constructivist epistemology, the study of mindfulness meditation experiences can adequately reflect the subjective experiences of individuals and the construction of these experiences within a particular socio-cultural context. This approach not only captures the diversity and complexity of meditation but also provides insights that provide a solid theoretical foundation for exploring the inner meanings and outer influences of mindfulness meditation. While other ontological and epistemological approaches may have applicability in different research contexts, Interpretivism and constructionism are more appropriate when studying the subjective and highly personal experience of mindfulness.

3.3. Research Methodology

Qualitative research is suitable for exploratory research because it provides insight into the perspectives, feelings, and experiences of the research subjects [27]. In the field of mental health and education, it is crucial to understand the subjective experiences and contextual factors of the target population. As a one-size-fits-all approach does not apply to mental health or education, it cannot be assumed that a

standardized MBI applies to all university students. For example, Watson et al. (2016) reported that African American women are afraid to tell their peers that they practice meditation because of concerns about the cultural stigma associated with meditation. College students' perceptions and evaluations of MBI may differ from other populations [118]. Therefore, qualitative research methods are well suited for this paper. According to Patton (2014), qualitative research, through open-ended questioning, can reveal the motivations and reasons behind complex human behaviors and social phenomena [85].

Secondly, the interview method provides in-depth and detailed information that helps researchers to understand the inner world and specific life situations of individuals [66]. During the initial qualitative research phase, interviews can capture the personal narratives of the participants, revealing details and emotions that are difficult to capture in quantitative research. Seidman (2006) mentions that through interviews, a more comprehensive understanding can be gained by delving deeper into the participants' life experiences, perspectives, and feelings [97].

Among other things, semi-structured interviews provide a certain amount of structure that allows for a more systematic process, while also allowing the flexibility to delve deeper into the respondents' answers [14]. This helps to ensure that the research questions are responded to while not restricting the respondent from expressing more relevant information.

During the interview process, a series of open-ended questions will be designed to guide participants in sharing their experiences of mindfulness. For example, the researcher might ask, 'Can you describe how you started mindfulness?', 'How has your mindfulness practice affected your daily life?', 'What challenges have you encountered during mindfulness? How did you cope with these challenges?' These open-ended questions were designed to give participants ample space and freedom to express their true thoughts and feelings without being restricted by pre-set answers. In addition to these pre-determined questions, the researcher would follow up with the participants based on their answers to gain further insight into their specific situations. For example, if a participant mentions that meditation has helped them reduce stress, the researchers may ask further, 'Can you explain specifically how meditation has helped you reduce stress?' This type of in-depth follow-up questioning helps to reveal the specific effects of meditation on participants' mental and emotional states, as well as their specific strategies and experiences in coping with stress.

With this flexible approach, researchers can delve deeper into participants' personal experiences during the interviews to obtain rich, detailed, and in-depth data. Specifically, the open-ended question design and follow-up of the semi-structured interviews allowed researchers to: gain a deeper understanding of individual differences, which may vary significantly from participant to participant in their experiences of mindfulness, and which could be captured through the open-ended questions; explore emerging themes, as new themes and issues may naturally surface during the interview process, and the researchers were given the flexibility to redirect the interviews to further explore these emerging topics; and collect rich data. emerging topics; collect rich data, compared with structured interviews, semi-structured interviews can obtain more background information and details, making the data richer; and promote dynamic interactions, the interaction between the researcher

and the participants during the interview process can help to clarify ambiguous responses and dig deeper into the participants' real feelings and opinions.

In conclusion, through semi-structured interviews, researchers can obtain rich data for a comprehensive understanding of college students' experiences with mindfulness. This method not only captures basic information about the participants but also digs deeper into the profound impact of meditation on all aspects of their lives, providing a solid foundation and valuable insight for the study. This in-depth and detailed interview data will provide valuable insights into understanding how mindfulness plays a role in the lives of college students and will help reveal the learning effects of meditation in promoting mental health and improving the practice of mindfulness.

3.4. Approach to data analysis

Inductive thematic analysis was used to analyze the data for this study. Thematic analysis provides a rich, detailed, and complex description of the data, which is essential for understanding the nuanced experience of mindfulness practice among college students. This approach allowed the researcher to delve into the details of the data to reveal the wide range of emotional, psychological, and physical sensations experienced by the participants during mindfulness, resulting in a comprehensive and deep understanding. Additionally, inductive analyses are data-driven, allowing themes to arise naturally [43], rather than imposing preconceived categories, thus providing a true reflection of the participant's experience. This naturally occurring approach ensures that actual patterns and trends in the data are accurately reflected, providing an objective and reliable description of the diversity and depth of college students' mindfulness experiences.

The inductive thematic analysis approach was highly flexible. During the data analysis process, the researcher can adjust the analysis steps based on the nature of the data and the needs of the study [12]. For example, during the initial coding phase, if certain themes are found to be particularly important or complex, they can be further refined and analyzed in depth. If new important themes are identified in subsequent analyses, the researcher can revisit and examine previous data to ensure that these new themes are fully captured and understood. This means that the flexibility of the inductive thematic analysis approach allows the researcher to adapt the research questions and explore new directions as unexpected or interesting phenomena or issues are identified during the study. For example, the initial focus of the study may be on the impact of meditation on stress management among college students, but if it is found that mindfulness also has a significant impact on social relationships, the study can be flexibly adapted to incorporate more discussion on this aspect.

In conclusion, the inductive thematic analysis approach provided strong methodological support for this study by effectively capturing and presenting the diversity and depth of college students' mindfulness experiences with its flexibility, rich descriptions, participant-centered approach, and data-driven characteristics. Through this approach, the study was able to provide in-depth and detailed analyses based on respect for the participants' original experiences, providing an important reference for future related research and practice.

4. Methods

4.1. Participant identification and recruitment

A minimum of six participants will be recruited for this study. The selection of this sample size is based on guidance from Braun and Clarke (2014) which recommends that when using thematic analyses an appropriate sample size should be selected based on the method of data collection [10]. Fugard and Potts (2015) state that when using interviews as a method of data collection it is recommended that six to ten participants are recruited to both generate enough data to identify the themes and also ensure a manageable amount of data [40]. In order to answer the research questions, the inclusion criteria for this study were undergraduate or postgraduate students over the age of 18 who were in higher education and graduates who were about to continue their degree acquisition after completing their undergraduate degree, who had either a short-term (at least a week or more) or long-term meditation experience.

Recruitment methods took the form of both online and offline recruitment. Offline recruitment takes place at Sheffield University's Mindfulness Meditation Club. Participants with meditation experience will be found by attending offline events and interacting and chatting with members of the society. They will be provided with a project research information sheet covering the purpose of the study, methodology of the investigation etc. Online recruitment is mainly through social media. Begin by designing an engaging recruitment announcement, including a clear and concise headline and detailed instructions for participation. Ensure that the content is visually appealing, e.g., using high-quality images or graphics. Once completed, post on suitable social media platforms for recruitment, such as Facebook, Instagram, Twitter, Redbook, etc. as well as promote in relevant interest groups, meditation and wellness groups, etc. Actively respond to enquiries from potential participants during the recruitment process, providing timely and detailed information. Questions can be answered in the comments section or in private messages to increase participants' trust.

4.2. Study design and Procedures

This study used semi-structured interviews for data collection and inductive thematic analysis for data analysis with the aim of exploring the feelings and challenges encountered by university students during their meditation experience.

After obtaining ethical approval, reading of relevant literature to develop an outline for the interviews began, followed by the interviews. Interviews began after staff recruitment was completed, as detailed in the recruitment section of this study. At the time of the interview, all participants will confirm that they understand the information sheet and consent form and are aware that the interview will be recorded and transcribed. Also, the semi-structured interview allows for follow-up questions to a predetermined structure of open-ended questions. Corresponding participants will have the opportunity to ask questions before and during the interview.

The online interviews will be conducted using Google Meet. Other students recruited online who had technical difficulties and were unable to use Google meet will be conducted using other conferencing software, such as zoom. Once the interviews were obtained and saved, transcripts were created by listening back to the audio recordings

(usually multiple times) and transcribed verbatim into a word document, anonymising any personally identifiable information (including names and locations of individuals). Both transcripts and recordings are securely saved and stored in Google Drive. Transcripts were eventually analysed using thematic analysis [11].

4.3. Data analysis

We analysed all transcribed data thematically. Firstly, the information was fully familiarised through repeated listening to the audio recordings of the interviews and reading the transcripts. During this immersion process, we annotated and coded key ideas and concepts. The data were analysed using Braun and Clarke's (2006) six-stage thematic analysis methodology, which included data familiarisation, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and writing the report [11]. In the data familiarisation stage, the researcher repeatedly read the interview transcripts to fully understand the data content. In the generating initial codes stage, the researcher open coded the data and labelled meaningful data segments. In the search for themes stage, the researcher aggregated similar codes into initial themes. In the reviewing themes phase, the researcher examines whether the themes adequately explain the data and modifies or merges inappropriate themes. In the Define and Name Themes phase, the researcher provides detailed definitions for each theme and ensures that each theme has an apt name. Finally, in the report writing stage, the researcher presents the analyses in a systematic way, incorporating participant quotes to provide rich and insightful explanations.

