

**Cultural Generalizability of the Multidimensional Model of
Mindfulness in the Indian Context**

Kalpana Raman

PhD

2023

**Cultural Generalizability of the Multidimensional Model of
Mindfulness in the Indian Context**

Kalpana Raman

A thesis submitted to Auckland University of Technology

in fulfilment of the requirements for the degree of

Doctor of Philosophy (PhD)

2023

School of Clinical Sciences

Faculty of Health and Environmental Sciences

Abstract

Mindfulness related studies have gained momentum in the recent past and there is a growing interest in tracing Buddhist roots, exploring the similarities and variations between mindfulness in Buddhism and in psychology since the last decade. But, the philosophical roots of the modern application of mindfulness in the Buddhist tradition stemmed from the Indian subcontinent. India, specifically, provides an interesting context for mindfulness, not only due to its historical links to mindfulness, but also due to its cultural diversity. There is a dearth of evidence related to the understanding of the mindfulness concept and assessing mindfulness in the Indian context.

The aim of this research thesis was to investigate the cultural generalizability of the multidimensional (five-factor) model of mindfulness which is a widely popularized model in mindfulness research by using the Five Facet Mindfulness Questionnaire (FFMQ) in India. Furthermore, this research thesis explored to what extent the questionnaire needs to be adapted to ensure cultural generalizability in the Indian context.

The introductory part of the thesis fills the gap in understanding the concept of mindfulness from an ancient perspective beyond Buddhism to the Vedic ideas by presenting an exhaustive literature review of the historical, cultural, geographical, linguistic and religious linkage of mindfulness to the Indian subcontinent. Furthering this understanding of the extensive lineage of mindfulness concepts and practices to India, the empirical work focused on exploring the validity of the common five-factor model of mindfulness by exploring the psychometric properties of the widely used FFMQ-English language version on a sample recruited from India. The data were analyzed using Rasch analysis, and to provide continuity to the past research reports in India, confirmatory factor analysis was also

performed. The results confirmed suitability of the higher-order structure of the FFMQ for use in India by using a modified FFMQ wherein three items from the Describe facet were removed.

In order to achieve the goal of cultural generalizability of the multidimensional model of mindfulness, FFMQ was translated into Tamil language for utility in a different geographical and linguistic context within India. Past studies have demonstrated different factor solutions using FFMQ-Hindi and FFMQ-Gujarati version. The study using FFMQ-Tamil confirmed a four-factor solution excluding the Observe facet and few more items from each facet resulting in a 22-item version of FFMQ-Tamil. Given that the original validation study of FFMQ involved both meditators and non-meditators, the next study in this thesis recruited long-term meditators to understand to what extent the questionnaire needs to be adapted for use with meditators in the Indian context. The sample completed an FFMQ-English language version along with perceived importance questions and based on the responses on importance questions, cognitive interviews were conducted. The meditators sample confirmed that the items from the Act with Awareness and Nonreact facet were more relevant in the Indian context.

Findings from these studies suggest further potential to explore the variability in the mindfulness assessment tools and devise country specific items to suit the concept and practice of mindfulness in the Indian context. As this research is one of its kind to be conducted in India, it opens the pathway for the future studies pertaining to the cultural generalizability of mindfulness assessments based on the understanding of India.

Table of Contents

Abstract.....	iii
Appendices.....	viii
List of Figures.....	ix
List of Tables.....	x
Commonly Used Abbreviations.....	xii
Attestation of Authorship.....	xiii
Co-authored Works.....	xiv
Declaration of Collaboration.....	xvi
Acknowledgments.....	xix
Intellectual Property Rights.....	xxii
Ethics Approval.....	xxiii
Introduction.....	1
Chapter 1: Mindfulness in Psychology.....	5
1.1. Evolution of mindfulness in psychology.....	5
1.1.1. <i>Mindfulness-Based Stress Reduction (MBSR)</i>	6
1.1.2. <i>Mindfulness-Based Cognitive Therapy (MBCT)</i>	8
1.1.3. <i>Dialectical Behavioral Therapy (DBT)</i>	9
1.1.4. <i>Acceptance and Commitment Therapy (ACT)</i>	10
1.2. Defining mindfulness.....	11
1.2.1 <i>State and Trait mindfulness</i>	14
1.3. Assessments of mindfulness.....	15
1.3.1. <i>Freiburg Mindfulness Inventory (FMI)</i>	16
1.3.2. <i>Mindfulness Attention Awareness Scale (MAAS)</i>	17
1.3.3. <i>Kentucky Inventory of Mindfulness Skills (KIMS)</i>	17
1.3.4. <i>Comprehensive Assessment of Mindfulness Skills (CAMS)</i>	18
1.3.5. <i>Southampton Mindfulness Questionnaire (SMQ)</i>	18
1.3.6. <i>Philadelphia Mindfulness Scale (PHLMS)</i>	19
1.3.7. <i>Toronto Mindfulness Scale (TMS) and State Mindfulness</i>	

<i>Scale (SMS)</i>	19
1.4. Five Facet Mindfulness Questionnaire (FFMQ).....	20
1.5. Conclusion.....	26
Chapter 2: Mindfulness in the Indian Context	27
2.1. Journey of Shakyamuni Buddha: Inception of Buddhism.....	28
2.2. Role of language and its adoption (linguistic Roots).....	31
2.3. Role of religion and meditation in the understanding of mindfulness in the Indian context (religious and meditation influences).....	33
2.3.1. <i>Understanding mindfulness from Hindu perspective</i>	34
2.3.2. <i>Understanding mindfulness in Islam, Sikhism, and Jainism</i>	36
2.4. Role of ancient scriptures, Vedas, and the Upanishad tradition in understanding Buddhism and Mindfulness.....	38
2.5. Conclusion.....	42
Chapter 3: Aims of the Research and Overview of Methodology	44
Prelude: Chapter 4	47
Chapter 4: Validation of the English Language Version of the Five Facet Mindfulness Questionnaire in India: A Rasch Analysis	
4.1. Introduction.....	48
4.2. Method.....	53
4.2.1. <i>Participants</i>	53
4.2.2. <i>Procedure</i>	54
4.2.3. <i>Measures</i>	55
4.2.4. <i>Data analysis</i>	56
4.3. Results.....	58
4.3.1. <i>Baseline model fit</i>	58
4.3.2. <i>Five-factor model fit</i>	62
4.3.3. <i>Confirmatory factor analysis: Five-factor model fit</i>	63
4.4. Discussion.....	64
4.5. Limitations.....	68
Prelude: Chapter 5	70

Chapter 5: A Tamil Version of the Five Facet Mindfulness Questionnaire: Translation and Validation Using Rasch Analysis

5.1. Introduction.....	71
5.2. Method.....	74
5.2.1. <i>Participants</i>	74
5.2.2. <i>Procedure</i>	74
5.2.3. <i>Measures</i>	75
5.2.4. <i>Data analyses</i>	76
5.3. Results.....	78
5.3.1. <i>Individual subscale analysis</i>	82
5.4. Discussion.....	86
5.5. Limitations.....	92
Prelude: Chapter 6	95

Chapter 6: The Relevance of the Five Facet Mindfulness Questionnaire According to the Views of Experienced Meditators in India

6.1. Introduction.....	96
6.2. Method.....	99
6.2.1. <i>Participants</i>	99
6.2.2. <i>Procedure</i>	100
6.2.3. <i>Measures</i>	102
6.2.4. <i>Data analysis</i>	103
6.3. Results.....	105
6.4. Discussion.....	116
6.5. Limitations.....	124

Chapter 7: Discussion and Conclusion..... 125

7.1. Integrated discussion and conclusion.....	132
7.1.1. <i>Overlap and differences of Buddhist mindfulness, contemporary mindfulness, and evidence from meditators from India</i>	134
7.1.2. <i>Monitoring and Acceptance Theory (MAT)</i>	138
7.2. Limitations and future directions.....	140
References	143