4.4. Ethical considerations

4.4.1. Ethical considerations and participant protection

Ethical approval for this study was obtained from the Ethics Committee of the Faculty of Education, University of Sheffield. The approval covered all aspects of the study including the aims and objectives of the study, methods, participant recruitment, participant safety, data confidentiality, data storage and supporting documentation. Ethical approval was obtained prior to the commencement of the study.

4.4.2. Informed consent

Informed consent was obtained from each participant prior to conducting interviews via Google Docs (the University's secure online storage system). The consent form confirmed their agreement to participate and detailed how their

information would be used. This included assurances that their personal data would be anonymised and that their direct quotes may be used in the study. In addition, the consent form outlined measures to prevent potential physical or psychological harm to the participant, such as allowing them to stop the interview at any time or to withdraw data from the study according to the instructions on the consent form. Once withdrawn, all data related to the participant is immediately deleted from the University's Google Drive, and no data from the participant will be included in the final study report.

4.4.3. Participant safety

Whilst participants were not harmed in any way during the data collection process, they were made aware of the support services available at the University, including mental health support and student welfare services. This ensured that participants were aware of the resources available to them in times of need.

4.4.4. Confidentiality and anonymity

In order to maintain the confidentiality and anonymity of all research participants, a systematic procedure was implemented. Specifically, all participants' names were replaced with unique pseudonyms in all research-related documents. To further ensure the security of the data collected, a protocol was put in place stating that all data would be collected and stored on an encrypted device, which would then be immediately uploaded to the University's Google Drive. Additionally, all interview transcripts would be deleted one year after submission of the thesis.

4.4.5. Data storage and security

All data collected is securely stored on the University's Google Drive system, which provides robust protection to ensure that only authorised personnel have access. The use of encrypted devices for initial data collection adds an extra layer of security that protects sensitive information from unauthorised access.

5. Results

A total of nine participants who had experienced short- or long-term mindfulness were interviewed for this study. And each participant was in the process of pursuing higher education, including 2 undergraduates, 4 postgraduates, and 3 students in the gap year between undergraduate and postgraduate studies. This analytical review process produced the final analytical structure, which consisted of 2 main themes and 8 sub-themes, see Figure 1.

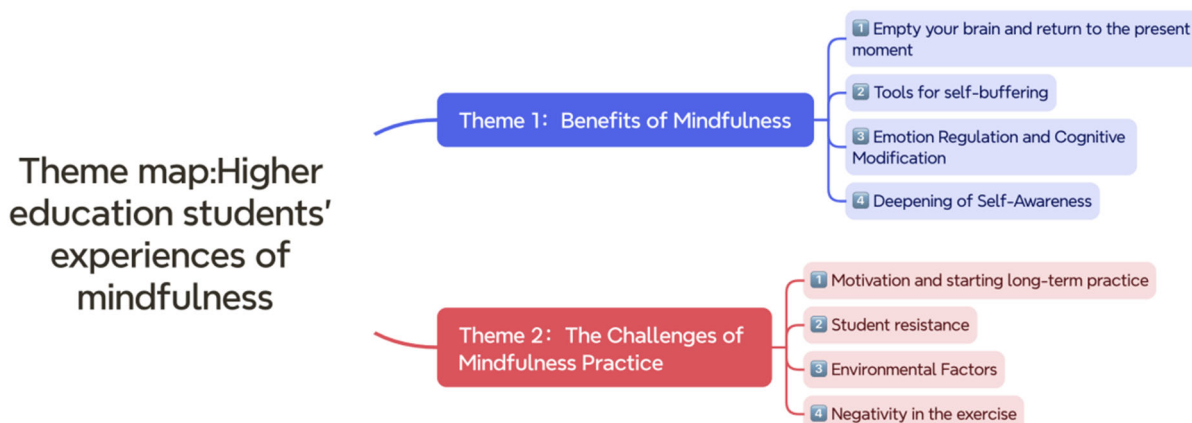


Figure 1. Thematic structure

The diagram is a thematic map that represents higher education students' experiences with mindfulness, divided into two main themes: Benefits of Mindfulness and Challenges of Mindfulness Practice.

5.1. Theme 1: Benefits of Mindfulness

The first theme, "Benefits of Mindfulness," captures the positive impacts that students experience through mindfulness practices. This theme includes four subcategories: emptying the brain and returning to the present moment, tools for self-buffering, emotion regulation and cognitive modification, and deepening self-awareness. Collectively, these benefits illustrate how mindfulness can be a powerful tool for enhancing mental well-being, improving emotional regulation, and fostering a deeper understanding of oneself.

5.1.1. Sub-theme 1: Returning to the present moment

Participants reported that by actively controlling the rhythm of their breathing and focusing their attention on the breathing process, they could help themselves eliminate distractions and enter an ethereal state. This state enables them to better enjoy the present moment in some of their daily activities.

'And then I had some small attempts myself at the time, maybe I would try to actively control the rhythm of my breathing a little bit, maybe just like completely empty my mind and then just think about the words exhale and inhale and then go and focus on that breathing for myself.'

'There's a little bit more mindfulness when I'm walking, sometimes it's just walking and suddenly letting go and then putting my attention back to the present moment, and sometimes I just enjoy that.'

'If I do mindfulness it keeps me focussed on the present moment, like going to do my homework and completing the task at hand.'

'It's more about regulating my attention, it might be more than just controlling my breathing, which might just be a small manifestation of it, but it might be more about the core idea of being able to get away from some of the more tedious things, to sink my mind into the present moment, to live in the present moment better.'

'When you're counting, you're not thinking about what's going on in your head, you're in a state of emptying your brain, and then you're following that number and being more focused. It's just focusing on one thing and then not thinking about anything else, and that puts me to sleep faster.'

Participants expressed experiencing a deep connection with nature by paying attention to the natural sounds and smells around her and the sound of her own footsteps.

'I prefer to be in a quieter environment, the kind where there's just the sound of birdsong, like inside a little forest in the countryside. Walking in it or sitting in it and just observing my surroundings and focusing on my walk and just kind of paying attention to the sound of my own

footsteps for a more enjoyable process, he'll make me more peaceful, calmer and then more comfortable.'

'I feel like I'm connected to the world, but I'm kind of detached from the world, nothing bothers me, and I'm in a very serene and calm state of mind. Sometimes I can smell the flowers, sometimes I can see very beautiful landscapes.'

Some students reported that mindfulness brought about deep mental and physical relaxation. For example, figuratively feeling the distractions in the mind like dirt being cleaned out of the drain, and physically feeling a sense of blankness as one sinks into a bed or into the universe.

'I don't think it's a very direct effect, I think meditation for me is a buffer, a way of pulling me back from that not-so-good state, and I often feel that when I follow this guidance of meditation a little bit, there's a kind of, it's like there's a lot of mud, a lot of moss, it's like all this is cleared out, it's just that my mind There's often this image in there, and it's just a little bit more relaxed, it's a little bit more powerful.'

'It comes in a variety of ways really, but ultimately it's about getting you to a feeling of emptying your brain. I think that's still one of my preferred modalities, a form of therapy that I can live with. Brain emptying is actually quite important, like the only way to rest is when you're emptying.'

'Or walk around a bit, sometimes my feet and hands go out of whack while I'm walking around. It's the same as when I first started saying I lay down on my bed and emptied myself, the whole bed was gone and I often had the feeling that I couldn't feel my toes.'

The participants found that by using the guided meditation audio, it is possible to take a break from the fast pace of life and enter a slower, calmer rhythm.

'This has helped me a lot. There are times, especially when you are in a bad state, to listen to some guided meditations. You can force yourself to stop and take a break from your fast-paced, stressful life. It's like stepping away from a fast-paced life and then following a new rhythm of life and listening to new sounds.'

5.1.2. Sub Theme 2: Self-regulation tools

In the absence of timely medical help, mindfulness has become an effective self-regulation tool, particularly effective in helping individuals to regain energy and manage their emotions.

Students reported that through the practice of mindfulness, they were able to effectively regulate their emotional state and recover energy that had been depleted in high-pressure situations, and a participant with attention deficit disorder (ADHD) indicated that students viewed mindfulness as a 'refuelling' process in order to maintain a high level of productivity.

'But at the time, in the NHS, when I didn't have immediate access to treatment, as well as having to catch

up on homework every day, I used mindfulness meditation to help me regain my mental energy quickly. It was a kind of efficiency for me, it was like when you drive a car for a long time as well and then you have to refuel, and for me it was that refuelling state.'

Participants reported that by entering a state of deep relaxation and semi-sleep, it helps to quickly restore mental clarity and improve work and study efficiency.

'The first five minutes of listening to that audio guide of his, I guess, was already in a state of half-sleep, and then when it was ten to fifteen minutes later, the bell would ring and I'd have a reboot.'

'When I listen to specific music that corresponds to the five organs at specific times, my senses are focused on that internal organ of ours as if I can actually touch it or soothe him, and that's when I wake up from that state and realise that I'm actually sensing that organ.'

Through mindfulness, students recognise that it is a way to help perceive the self and face inner emotions, although it is not the only way. Students reflect that in the process of mindfulness, they learn to tolerate and accept all kinds of emotions instead of avoiding or distracting them, and this cognitive change allows you to face the emotional fluctuations in your life more steadily.

'I think mindfulness is a way to help myself to perceive myself and to face myself in that state of mind.'

'But it's not the only way. He's one of the ways I face my emotions.'

'The only thing you can do is force yourself to sit there, even if you're annoyed and you want to switch off the thought thing, you just force yourself to sit there, but that's really the only solution. The best solution is to force yourself to face your emotions. The truth is that when you run away from it, it doesn't really go away, it just continues to stay within you in a different state.'

Here the students indicated that they gradually began to begin to understand that events themselves are not absolutely right or wrong, good or bad, they are just naturally occurring phenomena, and your emotional reactions to them are only based on your subjective definitions.

'For example, like that imprint I just mentioned, maybe it was just a little bit of paranoia in high school, like he had to be right or wrong in my mind, he had to be black or white or something like that. But now, I can look at what's going on from a very objective or bystander's point of view, and even though I'm in the middle of it, I can actually look at it from a bystander's point of view, which is to say, to look at something, to look at something that doesn't have any subjective emotional overtones to it.'

5.1.3. Sub Theme 3: Cognitive Modification

Participants said that mindfulness allowed them to redefine the present moment so that they could change their bad attitude towards something or see it from another perspective.

Some participants mentioned that the guides in the meditation videos usually adopt a positive way of thinking, which subconsciously influences their own thinking habits. This usually manifests itself in the fact that initially one's thoughts may be one-sided or negative, but mindfulness allows for another voice to correct or improve that view at such times.

'I think of 'mindfulness' as correcting or improving one's perceptions. It helps to improve oneself emotionally or cognitively. For example, mindfulness allows you to redefine the present moment. It is a way to change a bad attitude towards something, or to see it from a different perspective.'

'Maybe sometimes I can change the way I see things for myself, I don't spend my time thinking about past outcomes, I don't dwell on my emotions, I don't feel like I'm doing something wrong, I don't feel like I'm thinking about myself, I don't think about my problems, and I feel like I'm more likely to think about other solutions, or other ways of moving forward.'

'I think maybe it's a lot of the guides in the meditation videos they have this positive way of thinking.'

'I don't think there's been any noticeable change, it's just been a slow change, like at first I was thinking more one-sided or more negatively. But whenever I think like that, there's always another voice that changes my perspective and convinces me that it's not all negative.'

5.1.4. Sub Theme 4: Deepening of Self-Awareness

Most participants indicated that the impact of mindfulness on their lives is reflected in the deepening of self-awareness. Some students said that although everyone can perceive their own emotional state, this perception is often vague and influenced by external circumstances, like a layer of hairy glass. Through mindfulness, students report gradually learning to transcend these external distractions and begin to truly see and understand their own inner states. Some students talked about focusing their awareness on uncomfortable parts of the body during mindfulness practice, feeling the body's true reactions, and controlling and regulating those reactions.

"I think there's a sense of being separated by layers of hairy glass when you're in the moment, which means that of course you know whether you're in a good or bad state. Most of the time our first judgement of our state is actually constituted by the environment we are in. For example, I may have gone to a very desirable school, I may be in a relatively good situation with great opportunities. But mindfulness for me is a process of seeing yourself, you're able to see what kind of perception you, the being, have of the circumstances you're in at the moment, or more accurately, that perception is very often free of some utilitarian judgement and worldview."

"I'll just focus my awareness on that leg of mine and feel a little discomfort in my thigh, and then I'll feel that discomfort in the present moment."

"But I can feel that I'm annoyed, and then I can also realise that I'm annoyed right now, and then realise that"

I'm physically uncomfortable, and I focus that energy on the fact that I'm uncomfortable."

Mindfulness is not only a practice to help relax the mind and body, it is a practice of deep self-examination and care. Through mindfulness students report being able to listen to their inner voice, reviewing and reflecting on their behaviour and emotional state. Mindfulness training helps you to see your emotional fluctuations more clearly and use them as a basis for deep reflection and adjustment of your mental state. This self-awareness allows you to perceive more acutely and give yourself more care in the face of stress or emotional ups and downs.

'It's that to a certain extent, I feel that activities like meditation and mindfulness are very often a listening, looking back and feeling to yourself, it's a more in-depth action'

'I think mindfulness, meditation, he's wanting you to abstain from things, to see things, it's making a kind of examination of yourself and at the same time making a kind of care for yourself.'

'And then after mindfulness I'll start, just maybe thinking about me this me personally is how I'm acting as a person, how I'm speaking, and then just some of the feelings that I'm giving off and stuff like that, and I'll go through it again, just go through the whole mind of what kind of feelings I'm giving off to other people? Or just how I am, I'll probably focus more on my own feelings. The focus of attention can actually move to yourself in a lot of cases.'

'Then what I'm talking about is because you're within the process of mindfulness, you feel your current state and then you adjust some of the ways of being with yourself according to that, for example for me it's when I feel like I might be more tired or lose some interest and not feel as alive, I'll set myself up for a trip. And then there's also when I feel more restless, for example, I might try to get myself to exercise, or to dance. It's just going through the physical exhaustion to push down this superficial lethargy, and that's something that I think is just through all of that is an expression of accomplishing self-awareness as well as caring for the self.'

5.2. Theme 2: The Challenges of Mindfulness Practice

The second theme, 'Challenges of Mindfulness Practice,' deals with the difficulties students encounter when attempting to perform mindfulness practice. This theme is divided into four subcategories: motivation and starting long-term practice, student resistance, environmental factors, and negativity in practice. These challenges reflect internal and external barriers that prevent students from fully benefiting from mindfulness practice.

5.2.1. Sub Theme 1: Motivation and starting long-term practice

Here, most participants explained that sustained mindfulness practice is challenging. In the hustle and bustle of everyday life, the frequency of mindfulness practice is often hampered by time constraints and lack of motivation.

Students reported that life is full of variables and surprises, making it difficult to maintain long-term habits.

'Then add to that the fact that it's just because I'm also busy during the week and don't want me to have to spend ten minutes or so on this mindfulness thing.'

'But I'm the kind of person who can't stick to long-term habits, so it just didn't stick. Because at that time, I had to go to school every day, and then I had a lot of things to do every day, and the only time I practised was when I could be alone more, when I was lying in bed.'

Most students indicated that they found themselves more inclined to use meditation as an emergency measure in case of mood swings or physical discomfort rather than as a daily preventive practice.

'I don't meditate a lot because maybe I haven't reached a state where I'm very calm every day, sometimes I still get irritated and then when I'm irritated I think about mindfulness.'

'Most of the time, I think about practising mindfulness only when I'm uncomfortable with whatever part of it I'm doing. I've also been practicing a lot lately solely because my anxiety and somatisation symptoms have worsened.'

Secondly, here, participants explained The process of mindfulness practice can feel like life stops at that moment, unlike other activities, such as studying, fitness or hobbies, which are more vague and abstract.

'On the flip side, mindfulness was harder for me to start doing. I probably feel like the process of mindfulness practice is like your life stops at that moment. It's like you're not doing anything anymore, and there's a feeling that even though what you're doing isn't very rewarding, it's like you're not spending your time on entertainment or anything like that, it's that feeling. It's that feeling of doing nothing.'

'It could be that there's not that kind of timely feedback, that might be a better way to put it. Mindfulness is a rather vague concept. The first thing I would do is set aside an hour to half an hour. Maybe by that time, mindfulness doesn't necessarily affect me particularly well, that's how I feel.'

5.2.2. Sub Theme 2: Student resistance

The mandatory requirements of mindfulness practice in the classroom, especially the daily assignments, may lead to student resistance. Despite the engaging course content and classroom atmosphere, students may feel stressed and uncomfortable when mindfulness practice is mandated in the form of assignments. Such mandatory requirements may weaken the autonomy and effectiveness of mindfulness practice, leading to students' resentment towards the course and even affecting their interest in the course itself. Students generally believe that mindfulness practice needs to be accepted voluntarily from within in order to be truly effective, rather than being forced to complete a task. As the semester progresses, this resistance can intensify, making the

assignment format not only ineffective, but also potentially a burden on students' learning, ultimately affecting their class participation and motivation.