Appendices

Appendix A: IRB Approval from NFSU (Chapter 4)	183
Appendix B: Ethics Approval from BIHER (Chapter 5)	184
Appendix C: AUTEK Ethics Approval (Chapter 5)	185
Appendix D: AUTEK Ethics Approval (Chapter 6)	186
Appendix E: Participant Information Sheet in Tamil (Chapter 5)	187
Appendix F: Participant Information Sheet in English (Chapter 6)	188
Appendix G: Oral Consent Form for Audio Recordings (Chapter 6)	192
Appendix H: FFMQ - English Language Version (Chapter 4)	194
Appendix I: FFMQ - Tamil Language Version (Chapter 5)	196
Appendix J: FFMQ Actual vs Importance Questions (Chapter 6)	198
Appendix K: Cognitive Interviewing Questions (Chapter 6)	202

List of Figures

Figure 3.1. <i>Overview of the phases of the study</i>	45
Figure 4.1. <i>Overview of the analysis strategy employed in the present study</i>	58
Figure 4.2. <i>Person-item thresholds distributions for the FFMQ with three items discarded and facet subtests</i>	62
Figure 4.3. <i>Factor loadings</i>	64
Figure 5.1. <i>Person-Item Threshold Distribution for individual facets- Panel 1 (ACT) for Act with Awareness facet, Panel 2(DES3) for Describe facet, Panel 3 (NJ) for Nonjudge facet, and Panel 4 (NR) for Non-react facet</i>	84
Figure 5.2. <i>Person-Item Threshold Distribution of 22 items FFMQ-T</i>	84

List of Tables

Table 1.1. <i>Factor structure of FFMQ - English language version</i>	24
Table 1.2. <i>Factor structure of FFMQ - Different language versions</i>	25
Table 4.1. <i>Summary of fit statistics for the baseline and the final Rasch analyses of the FFMQ item fit residual (value and standard deviation), person fit residual (value and standard deviation), item-trait interaction, goodness of fit (χ^2 and p-value), person separation index (PSI), and results from Smith's (2000) test of unidimensionality. The three models were baseline model; baseline (5F1) after deleting three misfit items from the Describing facet (Items 12, 16, & 22), and the final five-factor final model using subtest analysis approach (5F2)</i>	59
Table 4.2. <i>Item number, wording of the items, item location, standard error (SE), item fit residual, and chi square for the FFMQ 39-item baseline model (5F)</i>	60
Table 5.1. <i>Item number, wording of the items, item location, standard error (SE), item fit residual, and chi square for the FFMQ 39-item baseline model</i>	79
Table 5.2. <i>Summary of fit statistics for initial, intermediate, and the final Rasch analyses of the FFMQ-T. In addition to analyses of the overall scale, results from analyses of individual facets are shown (ACT=Act with Awareness, NJ=Nonjudge, NR=Non-react, and DES=Describe).</i>	81
Table 5.3. <i>Conversion table for the total score of the 22-item FFMQ-T</i>	85
Table 5.4. <i>Conversion table for individual facets. ACT: Act with Awareness; DES: Describe; NJ: Nonjudge; and NR: Nonreact</i>	86

Table 6.1. *Mean scores presented for each subscale. These scores are based on actual ratings on the FFMQ (as opposed to importance ratings) by six meditators.....* 106

Table 6.2. *Individual participants' importance ratings on each item of the five facets. Each item of the facet is classified as a high, moderate or low agreement items based on the range of ratings by the participants. Rating scores, overall mean (M), standard deviation (SD), median (Med), for each item are grouped by subscale and are listed in order of high, moderate, and low agreement items.....* 107

Table 6.3. *Percentage of high, moderate and low agreement as to importance items, presented by facets.....* 110

Table 7.1 *Summary of facets found important in three phases of this research thesis.....* 133

Commonly used Abbreviations

ACT	Acceptance and Commitment Therapy
CAMS-R	Cognitive and Affective Mindfulness Scale- Revised
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CHIME	Comprehensive Inventory of Mindfulness Experiences
CTT	Classical Test Theory
DBT	Dialectical Behavioral Therapy
DIF	Differential Item Functioning
EFA	Exploratory Factor Analysis
FMI	Freiburg Mindfulness Inventory
FFMQ	Five-Facet Mindfulness Questionnaire
IRT	Item-Response Theory
KIMS	Kentucky Inventory of Mindfulness Skills
MAAS	Mindfulness Attention Awareness Scale
MAT	Monitoring and Acceptance Theory
MBCT	Mindfulness Based Cognitive Therapy
MBI	Mindfulness Based Interventions
MBSR	Mindfulness Based Stress Reduction
PHLMS	Philadelphia Mindfulness Scale
PSI	Person Separation Index
RMSEA	Root-Mean Square Error of Approximation
SMQ	Southampton Mindfulness Questionnaire
SRMR	Standardized-Root-Mean-Square Residual

Attestation of Authorship

“I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements, co-authored work, or referenced in-text), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.”

Signature

Name: Kalpana Raman

Date: 09/05/2023

Co-Authored works

All the research work reported in this thesis has been completed under the supervision of Professor Chris Krägeloh and Professor Richard Siegert. Each chapter has been reviewed by the supervisors.

Chapter 4 involved analyzing the data collected in India by myself under the supervision of Associate Professor Proshanto Kumar Saha from National Forensic Sciences University, formerly Gujarat Forensic Sciences University, Gujarat, India. The design of the study, data collection, conceiving the appropriate statistical approach, performing the analysis, composing and editing of the manuscript was completed by the author of this thesis. Professor Richard Siegert contributed to the statistical analysis and editing of the manuscript. Associate Professor Proshanto Kumar Saha collaborated in designing the study, participated in statistical analysis and editing of the manuscript. Professor Chris Krägeloh contributed to conceiving and conducting the statistical analysis, writing and editing of the manuscript.

Chapter 5 involved international collaboration with Dr. Jaishankar Bharatharaj from Bharath Institute of Higher Education and Research (BIHER), Tamil Nadu, India. BIHER offered the author of the thesis a Visiting Researcher position in the Psychosocial Aspects in Robotics (PAIR) lab to conduct this study. The contribution of the author of the thesis was predominantly in designing this study, coordinating with the translators, data collection, analysis and writing of the manuscript. Professor Richard Siegert reviewed the manuscript and provided valuable inputs in the analysis. Dr. Jaishankar Bharatharaj assisted in recruiting the translators for the translation of the original FFMQ-English language version to the Tamil

language version and reviewing of manuscript. Professor Chris Krägeloh contributed in the analysis, and editing of the manuscript.

Chapter 6 was conducted entirely under the supervision of Professor Chris Krägeloh and Professor Richard Siegert wherein the author of the thesis's contribution was to design the study, draft and finalize the questionnaire, finalizing the questions for cognitive interview, data collection, data analysis, writing and editing of the manuscript. Professor Richard Siegert contributed by reviewing and editing the manuscript and Professor Chris Krägeloh assisted in data analysis, writing and editing the manuscript.

The following section declares the percentages of contributions undertaken by the author, and each of the co-authors/collaborators. It confirms that the majority of the work starting from conceiving the idea for each study, designing the study, data collection, analysis, writing of manuscript drafts, and submitting to the journals was completed by me as a first author.

Declaration of Collaboration

Chapter 4

Raman, K., Siegert, R. J., Saha, P. K., & Krägeloh, C. U. (2021). Validation of the English-language version of the Five Facet Mindfulness Questionnaire in India: A Rasch analysis. *Mindfulness*, 12(12), 2955-2965. <https://doi.org/10.1007/s12671-021-01757-8>

Authors	Contributions %	Signature	Date
Kalpana Raman	80%		09/04/2023
Richard J. Siegert	5%		21/04/2023
Proshanto Kr. Saha	5%		05/04/2023
Christian U. Krägeloh	10%		21/04/2023

Chapter 5

Raman, K., Siegert, R. J., Bharatharaj, J., & Krägeloh, C. U. (2023). A Tamil Version of the Five Facet Mindfulness Questionnaire: Translation and Validation Using Rasch Analysis [Accepted for Publication]. *Indian Journal of Psychological Medicine*.

Authors	Contributions %	Signature	Date
Kalpana Raman	80%		09/04/2023
Richard J. Siegert	5%		21/04/2023
Jaishankar Bharatharaj	5%		07/04/2023
Christian U. Krägeloh	10%		21/04/2023

Chapter 6

Raman, K., Siegert, R. J., & Krägeloh, C. U. (In Press). The Relevance of the Five Facet Mindfulness Questionnaire According to the Views of Experienced Meditators in India. *Humanistic Psychologist*.

Authors	Contributions %	Signature	Date
Kalpana Raman	80%		28/04/2023
Richard J. Siegert	10%		28/04/2023
Christian U. Krägeloh	10%		28/04/2023

Acknowledgments

The PhD journey has been an exciting, filled with curiosity, learning, refining and fulfilling one. I would like to extend my sincere gratitude to Professor Chris Krägeloh (Primary Supervisor) as without his timely support and guidance throughout in this journey, this would not have been possible. His enthusiasm, motivational skills, unconditional regard and support, immediacy and decision-making skills made me to be firm with my decision to complete this PhD despite of several odds personally and during times of global pandemic.

I would like to thank Professor Richard Siegert (Co-supervisor) as without his expertise, eye for details, precision and refinement in analysis and writing of this thesis, this would not have been a piece of work that I hold so much value for and feel attached to. My sincere gratitude to both my supervisors for their support and commitment, as well as being readily available as and when there was a need. Personally, and professionally, they both will continue to be my role models for empathy, compassion, kindness, and cheerfulness. This journey along with them has taught me utmost sincerity, discipline, perseverance and patience.

I would like to acknowledge the opportunity given by Dr. Jaishankar Bharatharaj to be a visiting researcher in their institute (BIHER) during the global pandemic time and providing the resources requisite for the study to continue. I would like to thank Dr. Proshanto Kumar Saha (Associate Professor) for his support and guidance during manuscript drafting and submission (Chapter 4 in the thesis), the Dean (School of Behavioral Science) and the Executive Registrar of the National Forensic Sciences University (Formerly Gujarat Forensic

Sciences University) for the appropriate Ex-post facto Institutional Review Board approval for Chapter 4.

I am grateful to all the participants and support staff of the organizations where the data were collected and also to Julie Balloch, Anni Krägeloh, Beibei Chiou, Scott Pilkington for providing me with all the appropriate administrative support throughout in my PhD journey.

Last but not the least, in particular, I would like to extend my gratitude and appreciation to the One Almighty God, my family- my mother Mrs. Suseela Raman, my father Mr. J Kalyana Raman, my elder sister Mrs. Mahalakshmi Raman, and brother-in-law Mr. Nitin Kamal for their patience, tolerance, consistent motivation, and freedom in letting me to continue working on my dream and passion. They listened to my drafts and reviewed it for me, no matter whether they could understand the subject matter or not but they unconditionally appreciated the efforts and the work till date. I owe this PhD to them as this PhD is not merely a degree or added feather on my cap but it is the pride moment in the family history. The video calls with my niece (Miss Kaira Kamal) and nephew (Master Tarush Kamal) kept me going through this with laughter and enthusiasm. Also, this is a testament to what I committed to my family few years ago is coming alive and true.

I would like to take this opportunity to appreciate my intern Ms. Smriti Maini's efforts, motivation and creating deadlines for me to complete this PhD on time. My sincere gratitude to my close friends who in some or the other way kept me on my toes to continue working on my thesis and complete this journey with flying colors.

I would also like to express my gratitude to my uncle Mr. Jaishankar, and a colleague Mr. Kathirasan who have immense knowledge about mindfulness and attempting to track the history beyond Buddhism. Their expert knowledge and consultations with them helped me to draft the second chapter of this thesis. This is a time to acknowledge the special efforts of my surgeon (Dr. Mayilvahanan Natarajan) and his team of surgeons and physicians to help me get up on my feet again and again despite physical health disparities. He kept a check on me frequently to make sure I am able to sail through this PhD journey without any untoward happenings.

Funding

I am grateful for the School of Clinical Sciences- Postgraduate Research Thesis Funding (ASSIST) provided to me to be able to participate and present my work in the International Conference on Mindfulness Asia Pacific in Melbourne, Australia in November 2022. The funding also helped me to cover the costs for translation of protocols, participate in analysis workshop and Mindfulness-Based Stress Reduction (MBSR) 8-week course.

Intellectual Property Rights

There are no intellectual property rights to be declared for this thesis.

Ethics Approval

The data for the study reported in Chapter 4 were collected and stored in India as I (primary author) was pursuing PhD in Gujarat, India, which was later transferred to Auckland University of Technology, Auckland, New Zealand. Hence, after obtaining consent from the former supervisor, relevant ethical board, Dean of the Institute and the Registrar of the University, the data were analyzed and results were published. An Ex-post facto ethics approval from the Institutional Review Board of the Gujarat Forensic Sciences University (now National Forensic Sciences University, Gujarat, India), dated 09/12/2019 was obtained, which has been attached as Appendix A (IRB Approval from NFSU).

The ethics approval for the study presented in Chapter 5 was granted by a local institution in Tamil Nadu, India as the data collection had to be completed in the Tamil Nadu (South) region of India. The ethics approval dated 18/06/2021 by the Bharath Institute of Higher Education and Research (144/BIHER/ROB-RES/2021) was gained for this study (Appendix B Ethics Approval from BIHER). This study was also approved by the Auckland University of Technology Ethics Committee (AUTEC) dated 13/10/2021 (21/297 Cross Cultural Generalizability of the Five Facet Mindfulness Questionnaire in the Indian Context) which has been attached as Appendix C (AUTEC Ethics Approval; Chapter 5).

The study reported as Chapter 6 was approved by the AUTEC dated 13/12/2021 (21/297 Cross Cultural Generalizability of the Five Facet Mindfulness Questionnaire in the Indian Context) attached as Appendix D (AUTEC Ethics Approval; Chapter 6).

Introduction

Mindfulness practices involve various formal and informal practices. Formal practices involve dedicated practice of mindfulness exercises and meditation, such as body scan, and breathing meditation along with awareness of the mindfulness attitudes, such as nonjudgment, acceptance, letting go/letting be, and non-striving. In contrast, informal practices involve cultivation of mindfulness skills in activities of daily living, such as eating, walking, getting dressed, and bathing (Birtwell et al., 2019; Kakoschke et al., 2021; Kauser et al., 2023; Sakki et al., 2022). These mindfulness skills and practices are also included in different ways and formats in already developed types of mindfulness-based interventions (MBIs), such as Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1982), and Mindfulness-Based Cognitive therapy (MBCT; Segal et al., 2002), as well as in mindfulness-informed practices, such as Dialectical Behavioral Therapy (DBT; Linehan, 1993), and Acceptance and Commitment Therapy (ACT; Hayes et al., 1999).

These different practices of mindfulness in the form of MBSR and MBCT, and the therapeutic approaches, such as DBT and ACT teaching mindfulness-informed skills have documented many benefits such as alleviation of stress, emotion regulation, enhancement of overall wellbeing, positive attributes like joy, contentment, and clarity (Chiesa et al., 2011; Felver et al., 2016; Goldberg et al., 2018; Goldsmith et al., 2023).

There has been an increase in studies related to mindfulness in recent years specifically related to assessment of mindfulness using the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). There has also been a recent increase in mindfulness-based research works from India (Baminiwatta & Solangaarachchi, 2021). Keeping up with the trend of recent studies in the Indian settings, this research thesis

attempted to validate the already available and widely used mindfulness assessment tool, FFMQ in India, and explore further the extent to which the questionnaire needs to be adapted to make it culturally-generalizable in the Indian context.