'And then if he didn't assign homework, I was going to be very interested in the class. And then the atmosphere in our class was pretty good, and then maybe his way of trying to get us to stick to mindfulness every day might have been a little bit too much, maybe it was just a little bit coercive. I think mindfulness is something that you have to want to do very much inside yourself, and I have to accept it, and it's more effective when I do it. It's that if I'm forced, it's that I'm going to be forced to have some kind of reflection or some kind of epiphany every day, I think it's just probably counterproductive instead, and it's also going to create some resistance.'

'Doing homework every day is a resistant mindset. If there wasn't any homework, I would definitely want to go to the class, and I think it's pretty interesting.'

'But I think this form of homework at the end of the day is that the teacher doesn't get what he wants, and then he this homework becomes a straitjacket for the students as well. Half term probably. Because we're 18 weeks a term, and then about halfway through I don't want to do the homework, and then I'll start to resist it, and then I don't really want to go to class.'

5.2.3. Sub Theme 3: Environmental Factors

In order to be effective in mindfulness practice, the right environment and atmosphere is crucial. Some students are very sensitive to the environment in which mindfulness practice takes place, and will have difficulty getting into a mindfulness state in a noisy or crowded environment.

'If it is an environment with a lot of people, I might not think too much about it. Because if I do it myself before, it might be just before bedtime or just just a very quiet environment, I think this kind of is a little bit safer for me, that is, if it's a kind of offline one with a lot of people and I go out and I have to make certain preparations to go to an event, I might not necessarily want to go instead.'

'It needs to be relatively quiet, it doesn't need to be a lot of people just a lot of people talking because I think a lot of people talking, I'm particularly speaking in a language that I understand and then it doesn't feel like it's appropriate to get into that state of receiving information.'

'It's about needing a state where I'm less likely to be disturbed. Like walking, for example, you need to perform an obstacle avoidance action, which would create an interference for mindfulness. I think it's just not going to work for me. I would be affected by that environment.'

'This is just still environmentally specific, and I feel like it's just easier to fit into the state of mindfulness in certain environments. Because I feel like this it fits in that quieter environment and then it can happen. It's just easier when I'm at home because my house is in the countryside and it's easy to find some little woods where

there's no one, and it's just easy to find that kind of environment over here at school.'

5.2.4. Sub Theme 4: Negativity in the exercise

The participant indicated that she and some of her classmates had similar experiences of irritability and impatience during the latter part of the mindfulness practice. This suggests that such negative emotions are not an isolated phenomenon, but a problem that many people experience during meditation practice. These emotions make it difficult for users to focus on their meditation practice or even complete short meditation audios.

'Because some other people talk about that kind of meditation video, I still get annoyed when I listen to him, including when I listen to that video.'

'I've had it, it's just that there's no way you can get through that audio. It's just that maybe he's just ten minutes, and there's no way for me to listen to the whole thing. It's just that while listening, you can't help but not be in a very good mood, I guess, or very irritable and anxious or something like that.'

'When doing mindfulness, the latter part of it I start to feel irritated, that is, for example, during this exercise I would feel irritated, just impatient, just sometimes I would start to get impatient, I don't want to listen to it, and then my whole being would become very irritated and anxious. I and I have some of my classmates, we all have this point in common that I start to feel annoyed when I listen, oh yeah similarly unbearable.'

Meanwhile, in formal meditation, when the practice is extended to ten to fifteen minutes, the sense of time becomes long and negative emotions such as annoyance and anxiety are more likely to arise.

'Formal meditation it takes basically ten to fifteen minutes, and then when practicing, I would feel like the time goes by long, and then it's kind of irritating, and then it's panicky, and there's just a lot of some of the more negative emotions for me to make me feel, but then it's part of a very normal state of being.'

6. Discussion

By analysing the experiences of higher education students in mindfulness practice, this study identified four main benefits and four key challenges. These findings respond directly to the central question of this study, which is what are the key benefits and challenges students experience in mindfulness practice, respectively. Specifically, the benefits reported by students, such as emotional regulation and cognitive improvement, suggest that mindfulness has a positive impact on students' mental health and academic performance. This is consistent with the first objective of this study, which was to identify and explore the main benefits students perceived during mindfulness practice. However, the study also revealed many challenges faced by students during practice, such as lack of motivation and environmental distractions, which validated the second objective of the study, which was to identify and analyse the main challenges faced

by students during mindfulness practice. Through these findings, this study not only provides an in-depth understanding of the application of mindfulness, but also offers practical advice on how educators and mental health professionals can support students in overcoming these barriers, further fulfilling the ultimate aim of this study.'

6.1. Positive effects of mindfulness

The present study found that when students engaged in mindfulness practice, the mind reached a way of emptying, which in turn helped to increase their "present moment awareness," similar to the findings of Bamber et al. (2022), who stated that awareness during mindfulness meditation can come from several forms of meditation: breathing meditation, thought meditation, walking meditation, shower meditation, and/or eating meditation awareness, each of which brings awareness to the present moment [2]. Participants also reported an increase in 'present moment awareness', which they considered to be a good experience, as it is often characterised by a feeling of happiness due to being aware of the 'here and now'. This may be due to the fact that when attention is focussed on the present moment, distracting thoughts and distractions are diminished or eliminated, allowing the individual to perceive and experience the present moment more clearly and vividly. This attentional orientation to the present moment helps to enhance the quality of consciousness and allows one to connect more directly with one's own experience.

This study also found that meditation in general contributed to well-being in two main ways: by equipping them with coping skills and generating positive experiences. Most of the students interviewed reported mindfulness as a way of listening more intently to the inner world of bodily sensations, needs and stress signals, thus facilitating the reassessment of situations and the formation of new insights into interpersonal processes. This supports the notion of mindfulness as 'self-regulation', that is, a state in which a person attempts to remain attentive to their inner world with compassion and kindness. Research suggests that decentering may be a key factor in the positive effects of many meditation-based interventions [3] [119]. Decentering is a metacognitive ability that refers to an individual's ability to observe various stimuli (e.g., thoughts, emotions, and sensations) as they arise in consciousness, and to maintain a certain mental distance from them in the process [38]. This implies that this ability allows people to examine emotions or thoughts objectively without being overwhelmed by them, thus reducing the negative effects of emotions. At the same time, decentering is an integral and important part of the process of mindfulness emotion regulation [25, 47], which implies a shift in perspective, focusing on the experience in a more objective and accepting way. At the same time, people may respond to and understand mindfulness meditation differently at different life stages, with Shapiro (1992) finding that meditators' intention to practice shifts along a continuum of self-regulation, self-exploration, and 'self-liberation'/compassion [101]. This finding was echoed in the interviews for this study.

6.2. Challenges of mindfulness practice

However, the study also found that, in contrast, students who tended to express a more 'instrumental', goal-oriented understanding of mindfulness emphasised the attentional dimension of mindfulness and stressed that mindfulness as a

way of achieving relaxation or concentration was generally associated with lower levels of engagement. This Solhaug et al. 2006 finding is similar [111], with vague conceptualisations of mindfulness reflecting an evolution of understanding that is challenged and developed by engagement in mindfulness practice. This implies that difficulties and tensions in understanding and developing the qualities of mindfulness attitudes are particularly evident, and that the current reduction in the intensity and duration of interventions may be limiting the opportunities for students to explore mindfulness practice more fully, leading to heterogeneous experiences [111]. Malpass et al. (2012) suggest that mindfulness attitudes entail the relinquishing of control over the mental experience or the "fix" needs, and that this relaxed attitude tends to be more easily remembered and internalised over time, and can be maintained through regular mindfulness practice [129]. This also means that future mindfulness instructors can teach mindfulness-based sessions should pay more attention to the participants' intentions, attitudes, and their interpretations of mindfulness, which should be explored iteratively during the teaching process. The overall goal of this iterative exploration is to lead participants to explore in depth the paradoxes inherent in mindfulness practice, such as the tension between instrumentality and non-instrumentality, and with the natural desire to achieve certain goals through mindfulness training. Through these in-depth explorations, participants may gain a better understanding of the nature of mindfulness practice - i.e., seeing the entire process of practice as an end in itself, rather than merely pursuing a particular outcome [15]. This understanding helps them to find inner balance and fulfilment in their journey of mindfulness.

More than that, the profound experience that the student experiences during meditation when confronted with complex inner thoughts and feelings (the generation of negative emotions) is not just an incidental phenomenon in meditation, but a very central component of meditation practice.