Despite numerous studies documenting the usefulness of the FFMQ in the Western context (Bohlmeijer et al., 2011; Carpenter et al., 2019), there remains a dearth of evidence related to understanding of the mindfulness concept specific to India, and ascertaining the multidimensional (five-facet) model of mindfulness by exploring the validity of common mindfulness instruments in the Indian population. In this regard, only one study by Mandal et al. (2016) has assessed the psychometric properties of FFMQ- Hindi language version with the Hindi speaking population of India using confirmatory factor analysis (CFA). The authors found that one of the five facets, the Observe facet, to misfit, and they confirmed a 28-item FFMQ-Hindi language version to be used in India. But no other significant work has been conducted in India assessing the psychometric properties of the widely used mindfulness assessment tool, FFMQ.

India, specifically, provides an interesting context for mindfulness scholarship, not only because of its historical links to mindfulness, but also due to its cultural diversity. Thus, the aim of this research thesis was to investigate the cultural generalizability of mindfulness assessment in India. Keeping in view this aim, Phase 1 and 2 of this research thesis attempted to understand the workability of mindfulness assessment in samples from India when using the FFMQ, which developed in the United States and predominantly tested in the Western contexts. Furthermore, Phase 3 explored the extent to which items in the FFMQ pertaining to five facets were considered to be relevant by meditators sample in India, majorly belonging

to the non-MBI context. This research thesis will assist in opening the pathway for future studies pertaining to the cultural generalizability of mindfulness assessments based on the understanding of India.

The introductory chapter (Chapter 1) in this thesis outlines the history of how mindfulness came into prominence in psychology, the various definitions of mindfulness, and description of various mindfulness assessments developed in the United States but predominantly tested in the Western contexts. After consideration of the emergence of mindfulness concept and practice in psychology, Chapter 2 attempts to trace the history of Buddha, concepts of Buddhism, and linguistic roots to the Indian subcontinent. Chapter 2 also outlines the various ways and practices of mindfulness that have been described in the ancient scriptures and religions of India which existed even before Buddha to reiterate the need for more studies related to mindfulness in the Indian context. Then, the rationale of this research thesis, overall aim and the methodology employed in regard to the aim has been described in Chapter 3.

Furthering this understanding of the historical and philosophical underpinnings of mindfulness in India and the emergence of mindfulness assessment tools in contemporary psychology in the West, Chapter 4 presents work to validate the most widely used mindfulness assessment tool, the Five Facet Mindfulness Questionnaire (FFMQ) English language version on sample recruited from India. India has diverse cultures, traditions, languages, and geography, consequently Chapter 5 reports on the validation of the Tamil version of FFMQ, a language widely spoken in South India. Both Chapters 4 and 5 attempt to validate the FFMQ in the general population whereas the original validation study by Baer

et al. (2006) recruited both meditators and general population to confirm the utility of FFMQ in the West.

Thus, Chapter 6 in this study attempted to delve deeper into the concept of mindfulness from an Indian perspective by recruiting long-term meditators who completed the FFMQ items along with perceived importance questions and were then interviewed to gain more insight on the relevance of items of FFMQ specific to the Indian context. Finally, Chapter 7 summarizes the results, integrates the conclusions, and identifies future directions for further research in this area. This thesis provides vital information about the concept and usefulness of mindfulness assessment based on the Indian context but should be considered as preliminary work guiding our understanding for future work utilizing other assessment tools of mindfulness that could potentially match the needs and concepts described in this research thesis from the perspective of India.

Chapter 1: Mindfulness in Psychology

Mindfulness is one of the many concepts stemming from the Buddhist philosophy and relates to practices found in many different cultures, such as Zen meditation or, Vipassana (Grabovac et al., 2011). Mindfulness is believed to be cultivated by the regular systematic practice of meditation (Malinowski, 2008). It includes the concepts of being aware of self, observing the flow of thoughts but not getting carried away with them but observing while being non-reactive and non-judgmental. In this chapter, the journey of mindfulness in psychology, conceptual clarity of the term *mindfulness*, assessments in mindfulness, and the nuances in the available assessment tools will be described.

1.1. Evolution of mindfulness in psychology

Mindfulness as a concept and practice is commonly viewed as having been introduced by Jon Kabat-Zinn in the late 1970s into medicine and psychology. His curiosity and learning in Zen meditation led him towards immersing himself into the Buddhist training and approach towards mindfulness (Gordon, 2009). In his journey of learning mindfulness and putting into practice in psychology, he has acknowledged the knowledge and practice of various cultural and religious practitioners belonging to different regions and speaking different languages, such as Zen meditation by Seung Sahn, Thich Nhat Hanh (Vietnamese Zen master), Insight meditation by Salzberg and Goldstein, Tibetan Buddhism by Chögyam Trungpa Rinpoche and Sogyal Rinpoche in shaping the present-day mindfulness (Kabat-Zinn, 2005, 2013).

There had been reports of the effects of mindfulness in previous studies in psychology before (e.g., transcendental meditation), but most of the research and conceptual work emerged through the development of so-called mindfulness-based interventions (MBIs;

Khoury et al., 2013). Recently, Crane et al. (2017) differentiated between mindfulness-based programs/interventions (MBIs) and mindfulness-informed programs. The MBIs include the Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1982), and the Mindfulness-Based Cognitive therapy (MBCT; Segal et al., 2002), whereas the Dialectical Behavioral Therapy (DBT; Linehan, 1993), Compassion-focused therapy (Gilbert et al., 2009), Acceptance and Commitment Therapy (ACT; Hayes et al., 2011), and Mindful self-compassion (Neff & Germer, 2013) are categorized as mindfulness-informed practices as they focus on cultivating certain skills of mindfulness but are not entirely based on formal and informal mindfulness practices as MBIs does.

1.1.1. Mindfulness-Based Stress Reduction (MBSR)

The most widely popularized and streamlined mindfulness training program is MBSR, which was initially developed at the Stress reduction clinic within the Centre for Mindfulness at the University of Massachusetts in the United States during the late 1970s by Kabat-Zinn (Kabat-Zinn, 1982). The aim of MBSR is to enhance the awareness, wisdom, and the feeling of being in the present moment as much as possible. Kabat-Zinn in his book “Full Catastrophe Living” (1990) mentioned and explained the seven attitudes essential for the practice of mindfulness, namely, nonjudging, patience, openness to experiences, trust, non-striving, acceptance, and letting go. These are interconnected attitudes and the practice of these on a daily basis result in enhanced awareness and ability to decrease suffering and pain.

There are certain commitments outlined by Kabat-Zinn to reap the benefits of MBSR fully. The commitments are: Practicing this training daily for 45-60 minutes, keeping an attitude of kindness, compassion, and openness towards new experiences (self and others),

and having a non-striving attitude wherein the desire to reach a target is not present. It is an 8-week course entailing a weekly class lasting between 2.5-3.5 hours along with an entire day of silence retreat of approximately 7-7.5 hours which occurs around the sixth week of the course. There is formal practice that is taught in class and informal practice that is to be practiced by the individual in everyday living. The formal practices involve body scan, hatha yoga, sitting, and walking meditation. The informal practices involve cultivation of awareness towards breathing, events and situations whether pleasant or unpleasant, and awareness towards daily activities such as eating, walking, and driving. There are home practice tasks aimed at increasing both the formal and the informal practices typically lasting an hour daily (Crane, 2017; Cullen, 2011; Santorelli, 2014; Stahl & Goldstein, 2010).

Since the inception of MBSR, it has gained a lot of popularity and has spread throughout the world. There has been a rapid increase in the use of mindfulness interventions in medicine, psychology, business, and sports in various formats and ways (Nien et al., 2020; Tang et al., 2015). Shapiro et al. (2008) provided MBSR training to students and concluded that mindfulness skills can be cultivated and through the MBSR training, there is enhancement in attention and awareness, as well as psychological wellbeing. Recent meta-analytic studies and reviews have also shown efficacy of MBSR on anxiety symptoms (Li & Bressington, 2019; Zhou et al., 2020), post-traumatic stress disorder (Liu et al., 2021), cancer patients (Suh et al, 2021; Wu et al., 2022), headaches (Rehman et al., 2022), and cardiovascular diseases (Marino et al., 2021).