) are not just an incidental phenomenon of meditation, but a very central component of meditation practice. Our findings confirm the findings of Kerr et al. (2011) that meditation can sometimes be unpleasant or disturbing [61]. This is in contrast to the general description of mindfulness and meditation as a relaxing self-calming process [39], where so-called mental calmness is often characterised in the literature as a meditative state [127], but our study found that achieving such a state was not easy, with some students experiencing moods of irritability and restlessness early in the practice. At the start of meditation, students often begin with some idealised expectation that it will bring calm and relaxation. In reality, however, they often encounter disturbing thoughts and emotions during meditation, often content that they usually deliberately ignore or repress. When they observe the spontaneity and uncontrolled nature of their thoughts in meditation, and realise that their mind seems to be constantly busy, generating all kinds of thoughts independently of their own will, the experience may be disturbing and even shake their belief in self-mastery.

In the face of these disquiets, it often takes time for participants to understand and come to terms with the significance of the experience. This is repeatedly emphasised in traditional meditation texts and by many experienced instructors, who remind practitioners to prepare themselves psychologically during meditation, as the experience may

challenge their basic perceptions of self [33]. Many may try to resist or avoid these discomforts in the early stages of meditation, but as they deepen their meditation practice, they begin to recognise that these difficult thoughts and feelings are actually part of self-knowledge, a key process leading to deeper levels of inner awareness. Stew (2011) notes that "this sense of self-inquiry can awaken a desire for authenticity and a connection to the inner self" (p. 272) [113]. Self-inquiry is an ongoing process of internal reflection that ultimately helps individuals become aware of their true selves by continually asking themselves, "Who am I?" [94].

Through constant practice, participants gradually learn to remain calm in the face of these challenges and see them as opportunities for self-growth. As self-inquiry deepens, students report that they are able to confront unpleasant feelings and challenges in their lives more rationally, reducing the intensity of their reactions to these negative situations [5] [64]. They began to understand that meditation is not just a quest for inner peace, but that by confronting inner chaos and impermanence, they ultimately achieve deeper self-understanding and spiritual liberation. In this way, self-inquiry not only helped them improve their inner stability and resilience, but also enhanced their mental toughness in the face of adversity. This exercise ultimately prompts students to develop a closer connection with their true selves and inspires a deeper understanding and acceptance of life.

However, the insights gained in meditation appear to in turn further enhance participants' experience of meditative calm. The majority of participants in the study reported that the state of calm they experienced in meditation was concurrent with distressing emotions such as anxiety. This phenomenon may be related to the conceptualisation of positive and negative emotions as two separate dimensions [130]. In other words, during meditation, individuals can experience both calmness and anxiety at the same time, and these emotions are not mutually exclusive, but exist in parallel. This further suggests that through a combination of concentration and self-awareness during mindfulness meditation, meditators are able to more fully understand and process the various emotional states within.

In addition, the majority of students in this study reported feeling ambivalent about mindfulness practice, mainly reflecting the perceived need for a certain amount of time and a quiet environment, which also meant that it was found difficult to incorporate MBI into everyday life. Therefore, it is important to take this into account when designing interventions specifically for university students. At the same time, participation in this indicated finding it difficult to stick to the meditation assignments, perceiving it to be too much like academia, and that the homework exercises left them feeling uncertain, unsure and hesitant. This also meant that some students disliked the involuntary nature of the training (part of the course), so allowing students to choose other stress-reducing or well-being-focused teaching components may be helpful in the future. Schwind (2017) stated that in order to support students in reflecting on their mindfulness practice, creative ways of expressing their experiences could be provided, such as visual diaries and other artistic self-expression options such as photography, sketching, or painting [100]. At the same time, mindfulness is best taught in an invitational manner, allowing participants to choose whether or not to engage in any particular mindfulness practice offered in the course, and the depth to which they can choose to engage. Whether the teaching of mindfulness is

offered in a required course or as an external enrichment experience, the sense of choice and the freedom to express needs (and lack thereof) are essential teachings of a mindfulness-based course.

6.3. Strengths and Limitations of this study

This study had significant strengths, particularly the recruitment of a sufficient number of participants (nine in total). The participants represented a wide range of academic experiences, most of whom had studied abroad, which contributed to the inclusiveness and validity of the interview data. However, there are some limitations to consider. Participant selection focused on individuals who were keen meditators and engaged in specific sexual behaviours. As a result, their personal characteristics may differ from those students who chose not to participate in the interviews. In addition, all participants were highly educated Asian females, which may limit the generalisability of the findings. This raises the issue of possible cultural differences in the understanding of mindfulness. There is a strong critical understanding of mindfulness in North America and Europe, which may be an area for further exploration.

Therefore, future research could consider examining gender and racial differences in experiencing mindfulness, a topic that has not been fully explored. Also, in order to determine the external validity of the mindfulness intervention, it would be useful to examine and compare different methods of mindfulness training. These methods include differences in the duration, intensity, and content of mindfulness training, and should also explore ways in which mindfulness can be integrated into educational settings. Of particular importance is the development of customised mindfulness programmes that address individual differences in participants' intentions, understanding, and conceptions of positive mindfulness. Such personalisation would not only increase the effectiveness of mindfulness training, but would also better meet the needs of different participants and ensure that they can fully understand and benefit from mindfulness practice. In this way, mindfulness interventions can be applied more broadly and flexibly, while also achieving better results in different educational settings.

7. Conclusion

This study shows that the integration of mindfulness practices into higher education programmes has significant positive effects on students' overall well-being, including effective reduction of stress and anxiety, helping students to better cope with negative emotions, increasing 'present moment awareness', and enhancing well-being through the process of self-exploration. However, the study also revealed some challenges faced by students during meditation. Despite the many positive effects of mindfulness, students often encountered obstacles in their practice, such as negative emotional interference, time management difficulties, and adverse environmental influences.

Research also suggests that the effective integration of mindfulness practice into higher education programmes remains an area that needs to be explored in depth. In order to ensure that mindfulness interventions effectively meet the needs of students, educators and programme designers must consider the actual experiences and feelings of students during mindfulness practice. Therefore future researchers and those implementing mindfulness should recognise the known benefits of mindfulness while taking into account the

challenges or individual differences students may face in mindfulness to design interventions/programmes to meet the unique needs of university students.

Acknowledgements

Natural Science Foundation.

References

- [1] Amutio, A., Martínez-Taboada, C., Hermosilla, D., & Delgado, L. C. (2015). Enhancing relaxation states and positive emotions in physicians through a mindfulness training program: A one-year study. *Psychology, Health & Medicine*, 20, 720–731.
- [2] Bamber, M.D., Schneider, J.K. College students' perceptions of mindfulness-based interventions: A narrative review of the qualitative research. *Curr Psychol* 41, 667–680 (2022). <https://doi-org.sheffield.idm.oclc.org/10.1007/s12144-019-00592-4>
- [3] Bernstein, A., Hadash, Y., Lichtash, Y., Tanay, G., Shepherd, K., & Fresco, D. M. (2015). Decentering and Related Constructs: A Critical Review and Metacognitive Processes Model. *Perspectives on Psychological Science*, 10(5), 599–617. <https://doi.org/10.1177/1745691615594577>
- [4] Beck, A. R., Verticchio, H., Seeman, S., Milliken, E., & Schaab, H. (2017). A Mindfulness Practice for Communication Sciences and Disorders Undergraduate and Speech-Language Pathology Graduate Students: Effects on Stress, Self-Compassion, and Perfectionism. *American Journal of Speech-Language Pathology*, 26(3), 893–907.
- [5] Bond, A. R., Mason, H. F., Lemaster, C. M., Shaw, S. E., Mullin, C. S., Holick, E. A., & Saper, R. B. (2013). Embodied health: The effects of a mind-body course for medical students. *Medical Education Online*, 18, 1–8. <https://doi-org.sheffield.idm.oclc.org/10.3402/meo.v18i0.20699>.
- [6] Bishop SR, Lau M, Shapiro S, Carlson L, Anderson ND, Carmody J, et al. Mindfulness: a proposed operational definition. *Clin Psychol*. (2004) 11:230–41. 10.1093/clipsy.bph077
- [7] Birnbaum, L. (2008). The use of mindfulness training to create an 'accompanying place' for social work students. *Social Work Education*, 27(8), 837–852. <https://doi.org/10.1080/02615470701538330>.
- [8] Black, D.S., O'Reilly, G.A., Olmstead, R., Breen, E.C., & Irwin, M.R. (2015). Mindfulness meditation and improvement in sleep quality and daytime impairment among older adults with sleep disturbances: a randomized clinical trial. *JAMA internal medicine*, 175 (4), 494–501. <https://doi.org/10.1001/jamainternmed.2014.8081>
- [9] Botterill, D. (2013). Constructionism - A critical realist reply. *Annals of Tourism Research*, 48(5), 292–294. <https://doi.org/info:doi/>
- [10] Braun, V., & Clarke, V. (2014). *Successful qualitative research: A practical guide for beginners*. SAGE.
- [11] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77–101.
- [12] Braun, V., & Clarke, V. (2022). *Thematic analysis : a practical guide*. SAGE.
- [13] Britton, W.B., Lindahl, J.R., Cooper, D.J., Canby, N.K., & Palitsky, R. (2021). Defining and measuring meditation-related adverse effects in mindfulness-based programs. *Clinical psychological science : a journal of the Association for Psychological Science*, 9 (6), 1185–1204. <https://doi.org/10.1177/2167702621996340>
- [14] Bryman, A. (2016). *Social research methods*. Oxford university press.
- [15] Bush, M. (2011). Mindfulness in higher education. *Contemporary Buddhism: An Interdisciplinary Journal*, 12, 183–197. doi:10.1080/14639947.2011.564838.
- [16] Campos, D., Cebolla, A., Quero, S., Bretón-López, J., Botella, C., Soler, J., ... & Baños, R. M. (2016). Meditation and happiness: Mindfulness and self-compassion may mediate the meditation-happiness relationship. *Personality and individual differences*, 93, 80–85.
- [17] Cahn, B. R., & Polich, J. (2006). Meditation states and traits: EEG, ERP, and neuroimaging studies. *Psychological Bulletin*, 132, 180–211. doi:10.1037/0033-2909.132.2.180
- [18] Chadwick P, Kaur H, Swelam M, Ross S, Ellett L, 2011. Experience of mindfulness in people with bipolar disorder: A qualitative study. *Psychother. Res* 21, 277–285. doi: 10.1080/10503307.2011.565487
- [19] Chen, Y.-Y., Shek, D. T. L., & Bu, F.-F. (2011). Applications of interpretive and constructionist research methods in adolescent research: philosophy, principles and examples. *International Journal of Adolescent Medicine and Health*, 23(2), 129–139. <https://doi.org/10.1515/ijamh.2011.022>
- [20] Christian, T., Beaujean, A. A., & Wright, W. (2016). Individual Differences in Affective States During Meditation. *The International Journal for the Psychology of Religion*, 26(3), 268–282. <https://doi-org.sheffield.idm.oclc.org/10.1080/10508619.2015.1042334>
- [21] Chrisman, J. A., Christopher, J. C., & Lichtenstein, S. J. (2009). Qigong as a mindfulness practice for counseling students: A qualitative study. *Journal of Humanistic Psychology*, 49, 236–257. doi:10.1177/0022167808327750.
- [22] Chiou, W.-K., Hsu, S.-E., Liang, Y.-C., Hong, T.-H., Lo, L.-M., Chen, H., & Liu, C. (2021). ISDT case study of we'll app for postpartum depression women. *Lecture Notes in Computer Science*, 47, 1313–1329.
- [23] Chittaro, L., & Vianello, A. (2016). Evaluation of a mobile mindfulness app distributed through on-line stores: a 4-week study. *International Journal of Human-Computer Studies*, 86, 63–80.
- [24] Cohn MA & Fredrickson BL (2010). In search of durable positive psychology interventions: Predictors and consequences of long-term positive behavior change. *Journal of Positive Psychology*, 5, 355–366.
- [25] Crane, R. S., Brewer, J., Feldman, C., Kabat-Zinn, J., Santorelli, S., Williams, J. M. G., & Kuyken, W. (2017). What defines mindfulness-based programs? The warp and the weft. *Psychological medicine*, 47(6), 990–999.
- [26] Cranton P. A. (2006). Fostering authentic relationships in the transformative classroom. *New Directions for Adult and Continuing Education*, 109, 5–13.
- [27] Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- [28] Crowley, C., & Munk, D. (2017). An examination of the impact of a college level meditation course on college student well being. *College Student Journal*, 51(1), 91–98.
- [29] Davis, J. M., Manley, A. R., Goldberg, S. B., Stankevitz, K. A., & Smith, S. S. (2015). Mindfulness training for smokers via web-based video instruction with phone support: A prospective observational study. *BMC Complementary and Alternative Medicine*, 15(95), 1–9.
- [30] DeBerard, M. S., Spielmans, G. I., & Julka, D. L. (2004). Predictors of academic achievement and retention among college freshmen: A longitudinal study. *College Student Journal*, 38, 66–80.

- [31] de Zoysa, N., Ruths, F.A., Walsh, J. et al. Mindfulness Based Cognitive Therapy for Mental Health Professionals: A Long-Term Qualitative Follow-up Study. *Mindfulness* 5, 10–17 (2014). <https://doi-org.sheffield.idm.oclc.org/10.1007/s12671-012-0141-2>
- [32] Draper-Clarke, L. J., & Edwards, D. J. (2016). Stress and coping among student teachers at a South African university: An exploratory study. *Journal of Psychology in Africa*, 26(6), 491–499. <https://doi-org.sheffield.idm.oclc.org/10.1080/14330237.2016.1250425>.
- [33] Engler, J. (2003). Being somebody and being nobody: A reexamination of the understanding of self in psychoanalysis and Buddhism. In J. D. Safran (Ed.), *Psychoanalysis and Buddhism: An unfolding dialogue* (pp. 35–79). Somerville: Wisdom Publications.
- [34] Epstein, M. (1990). Psychodynamics of meditation: pitfalls on the spiritual path. *Journal of Transpersonal Psychology*, 22(1), 17–34.
- [35] Feibleman, J. K. (1951). *Ontology*. John Hopkins P: Oxford U.P.
- [36] Felton, T., Coates, L., & Christopher, J. C. (2015). Impact of mindfulness training on counseling students' perceptions of stress. *Mindfulness*, 6(2), 159–169. <https://doi.org/10.1007/s12671-013-0240-8>.
- [37] Fresco, D. M., Moore, M. T., van Dulmen, M. H., Segal, Z. V., Ma, S. H., Teasdale, J. D., & Williams, J. M. G. (2007). Initial psychometric properties of the experiences questionnaire: validation of a self-report measure of decentering. *Behavior therapy*, 38(3), 234–246.
- [38] Friedman, R., Myers, P., & Benson, H. (2001). Meditation and the relaxation response. In H. S. Friedman (Ed.), *Assessment and therapy* (pp. 227–234). San Diego: Academic Press.
- [39] Fugard, A. J. B., & Potts, H. W. W. (2015). Supporting thinking on sample sizes for thematic analyses: A quantitative tool. *International Journal of Social Research Methodology*, 18(6), 669–684. <https://doi.org/10.1080/13645579.2015.1005453>
- [40] Fredrickson, B. L., & Losada, M. F. (2005). Positive affect and complex dynamics of human flourishing. *American Psychologist*, 60, 678–686. doi:10.1037/0003-066X.60.7.678
- [41] Garland, S. N., Carlson, L. E., Stephens, A. J., Antle, M. C., Charles, S., & Campbell, T. S. (2014). Mindfulness-based stress reduction compared with cognitive behavioral therapy for the treatment of insomnia comorbid with cancer: A randomized, partially blinded, noninferiority trial. *Journal of Clinical Oncology*, 32(5), 449–457. doi:10.1200/JCO.2012.47.7265
- [42] Glaser, B. G., Strauss, A. L., & Strutzel, E. (1968). The discovery of grounded theory; strategies for qualitative research. *Nursing research*, 17(4), 364.
- [43] Gong, H., Ni, C.-X., Liu, Y.-Z., Zhang, Y., Su, W.-J., Lian, Y.-J., ... Jiang, C.-L. (2016). Mindfulness meditation for insomnia: A meta-analysis of randomized controlled trials. *Journal of Psychosomatic Research*, 89, 1–6. doi:10.1016/j.jpsychores.2016.07.016
- [44] Gockel, A., Burton, D., James, S., & Bryer, E. (2013). Introducing mind-fulness as a self-care and clinical training strategy for beginningsocial work students. *Mindfulness*, 4(4), 343–353. <https://doi.org/10.1007/s12671-012-0134-1/>
- [45] Hjeltne, A., Binder, P. E., Moltu, C., & Dundas, I. (2015). Facing the fearoffailure: An explorative qualitative study of client experiences in a mindfulness-based stress reduction program for university students with academic evaluation anxiety. *International Journal of Qualitative Studies on Health and Well-Being*, 10(1), 27990. <https://doi.org/10.3402/qhw.v10.27990>.
- [46] Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on psychological science*, 6(6), 537–559.
- [47] Hughes, B. M. (2005). Study, examinations, and stress: Blood pressure assessments in college students. *Educational Review*, 57(1), 21–36. <https://doi-org.sheffield.idm.oclc.org/10.1080/0013191042000274169>.
- [48] Hyland, T. (2017). McDonaldizing spirituality: Mindfulness, education, and consumerism. *Journal of Transformative Education*, 15(4), 334–356.
- [49] Irwin, M., & Miller, J. P. (2016). Presence of mind: A qualitative study of meditating teachers. *Journal of transformative education*, 14(2), 86–97.
- [50] Irving, J. A., Park-Saltzman, J., Fitzpatrick, M., Dobkin, P. L., Chen, A., & Hutchinson, T. (2014). Experiences of health care professionals enrolled in mindfulness-based medical practice: a grounded theory model. *Mindfulness*, 5(1), 60–71.
- [51] Jacobson, E. (1938). *You can sleep well; the ABC's of restful sleep for the average person*. Whittlesey House (Mcgraw-Hill).
- [52] Johnson, J. E. (2016). Effect of mindfulness training on interpretation exam performance in graduate students in interpreting. Doctoral dissertation, University of San Francisco. Retrieved from: <https://repository.usfca.edu/cgi/viewcontent.cgi?>
- [53] Kabat-Zinn, J. (2003). Mindfulness-Based Interventions in Context: Past, Present, and Future. *Clinical Psychology: Science and Practice*, 10 (2), 144–156.
- [54] Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness*. New York: Delacorte.
- [55] Kaplan-Rakowski, R. (2020). Addressing students' emotional needs during the COVID-19 pandemic: A perspective on text versus video feedback in online environments. *Educational Technology Research and Development*, 69, 133–136.
- [56] Kabat-Zinn J. (2005). *Coming to our senses*. London, England: Piatkus.
- [57] Kang, Y. S., Choi, S. Y., & Ryu, E. (2009). The effectiveness of a stress coping program based on mindfulness meditation on the stress, anxiety, and depression experienced by nursing students in Korea. *Nurse Education Today*, 29(5), 538–543. <https://doi-org.sheffield.idm.oclc.org/10.1016/j.nedt.2008.12.003>.
- [58] Kang, C., & Whittingham, K. (2010). Mindfulness: A dialogue between Buddhism and clinical psychology. *Mindfulness*, 1, 161–173.
- [59] Kearney, D. J., McManus, C., Malte, C. A., Martinez, M. E., Felleman, B., & Simpson, T. L. (2014). Loving-kindness meditation and the broaden-and-build theory of positive emotions among veterans with posttraumatic stress disorder. *Medical Care*, 52, S32–S38. doi:10.1097/MLR.0000000000000221
- [60] Kerr, C. E., Josyula, K., & Littenberg, R. (2011). Developing an observing attitude: An analysis of meditation diaries in an MBSR clinical trial. *Clinical Psychology & Psychotherapy*, 18(1), 80–93. doi:10.1002/cpp.700.
- [61] Kerrigan, D., Chau, V., King, M., Holman, E., Joffe, A., & Sibinga, E. (2017). There is no performance, there is just this moment: The role of mindfulness instruction in promoting health and well-being among students at a highly-ranked university in the United States. *Journal of Evidence-Based*