1.1.2. Mindfulness-Based Cognitive Therapy (MBCT)

The other MBI is MBCT developed by Segal et al. (2002) which follows a similar protocol as the practice of MBSR. Both MBSR and MBCT have manualized protocols. The MBCT protocol integrates cognitive approaches (cognitive-behavioral therapy techniques) along with MBSR practice to deal with depression (Williams et al., 2008). It is an eight-week program that begins with shifting the mode from ‘doing’ to ‘being’, then it introduces the practice of maintaining a nonjudgmental stance while developing present-moment awareness, regulating the breath and body, mindful responding to fears and aversions, cultivating acceptance and openness to experiences, committed action, and finally maintenance of actions (Segal et al., 2002). MBCT also involves core principles and practices of maintaining open mindedness, curiosity, nonjudgment, and acceptance.

This therapeutic modality was originally developed and used with individuals diagnosed with depression or who are in remission phase after dysthymia wherein the individuals were trained to observe the thoughts and maintain a non-evaluative stance but continually acknowledge the passing nature of these thoughts. They were also trained to “disengage from habitual dysfunctional cognitive routines” (Williams et al., 2008, p.524).

A randomized clinical trial conducted by Segal et al. (2002) found that individuals who completed the training and practice of MBCT reported to be asymptomatic even after 12 months of training. Many recent studies have demonstrated the efficacy of MBCT on suicidal ideation and depression (Elices et al., 2022; Goldberg et al., 2019; Kuyken et al., 2015; McCartney et al., 2021; Seshadri et al., 2021; Tseng et al., 2023; Zhang et al., 2022), bipolar

disorder (Xuan et al., 2020), chronic pain (Pei et al., 2021), attention deficit hyperactivity disorder (Oliva et al., 2021), and cancer (Ruano et al., 2022).

1.1.3. Dialectical behavioral therapy (DBT)

Each variation of MBI that has been popularized as therapeutic modalities (mindfulness-informed practices) seem to have certain specialized skills that are cultivated through practice (Crane, 2017). One such popularized way is the evidence-based treatment developed by Marsha M. Linehan in 1993 named Dialectical Behavioral Therapy (DBT) focusing on cultivation of the skills pertinent to awareness and acceptance (Bass et al., 2014; Stanton & Dunkley, 2019). It is considered to be a gold standard therapeutic modality for treating the borderline personality disorder (DSM-V, American Psychiatric Association, 2013). DBT focuses on the aspects of acceptance and change through cultivating various skills, such as distress tolerance, emotion regulation, interpersonal skills, and mindfulness skills.

The mindfulness skills taught in DBT are adapted from the practice of Zen meditation which focuses on the aspects of observing the internal and external stimuli through the skills of being aware and attentive, describing those experiences by putting them into words, and maintaining a non-judgmental stance by being accepting and open to the experiences (Chapman, 2006; Linehan, 1993).

Linehan (1993) explained that the aim is to cultivate the wise mind which is also known as the middle path between the reasonable (logical) and emotional mind. This can be achieved by learning and practicing the “how” and “what” skills. The “how” skills comprise of the skills of being one-mindful, and non-judgmental, whereas the “what” skills comprises of the

ability to observe, describe, and participate. A recent scoping review study conducted by Eeles and Walker (2022) confirmed the positive impact of mindfulness skills on symptom reduction in clients diagnosed with borderline personality disorder. These mindfulness skills as explained above are taught as a practice within the larger protocol of DBT's treatment protocol developed by Linehan in the early 1990s.

1.1.4. Acceptance and Commitment therapy (ACT)

Another variation of mindfulness skills and practices in the therapeutic setting is the development and practice of Acceptance and Commitment Therapy (ACT) developed by Hayes et al. (2011). ACT is grounded on the principles of behavior analysis, i.e., it focuses on behavioral change. It is said to be a “transdiagnostic” method combining the strategies catalyst in behavioral change, mindfulness skills, and strategies enhancing acceptance. All these methods combined assists in increasing cognitive flexibility (Plumb et al., 2009). ACT consists of many techniques and practices which can be provided to individuals either in individual, group, couple, or/and family settings (Bricker et al., 2014; Dindo et al., 2017; Smout et al., 2010).

The core processes of ACT involve Defusion meaning the ability to step back from the situation/thought/problem and noticing the passing nature of them rather than getting entwined into it which is also known in mindfulness literature as Nonjudging. The other core processes of ACT are awareness of self, acceptance, connecting with values which are close to the individual, committed action to achieve them or become attuned to own values while aiming to stay connected to the present-moment awareness (Harris, 2006). Specifically, mindfulness in ACT is viewed as “...paying attention with flexibility, openness, and

curiosity” (Harris, 2009, p.8). Some of the recent systematic review and meta-analytic studies have found ACT to be useful in dealing with chronic pain (Trindade et al., 2021), stress, anxiety, and depression (Fischer et al., 2020; Prudenzi et al., 2021), and schizophrenia (Liu et al., 2021).

Together DBT, ACT, and MBCT are considered to be third wave therapies stemming from behavioral therapy and cognitive therapy. They all focus on cultivating mindfulness skills but in their own ways and formats. Many studies have been conducted to evaluate the effectiveness of these therapies as mentioned above while explaining each therapeutic modality.

As on August 2023, there are more than 17,000 review articles (Google Scholar) on efficacy studies of MBIs since 2019, which is beyond the scope of this thesis to explain. Some of the studies using various MBIs have shown that with practice of MBIs, positive and constructive coping skills as well as reappraisal skills can be cultivated enhancing the overall wellbeing. It can be concluded that the various modalities of MBIs (e.g., MBSR and MBCT) and mindfulness-informed practices (e.g., DBT and ACT), all have an everlasting impact and are effective treatment modalities for various physical and mental health conditions. However, more research is needed to assess the cross-cultural validity and efficacy of these manualized trainings in different cultures.

1.2. Defining *mindfulness*

Considering the effects of mindfulness training on various sections of the society, there has been an increase in curiosity in the concept, practice, and assessment of mindfulness in

the last 40 years. As outlined in the previous section, the term *mindfulness* reportedly has gained popularity in psychology since the start of a clinic by Jon Kabat Zinn in 1979. Since then, the term mindfulness has been conceptualized in various ways by different philosophers, literary experts, researchers, and psychologists. Some of the popular definitions along with the core skills highlighted in each definition are mentioned below.

Mindfulness is a translation of the term *sati* by Rhys Davids (1921). The earliest discussion about mindfulness began by Nyanaponika (1962) with his book publication on “The heart of Buddhist meditation”. Nyanaponika Thera was a Buddhist monk and scholar who described the term mindfulness as “bare attention” (1968, p. 32). He described bare attention as the most accurate and pure amenable mind’s state which is suggestive of attentional flexibility which the modern mindfulness assessments misses to acknowledge. He believed that many of the mindfulness assessments focus on specific techniques and practices rather than a general state of awareness and thus could not capture the crux of bare attention fully (Feng, 2017).

Further, Goldstein (1987) defined mindfulness as “...being aware of what is happening in the present moment. It means noticing the flow of things” (p.13). This definition by Goldstein (1987) highlights the core skills of awareness and observation in the present moment. Awareness and attention have been viewed as components of consciousness wherein awareness means “...continually monitoring the inner and outer environment” (Brown & Ryan, 2003, p. 822) and attention means being laser focused on a specific aspect while discounting the surrounding aspects. Thus, Brown and Ryan (2003, p.822) described

attention as “...process of focusing conscious awareness, providing heightened sensitivity to a limited range of experience.”

More researchers attempted to define mindfulness and the most popular definition in psychology of mindfulness was given by Jon Kabat Zinn in 1994. The definition underwent a few revisions later in 2003 and 2005. Bringing the concept and practice of mindfulness to the forefront in psychology, Jon Kabat Zinn (1994, p.4) defined mindfulness as “...paying attention in a particular way, on purpose in the present moment, and nonjudgmentally” underlining the core skill of attention and non-judgment.