- Complementary & Alternative Medicine, 22(4),909–918. <https://doi-org.sheffield.idm.oclc.org/10.1177/2156587217719787>.
- [63] Kim, J.-H., Yang, H., & Schroepel II, S. (2013). A Pilot Study Examining the Effects of Kouk Sun Do on University Students with Anxiety Symptoms. *Stress and Health*, 29(2), 99–107. <https://doi.org/10.1002/smi.2431>
- [64] Kindel, H. R. (2018). *Toward Expert Clinicians: The Effects of Teaching Mindfulness in Physical Therapy Education*. Robert Morris University.
- [65] Kutty, B. M. (2017). Mindfulness (vipassana) meditation and sleep organization: a macro and micro sleep architecture assessment. *Sleep Medicine*, 40, e174–e174. <https://doi.org/10.1016/j.sleep.2017.11.510>
- [66] Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of qualitative research interviewing*. sage.
- [67] Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.
- [68] Lauricella, S. (2014). Mindfulness Meditation with Undergraduates in Face-to-Face and Digital Practice: a Formative Analysis. *Mindfulness*, 5(6), 682–688. <https://doi.org/10.1007/s12671-013-0222-x>
- [69] Li, Y., Hu, Y., Yang, W., & Wang, Y. (2021). Daily interventions and assessments: The effect of online self-compassion meditation on psychological health. *Applied Psychology: Health and Well-Being*, 13(4), 906–921.
- [70] Lomas, T., Cartwright, T., Edginton, T. et al. A Qualitative Analysis of Experiential Challenges Associated with Meditation Practice. *Mindfulness* 6, 848–860 (2015). <https://doi-org.sheffield.idm.oclc.org/10.1007/s12671-014-0329-8>
- [71] Malaktaris, A., McLean, C.L., Mallavarapu, S., Herbert, M.S., Kelsven, S., Bormann, J.E., & Lang, A.J. (2022). Higher frequency of mantram repetition practice is associated with enhanced clinical benefits among United States Veterans with posttraumatic stress disorder. *European journal of psychotraumatology*, 13 (1), 2078564. <https://doi.org/10.1080/20008198.2022.2078564>
- [72] Martin, A. J., & Marsh, H. W. (2008). Academic buoyancy: Towards an understanding of students' everyday academic resilience. *Journal of School Psychology*, 46, 53–83. <https://doi.org/10.1016/j.jsp.2007.01.002>
- [73] Martin, A. J. (2013). Academic buoyancy and academic resilience: Exploring 'everyday' and 'classic' resilience in the face of academic adversity. *School Psychology International*, 34, 488–500. <https://doi.org/10.1177/0143034312472759>
- [74] Miller, J. P., & Nozawa, A. (2002). Meditating teachers: A qualitative study. *Journal of In-Service Education*, 28, 179–192. doi:10.1080/13674580200200177.
- [75] Miller, J.P., M. Irwin, M., Nigh K. (2014) *Teaching from the Thinking Heart: The Practice of Holistic Education*. Information Age Publishing, Charlotte, NC
- [76] Mishra J, Sagar R, Parveen S, et al. Closed-loop digital meditation for neurocognitive and behavioral development in adolescents with childhood neglect. *Transl Psychiatry*. 2020;10(1):153. doi:10.1038/s41398-020-0820-z
- [77] Mrazek, M. D., Franklin, M. S., Phillips, D. T., Baird, B., & Schooler, J. W. (2013). Mindfulness training improves working memory capacity and GRE performance while reducing mind wandering. *Psychological Science*, 24, 776–781. doi: 0956797612459659
- [78] Moss, D., & O'Neill, B. (2003). Just another technique? Possibilities and paradoxes in working with mindfulness. *Clinical Psychology*, 31, 29–33.
- [79] Nanamoli, B., & Bodhi, B. (2001). *Middle length discourses of the Buddha* (2nd ed.). Boston: Wisdom.
- [80] National College Health Assessment Spring. (2015). 2015 reference group executive summary. American College of Health Association, https://www.acha.org/documents/ncha/NCHA-II_WEB_SPRING_2015_REFERENCE_GROUP_EXECUTIVE_SUMMARY.pdf
- [81] Nielsen AM, Hansson K. Associations between adolescents' health, stress and sense of coherence. *Stress Health*. (2007) 23:331–41. [10.1002/smi.1155](https://doi.org/10.1002/smi.1155) [CrossRef] [Google Scholar]
- [82] Napoli, M. (2004). Mindfulness training for teachers: A pilot program. *Complementary Health Practice Review*, 9, 31–42. doi:10.1177/1076167503253435.
- [83] O'Hear, A., & Royal Institute of Philosophy. (2009). *Epistemology*. Cambridge University Press.
- [84] Parish, K. A. (2011). *Quieting the cacophony of the mind: The role of mindfulness in adult learning*. Dissertation Abstracts International Section A: Humanities and Social Sciences, 71(10-A), 3499.
- [85] Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. Sage publications.
- [86] Perich T, Manicavasagar V, Mitchell PB, Ball JR, 2013. The association between meditation practice and treatment outcome in Mindfulness-based Cognitive Therapy for bipolar disorder. *Behav. Res. Ther* 51, 338–43. doi: 10.1016/j.brat.2013.03.006
- [87] Pflugeisen, B. M., Drummond, D., Ebersole, D., Mundell, K., & Chen, D. (2016). Brief video-module administered mindfulness program for physicians: A pilot study. *EXPLORE: the Journal of Science and Healing*, 12, 50–54. <https://doi-org.sheffield.idm.oclc.org/10.1016/j.explore.2015.10.005>
- [88] Purser, R., & Ng, E. (2015). Corporate mindfulness is bullshit: Zen or no Zen, you're working harder and being paid less. Retrieved January, 26, 2016.
- [89] Ramasubramanian, S. (2016). Mindfulness, stress coping and everyday resilience among emerging youth in a university setting: a mixed methods approach. *International Journal of Adolescence and Youth*, 22(3), 308–321.
- [90] Rhodes RE, Rhodes RE, & Dickau L (2012). Experimental evidence for the intention–behavior relationship in the physical activity domain: A meta-analysis. *Health Psychology*, 31, 724–727.
- [91] Ritzer, G. (2000). *The McDonaldization of Society* (New Century Edition). Thousand Oaks.
- [92] Ryan, G. (2018). Introduction to positivism, interpretivism and critical theory. *Nurse researcher*, 25(4), 41–49.
- [93] Salzberg S., Goldstein J. (2001). *Insight meditation*. Boulder, CO: Sounds True.
- [94] Sattler, T. C. (2011) The effects of self-inquiry on mood states. Retrieved from <http://undividedjournal.com/wp-content/uploads/2011/09/The-Effects-of-Self-Inquiry-on-Mood-States-by-Tamra-Sattler.pdf>
- [95] Segal, Z., Williams, M., & Teasdale, J. (2012). *Mindfulness-based cognitive therapy for depression*. Guilford press.
- [96] Sedlmeier, P., Eberth, J., Schwarz, M., Zimmermann, D., Haarig, F., Jaeger, S., & Kunze, S. (2012). The psychological effects of meditation: A meta-analysis. *Psychological Bulletin*, 138(Suppl.), 1139–1171. doi:10.1037/a0028168.1037/a0028168.supp