Furthering the journey of defining mindfulness, Boorstein (1996, p.8) included the aspect of awareness while defining mindfulness. She defined mindfulness as “...relaxed, nonclinging, nonaversive awareness of present experience.” This definition further brought alive the aspects of nonattachment and nonreactive awareness of any experiences in the present moment. Marlatt and Kristeller (1999, p.70) described mindfulness as “...observing one’s experiences with an attitude of acceptance and loving kindness.” Collectively, the definitions by Kabat Zinn, Boorstein, Marlatt and Kristeller highlighted the aspects of observing, awareness, nonreactive, and nonjudgment which eventually became the foundations of the item wordings in various mindfulness assessment tools which has been described later in this chapter.

These core skills were further embedded in definitions of mindfulness since early 2000. Baer et al. (2003, p.125) explained mindfulness as “...non-judgmental observation of the ongoing stream of internal and external stimuli as they arise.” Within a year, Bishop (2004,

p. 232) described mindfulness as ‘...a kind of non-elaborative, non- judgmental, present-centered awareness in which each thought, feeling, or sensation that arises in the attentional field is acknowledged and accepted as it is.’ The most recent definition of mindfulness was given by Segal et al. (2013, p. 132) as “...the awareness that emerges through paying attention on purpose in the present moment and non-judgmentally to things as they are” comprehensively mentioning each core skill identified and explained above.

1.2.1. State and Trait mindfulness

Mindfulness has been defined as state involving cultivation of mindfulness skills (Lau et al., 2006; Salzberg & Goldstein, 2001) or/and as trait (Brown & Ryan, 2003). A state refers to a fluid and short-term mindset or frame of reference that we can quickly move in and out of, sometimes by force or by will (Brown & Ryan, 2003). It is a flexible condition that influences how you perceive the world around you.

According to the state mindfulness concept, mindfulness refers to a transient state in which a person can remain present despite distractions and be aware of their thoughts and feelings (Medvedev et al., 2017). Salzberg and Goldstein (2001) described mindfulness as a state “...of being fully present, without habitual reactions” as cited in the clinical handbook of mindfulness by Fabrizio Didonna (2009, p.172). State mindfulness in general refers to the present moment condition, whether an individual is able to cultivate mindfulness in the present (Lau et al., 2006) wherein trait mindfulness refers to stable characteristic of a person to be able to be mindful daily or enter those mindful states frequently (Baer et al., 2006).

Brown and Ryan (2003) described trait mindfulness in different ways, such as “... mindfulness is inherently a state of consciousness” (p.824) and “...enhanced attention to and awareness of current experience or present reality.” (p.822). Trait mindfulness is a more enduring ability to enter a mindful perspective at will, in which an individual recognizes what they are thinking and feeling, accepts these without judgement, and keeps their focus on being present (Burzler & Tran, 2022; Medvedev et al., 2017). It has been demonstrated in many studies that the trait mindfulness can be altered through mindfulness practices (Nyklíček et al., 2013; Shapiro et al., 2011; Tang et al., 2015). Repetitively inducing the practice of state mindfulness during meditation sessions amplify the trait mindfulness (Garland et al., 2010; Kiken et al., 2015; Vago & Sielbersweig, 2012).

In conclusion, it has been difficult to reach a concise consensus definition of mindfulness (Van Dam et al., 2018). But it is important to acknowledge that the most widely popularized and followed definition of mindfulness in psychology, was given by Jon Kabat Zinn (1994). To assess mindfulness as state or/and trait as well as effectiveness of MBIs, many mindfulness-based assessment tools have been developed and validated (Al Ozairi et al., 2023; Demarzo et al., 2017; Flook et al., 2015; Krägeloh et al., 2019; Krishnan et al., 2021) which has been explained in the next section.

1.3. Assessments of mindfulness

In the early days of MBI related research, mindfulness assessment tools were not extensively available making the measurement of mindfulness difficult. However, as these tools became widely available in the late 20th century, these are now routinely included in MBI related research to understand to what extent the MBIs enhances positive outcomes,

such as overall wellbeing, and psychological flexibility, and whether the changes in levels of mindfulness are linked to these outcomes achieved from MBI (Khoury et al., 2013; Van Dam et al., 2018).

At present, there are many mindfulness assessment scales that has been utilized in various researches and the numbers continue to increase due to continuing refinement and updates (Medvedev et al., 2022). Some of the important mindfulness assessment tools are: The Freiburg Mindfulness Inventory (FMI; Buchheld et al., 2001; Walach et al., 2006), the MAAS (Brown & Ryan, 2003), the Cognitive and Affective Mindfulness Scale (CAMS; Kumar et al., 2005) and then a revised version (CAMS-R; Feldman et al., 2007), the Southampton Mindfulness Questionnaire (SMQ; Chadwick et al., 2008), the Kentucky Inventory of Mindfulness Scale (KIMS; Baer et al., 2004), the FFMQ (Baer et al., 2006) and Philadelphia Mindfulness Scale (PHLMS; Cardaciotto et al., 2008). There are many state mindfulness scales but two scales that are widely in use are: The Toronto Mindfulness Scale (TMS; Lau et al., 2006) and The State Mindfulness Scale (SMS; Tanay & Bernstein, 2013).

1.3.1. Freiburg Mindfulness Inventory (FMI)

The FMI (Buchheld et al., 2001) is an inventory based on the concepts of Buddhist philosophy related to mindfulness. It is a 30-item questionnaire assessing four factors, namely, mindful presence, non-judgmental acceptance, openness to experience, and insight (Malakoutikhah et al., 2022). It was originally worded in German then translated into English for far reach usability. Walach et al. (2006) assessed the psychometric properties of FMI on both meditators and non-meditators and found a 14-item FMI to suit the meditators sample better than the 30-item questionnaire.

Although four factors have been reported in FMI, the authors suggest it to view these factors as unidimensional/higher order factor of mindfulness. Many researchers have translated the FMI into various languages and assessed the psychometric properties, such as a French version (Trousselard et al., 2010), a Brazilian version (Hirayama et al., 2014), and a Polish version (Radon, 2017). But all the translation studies have found variability in the factor structure which seems to be a problem in most of the mindfulness scales with multiple factors/facets.

1.3.2. Mindfulness Attention Awareness Scale (MAAS)

MAAS measuring single factor (trait), i.e., attention/awareness (Brown & Ryan, 2003). The guiding definition of mindfulness by the authors of MAAS scale describes mindfulness as “a receptive *attention* to and *awareness* of present events and experience” (Brown & Ryan, 2003). MAAS is a 15-item measure rated on 6-point Likert scale ranging from 1 to 6 wherein a rating of 1 = *almost always* and rating of 6 = *almost never*. MAAS has been criticized to miss out on adopting an overall measure rightly justifying the definition of mindfulness (Bergomi et al., 2013).

1.3.3. Kentucky Inventory of Mindfulness Skills (KIMS)

Further, KIMS was developed by Baer et al. (2004) measuring the skills of mindfulness as described and taught in DBT. KIMS has 39 items to be rated by participants on a 5-point Likert scale wherein 1 = *never* to 5 = *almost always*. It is a multidimensional scale assessing four factors/facets, namely, Observing, Describing, Acting with Awareness, and Accepting without judgment. Three facets (Observing, Acting with awareness, and Accepting without judgment) have been described as vital aspects of mindfulness in the definitions explained in

the previous section but the Describing facet does not seem to have been mentioned in any way in the definitions of mindfulness as construed in Buddhist philosophy or Western mindfulness as understood to date (Gunaratna, 2002). KIMS has been criticized for having low correlations between the four facets/factors which limits it to provide total score of mindfulness, thus questioning its content validity (Baer et al., 2004). While comparing KIMS and FFMQ, researchers have found FFMQ to have better internal consistency and test-retest reliability than KIMS (Bohlmeijer et al., 2011).

1.3.4. Comprehensive Assessment of Mindfulness Skills (CAMS)

CAMS was developed by Kumar et al. (2005). It is an 18-item questionnaire that can be used universally in any culture. It also measures four factors, namely, attention; awareness; present-focus; acceptance/nonjudgment. It was criticized for lacking internal consistency and the variability in factor structure that could not be replicated throughout in different samples (Feldman et al., 2007). Thus, a revised version was developed as CAMS-R by Feldman et al. (2007) which also assesses the same four-factors. It is based on the definition of mindfulness given by Jon Kabat-Zinn in 1994 (p.4) "...paying attention in a particular way, on purpose in the present moment, and nonjudgmentally". CAMS-R is a 12-item questionnaire in which 6 items of the original CAMS are retained. The questionnaire is marked on a 4-point Likert scale wherein 1 = *never* and 4 = *almost always*.

1.3.5. Southampton Mindfulness Questionnaire (SMQ)

The other mindfulness assessment tools developed are SMQ by Chadwick et al. (2008) and the PHLMS by Cardaciotto et al. (2008). The SMQ is based on the definitions of mindfulness provided by Kabat-Zinn (1990), and Teasdale et al. (2002). It is a 16-item

questionnaire marked on a 7-point Likert scale wherein 0 = *strongly disagree* to 6 = *strongly agree*. SMQ assesses the relationship people tend to have with upsetting thoughts and images. It consists of four factors but converges as a unidimensional mindfulness trait. The four factors are: decentered awareness (Safran & Segal, 1990), attention to remain with difficult experiences, accepting nonjudgmentally (Kabat-Zinn, 1990, p.69), and being nonreactive towards the experiences (Chadwick et al., 2008). The SMQ has been translated into a German version (Böge, 2020) and a Portuguese version (Martins et al., 2021).

1.3.6. Philadelphia Mindfulness Scale (PHLMS)

The PHLMS is based on the definition of mindfulness by Bishop et al. (2004) which consists of two main components, i.e., “awareness/attention in the present moment, and openness/acceptance towards own experiences” (p.232). It is a 20-item questionnaire, with two main factors (awareness and acceptance) marked on a 5-point Likert scale wherein 1 = *never* to 5 = *very often*. The items assessing acceptance are reverse scored as they are negatively worded wherein the items assessing awareness are scored directly without a need for reverse scoring. Higher the score reflects higher the levels of mindfulness. The PHLMS has been translated into Spanish version (Tejedor et al., 2014), Chinese version by Zeng et al. (2015), Italian version by Simione et al. (2022), and Portuguese version by Teixeira et al. (2017).

1.3.7. The Toronto Mindfulness Scale (TMS) and The State Mindfulness Scale (SMS)

The two state mindfulness scales widely popularized and used are: The Toronto Mindfulness Scale (TMS) developed by Lau et al. (2006) and the State Mindfulness Scale (SMS) developed by Tanay and Bernstein (2013). TMS is a 13-item questionnaire marked

on a 5-point Likert scale ranging from 0 = *not at all* to 4 = *very much*. It is based on the definition of mindfulness by Bishop et al. (2004). It has two factors, namely, curiosity assessed by 6 out of the 13 items (Items 3, 5, 6, 10, 12, and 13), and decentering assessed by the remaining seven items of the 13 item TMS (Items 1, 2, 4, 7, 8, 9, and 11). No reverse scoring is required.

The other state mindfulness questionnaire is the SMS which is a 21-item questionnaire that assesses both the physical and mental aspects of mindfulness. Six items out of 21 items assess the physical aspect (Body) and the remaining 15 items assess the mental (Mind) aspects of state mindfulness (Tanay & Bernstein, 2013). These items are marked on a 5-point Likert scale ranging from 0 = *not at all* to 4 = *very much*.

Despite the availability of many assessment tools of mindfulness, each of them has been found to have certain limitation. These issues have been discussed in length in a review paper by Baer et al. (2019), Bergomi et al. (2013), and Van Dam et al. (2018). The authors suggest that due to the issues in each assessment tool mentioned above, no single questionnaire can be credited to be a true measure of mindfulness and be utilized cross-culturally across the world.

1.4. Five Facet Mindfulness Questionnaire (FFMQ)

Out of all the mindfulness assessment tools explained in the above section, the most widely cited in Google Scholar, PsycInfo, and Web of Science are the MAAS followed by the FFMQ and the KIMS (Burzler & Tran, 2022; Lecuona et al., 2022; Medvedev, 2017). A recent bibliometric analysis by Baminiwatta and Solangaarachchi (2021) confirmed that the

two major cited assessment tools are MAAS (Brown & Ryan, 2003), and FFMQ (Baer et al., 2006). A search on Google Scholar at the time of completing this PhD thesis (9th of May, 2023) revealed more than 13000 articles since 2017 that has used FFMQ in their research work, and each article has been cited many a times in other research works related to mindfulness. This research thesis used the FFMQ throughout in this thesis because it demonstrates the widely popularized multidimensional model, specifically the five-facet model of mindfulness.

FFMQ is the most extensively used assessment tool of mindfulness developed and validated by Baer et al. (2006). The items of FFMQ have been pooled from five other trait mindfulness scales explained in the previous section, namely, FMI (Buchheld et al., 2001), MAAS (Brown & Ryan, 2003), KIMS (Baer et al., 2004), SMQ (Chadwick et al., 2008), and CAMS-R (Feldman et al., 2005). Initially, 112 items were pooled from these five scales which were then analyzed using confirmatory factor analysis (CFA) by Baer et al. (2006) resulting in a 39-item scale assessing five factors. Four factors are identical to those of the KIMS, namely, Observe, Describe, Act with Awareness, and Nonjudge. However, one more factor, Nonreact was added after factorial analysis using exploratory factor analysis (EFA) and CFA (Baer et al., 2006).

The Observe facet assesses the ability to perceive both the internal and external stimuli, such as the sensations, thoughts, and emotions, e.g., Item 1 “When I’m walking, I deliberately notice the sensations of my body moving.” The Describe facet assesses the tendency to put experiences into words, e.g., Item 27 “Even when I’m feeling terribly upset, I can find a way to put it into words.” The Act with Awareness facet assesses our ability to be aware and

attentive in the present moment, such as Item 23 “It seems I am running on automatic without much awareness of what I’m doing.” The Nonjudge facet assesses the tendency to keeping non-evaluating stance towards own thoughts and experiences, such as Item 10 “I tell myself I shouldn’t be feeling the way I’m feeling.” The Nonreact facet assesses the ability to observe the passing nature of thoughts and not getting entangled in it, for example, Item 4 “I perceive my feelings and emotions without having to react to them.”

In total, each facet comprises of eight items except the Nonreact facet which comprises just seven items. The FFMQ is marked on a 5-point Likert scale wherein 1 = *never or very rarely true* to 5 = *very often or always true*. Out of the 39-items, 19 items are negatively worded due to which they are reverse scored, i.e., a score of 1 = 5, 2 = 4, 3 = 3, 4 = 2, and 5 = 1. All the items of Act with Awareness, Nonjudge, and three items of the Describe facet (Item 12, 16, and 22) are reverse scored. Higher scores reflect higher mindfulness levels. The internal consistency of FFMQ has been reported to range between 0.75 to 0.92 with both meditators and non-meditators and the test-retest reliability of FFMQ has been reported to range between 0.67 to 0.80 (Baer et al., 2008; Bohlmeijer et al., 2011; Christopher et al., 2012).

The original validation study of FFMQ by Baer et al. (2006) recruited both meditators and non-meditators sample from the US. They analyzed the results using EFA and CFA to ascertain the factor structure of FFMQ. They found four factors (Describe, Act with Awareness, Nonjudge, and Nonreact) describing the multi-facet mindfulness construct but found inconclusive results for the Observe facet. But, when they analyzed the factor structure on the meditators sample separately, all the five factors showed acceptable fit. The authors

also mentioned that within the meditators sample, individuals who did not meditate regularly continued to show a misfit which was later found to be not true in further studies recruiting both meditators and non-meditators sample and using CFA with item parcels (Baer et al., 2008) and without item parcel (Christopher et al., 2012).