- [97] Seidman, I. (2006). Interviewing as qualitative research: A guide for researchers in education and the social sciences. Teachers college press.
- [98] Sensiper, S. Teaching meditation to college students within an historical and cultural context: A qualitative analysis of undergraduate reflections on contemplative practice. *Curr Psychol* 42, 15356–15367 (2023). <https://doi-org.sheffield.idm.oclc.org/10.1007/s12144-022-02811-x>
- [99] Schoeberlein, D. R., Sheth, S., & Viola, S. (2009). Mindful teaching and teaching mindfulness: A guide for anyone who teaches anything. (No Title).
- [100] Schwind, J. K., McCay, E., Beanlands, H., Schindel Martin, L., Martin, J., & Binder, M. (2017). Mindfulness practice as a teaching-learning strategy in higher education: A qualitative exploratory pilot study. *Nurse Education Today*, 50, 92–96. <https://doi.org/10.1016/j.nedt.2016.12.017>
- [101] Shapiro, D. H. (1992). A preliminary study of long term meditators: Goals, effects, religious orientation, cognitions. *Journal of Transpersonal Psychology*, 24(1), 23–39.
- [102] Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology*, 62(3), 373–386.
- [103] Shonin, E., Van Gordon, W., & Griffiths, M. D. (2014). The emerging role of Buddhism in clinical psychology: Toward effective integration. *Psychology of Religion and Spirituality*, 6, 123–137. doi:10.1037/a0035859
- [104] Shonin, E., Van Gordon, W., & Griffiths, M. D. (2014). Meditation Awareness Training (MAT) for Improved Psychological Well-being: A Qualitative Examination of Participant Experiences. *Journal of Religion and Health*, 53(3), 849–863. <https://doi.org/10.1007/s10943-013-9679-0>
- [105] Siegel, D. J. (2007). The mindful brain: reflection and attunement in the cultivation of well-being. New York, NY: Norton.
- [106] Siegel, D. J. (2015). *Brainstorm: The power and purpose of the teenage brain*. Penguin.
- [107] Sloan, F.A., Yashkin, A.P., & Chen, Y. (2014). Gaps in receipt of regular eye examinations among medicare beneficiaries diagnosed with diabetes or chronic eye diseases. *Ophthalmology*, 121 (12), 2452–60. <https://doi.org/10.1016/j.ophtha.2014.07.020>
- [108] Smith, J. C. (2007). The psychology of relaxation. In P. M. Lehrer, R. L. Woolfolk, & W. E. Sime (Eds.), *Principles and practice of stress management* (p. 38–52). Guilford Press.
- [109] Smith, M. T., Perlis, M. L., Park, A., Smith, M. S., Pennington, J., Giles, D. E., & Buysse, D. J. (2002). Comparative meta-analysis of pharmacotherapy and behavior therapy for persistent insomnia. *American Journal of Psychiatry*, 159(1), 5–11. doi:10.1176/appi.ajp.159.1.5
- [110] Smalley, S. L., & Winston, D. (2010). *Fully Present: The Science, Art, and Practice of Mindfulness*. Da Capo Lifelong Books.
- [111] Solhaug, I., Eriksen, T. E., de Vibe, M., Haavind, H., Friberg, O., Sorlie, T., & Rosenvinge, J. H. (2016). Medical and psychology student's experiences in learning mindfulness: Benefits, paradoxes, and pit-falls. *Mindfulness*, 7(4), 838–850. <https://doi.org/10.1007/s12671-016-0521-0>.
- [112] Song, K. Y., & Muschert, G. W. (2014). Opening the contemplative mind in the sociology classroom. *Humanity & Society*, 38, 314–338.
- [113] Stew, G. (2011). Mindfulness training for occupational therapy students. *The British Journal of Occupational Therapy*, 74(6), 269–276. <https://doi-org.sheffield.idm.oclc.org/10.4276/030802211X13074383957869>.
- [114] Tan, L., & Martin, G. (2012). Mind full or mindful: A report on mindfulness and psychological health in healthy adolescents. *International Journal of Adolescence and Youth*, 21(1), 1–11. doi:10.1080/02673843.2012.709174
- [115] Teasdale, J. D., Segal, S. V., & Williams, J. M. G. (2003). Mindfulness training and problem formulation. *Clinical Psychology: Science and Practice*, 10(2), 157–160.
- [116] Thimmapuram J, Pargament R, Sibbliss K, et al. Effect of heartfulness meditation on burnout, emotional wellness, and telomere length in health care professionals. *J Commun Hosp Intern Med Perspect*. 2017;7:21–27.
- [117] Thimmapuram, J., Yommer, D., Tudor, L., Bell, T., Dumitrescu, C., & Davis, R. (2020). Heartfulness meditation improves sleep in chronic insomnia. *Journal of Community Hospital Internal Medicine Perspectives*, 10(1), 10–15. <https://doi-org.sheffield.idm.oclc.org/10.1080/20009666.2019.1710948>
- [118] Watson, N. N., Black, A. R., & Hunter, C. D. (2016). African American women's perceptions of mindfulness meditation training and gendered race-related stress. *Mindfulness*, 7, 1034–1043.
- [119] Wallace, B. A., & Shapiro, S. L. (2006). Mental balance and well-being: Building bridges between Buddhism and Western psychology. *American Psychologist*, 61(7), 690–701. <https://doi.org/10.1037/0003-066X.61.7.690>
- [120] Walach, H., Buchheld, N., Buttenmüller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness—the Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences*, 40, 1543–1555. doi:10.1016/j.paid.2005.11.025
- [121] Walshe, M. (1995). Mahasatipatthana Sutra. In The. Long (Ed.), *Discourses of the Buddha: A translation of the Digha Nikaya* (pp. 335–350). Somerville, Boston: Wisdom Publications.
- [122] Wassing R, Schalkwijk F, Lakkila-Kamal O, et al. Haunted by the past: old emotions remain salient in insomnia disorder. *Brain*. 2019 Jun 1;142(6):1783–1796.
- [123] Wengraf, T. (2001). Qualitative research interviewing: biographic narrative and semi-structured methods. SAGE.
- [124] Williams, J. M., & Kabat-Zinn, J. (2013). *Mindfulness: Diverse perspectives on its meaning, origins and applications*. Routledge.
- [125] Wiklund M, Malmgren-Olsson EB, Ohman A, Bergström E, Fjellman-Wiklund A. Subjective health complaints in older adolescents are related to perceived stress, anxiety and gender - a cross-sectional school study in Northern Sweden. *BMC Public Health*. (2012) 12:993. 10.1186/1471-2458-12-993
- [126] Yela, J. R., Crego, A., Gómez-Martínez, M. Á., & Jiménez, L. (2020). Self-compassion, meaning in life, and experiential avoidance explain the relationship between meditation and positive mental health outcomes. *Journal of Clinical Psychology*, 76(9), 1631–1652.
- [127] Zahourek, R. P. (1998). Intentionality in transpersonal healing: Research and caregiver perspectives. *Complementary Health Practice Review*, 4(1), 11–27. doi:10.1177/153321019800400104.
- [128] Zeng, X., Chan, V. Y., Liu, X., Oei, T. P., & Leung, F. Y. (2017). The four immeasurables meditations: Differential effects of appreciative joy and compassion meditations on emotions. *Mindfulness*, 8(4), 949–959.
- [129] Malpass, A., Carel, H., Ridd, M. et al. Transforming the Perceptual Situation: a Meta-ethnography of qualitative Work Reporting Patients' Experiences of Mindfulness-Based

Approaches. *Mindfulness* 3, 60–75
<https://doi.org/10.1007/s12671-011-0081-2>

(2012).

[130] Tellegen, A., Watson, D., & Clark, L. A. (1999). Further support for a hierarchical model of affect: Reply to Green and Salovey. *Psychological Science*, 10(4), 307-309.