The table below (Table 1.1.) shows the inconsistent factor structures found in various studies using the FFMQ- original English language version. A systematized search was carried out for articles between the year 2012-2020 using the following terms in EBSCO, PsycInfo, and Scopus “*psychometric properties, FFMQ, IRT, reliability of FFMQ, five facet mindfulness questionnaire, validity of FFMQ, EFA, standardization, CFA.*” As there were more than 2000 hits, further iterations were carried out only on hits achieved in Scopus database. The iterations involved looking out for terms FFMQ and psychometrics in the title of the paper and then in the abstract. After deleting the duplications at title level, and scanning the abstract for the term FFMQ and psychometrics, 146 articles were selected that explored and validated FFMQ in various language versions and short forms. It is beyond the scope of this thesis to present the results of all the 146 articles.

This is not an exhaustive literature search of factor analysis studies using FFMQ but a snapshot of major studies reported between the years 2016-2020 related to the topic. For the purpose of recency of articles published and cited as per Google Scholar, only 11 articles between 2016-2020 have been presented that used original FFMQ-English language version in Table 1.1.

Table 1.1.*Factor structure of FFMQ- English language version.*

Author & Year	Sample	Citations	Analysis	Factor Structure
Siegling & Petrides (2016)	570 participants	107	CFA with item parcelling	Four factor model (without Observe facet)
Hawley et al. (2017)	820 participants	28	CFA	Both four and five factor (with & without Observe) but not unidimensional model
Medvedev et al. (2017)	296 participants	56	Rasch analysis	Five factor model but two misfitting items
Gordon (2018)	857 participants	16	CFA	Four factor model (without Observe facet)
Laurie et al. (2018)	190 participants	1	EFA and CFA	Poor model fit: Six factor solution wherein Act with awareness split into two facets- awareness & attention
Watson et al. (2018)	283 participants	40	EFA and CFA	Five-factor model with a reduced number of items- FFMQ (20 item version)
Pang & Ruch (2019)	2247 participants	23	CFA and cluster analysis	Five-factor model
Pelham et al. (2019)	976 participants	10	EFA and CFA	Multidimensionality- none of the factors fit the unidimensional model
Haas & Akamatsu (2019)	333 college students	12	CFA with item parcelling	Four factor model (without Observe facet)
Shallcross, Lu, & Hays (2020)	240 community adults	19	Categorical CFA	Five-factor model
Lecuona et al. (2020)	800 participants	28	CFA and Bayesian Structure Equation Modelling	Unsatisfactory model fit. Bifactor structure (without Observe facet)

Note: CFA= Confirmatory Factor Analysis; EFA= Exploratory Factor Analysis

The inconsistency in factor structures has also been found in studies that translated FFMQ in different languages as shown in Table 1.2. below.

Table 1.2.*Factor structure of FFMQ- Different language versions.*

Author & Year	Sample	Citations	Version & Analysis	Factor Structure
Deng et al. (2011)	244 participants	272	Chinese version CFA	Five-factor model
De Bruin et al. (2012)	739 participants	379	Dutch version CFA	Hierarchical Four-factor model (without Observe facet) for student sample and hierarchical Five-factor model for meditators sample
Cebolla et al. (2012)	462 participants	359	Spanish version CFA	Five-factor model
Sugira et al. (2012)	1349 participants	117	Japanese version EFA & CFA	Five-factor model
Tran et al., (2013)	973 participants	210	German version CFA & ESEM	Poor fit for 39 items. Nonreact showed poor psychometric properties. Two higher order factors found instead of unidimensionality
De Barros et al. (2014)	395 participants	91	Brazilian version EFA	Seven factor model instead of a Five Factor model
Aguado et al. (2015)	1191 participants	134	Spanish version CFA	Five factor model but Observe facet found to be a misfit in participants with no meditation experience
Lara et al. (2015)	1210 participants	8 (Mexico)	Mexico version Multigroup CFA	Four-factor model without the Observe facet
Ramos et al. (2018)	251 participants	12	Portuguese version CFA	Modified Four-factor model without Nonreact (26 item version)
Lilja et al. (2020)	736 participants (three groups)	4	Swedish version CFA	Five factor model

Note: CFA= Confirmatory Factor Analysis; EFA= Exploratory Factor Analysis; ESEM=Exploratory Structural Equation Modelling.

It can be seen from the tables above that the majority of the studies have been conducted in the West, specifically in the US and Europe (Toniolo-Barrios et al., 2020; Ferreira & Demarzo, 2023). But, as noted by Baminiwatta and Solangaarachchi (2021) in their

bibliometric analysis that although majority of the research related to mindfulness has been from the Western context, in recent years, the research output has increased from the Asian countries such as China, Iran, and India.

1.5. Conclusion

Developing our understanding about mindfulness as construed in psychology, the various interventions based on mindfulness, and the assessment tools available to assess state and trait mindfulness skills as well as noticing the issues pertinent with the assessment tools, there is a need to locate the meaning or various connotations of mindfulness as perceived in the present-day India. Baminiwatta and Solangarachchi (2021) noted in their analysis that India advanced in its positioning to the “12th position” out of the 119 countries they mapped in their study, summing that only up to “1.8%” research contribution related to mindfulness has been from in the Indian subcontinent (p.2104). It is indicative that still more research needs to be conducted in the Indian subcontinent. The next chapter explains mindfulness as perceived within India, justifying the need for research related to understanding and assessing mindfulness in the Indian context.

Chapter 2: Mindfulness in the Indian Context

Kabat-Zinn (2011) has recognized and cited the influences of Buddhism, yogic traditions, Vedanta, Nisargadatta Maharaj, Sufism of Islam, and Raman Maharishi to name a few in shaping his understanding and practice of modern-day mindfulness. He presented the *āsanas* (postures) from the Hathayoga tradition (belonging to the Patanjali Yoga) but reiterated practicing them keeping in view the practice of mindfulness (Kabat-Zinn, 2013). India is a diverse country celebrating multiple languages, religions, traditions, geography, and cultures. Buddhism as a religion has been said to have its roots in India and dates back to at least 2500 years CE (Hewage, 2022; Mikulas, 2011). In order to understand the concepts and practices followed in a diverse country like India, it is important to develop our understanding about the diversity in India. For this reason, it is important to be informed about the geographical, linguistic, and cultural/religious roots in the understanding of Buddhism and the concept of mindfulness (Anālayo, 2021, 2022; Ditrich, 2016). Considering this historical link between India and mindfulness, this chapter highlights the journey of Shakyamuni Buddha, inception of Buddhism, role of language in this journey and how India and its philosophy is integral in this journey of Buddha and Buddhism. This chapter endeavors to point out the different terms and concepts explaining mindfulness that were prevalent even before Buddhism came into effect. It also underlines the various ways each major religion in India according to Census of India (2011), and their ancient scriptures describe and teach mindfulness in different ways, highlighting the need to consider Indian perspective in the development of mindfulness assessments and interventions.

2.1. Journey of Shakyamuni Buddha: Inception of Buddhism

Shakyamuni Buddha (originally Siddhārtha) was born in present-day Nepal (Weise, 2013) to the King Shuddhodana Gautama (Prebish, 2008) and was nurtured in Kapilavastu (Trainor, 2010). At the age of 16 years, it is said that he was married to his cousin, Princess Yasodharā. It is reported that Siddhārtha during his growing years, had a quest to seek enlightenment since the time he witnessed human suffering in the world (Hamilton, 2000). It is also said that Siddhārtha's curiosity about finding the truth of life cycle in the world was always shielded by his father who constantly made efforts to keep the notions of the suffering in the world away from the notice of his son Siddhārtha which in turn increased Siddhārtha's quest to take a path towards truth of life. As Siddhārtha grew older, it is reported that he went with Channa (his charioteer) to the royal gardens where for the first time he witnessed four different instances of suffering as described in the early life history of Buddha, which made him contemplate in depth that every human being including himself and his family has to evolve and witness the process of ailments, ageing, and death (Gethin, 1998). On the same day, Princess Yasodharā gave birth to their only son Rahulā. But the thought of suffering continued in Siddhārtha's mind, thus on the same night without informing anyone, he renounced the royal life (at the age of 29 years) and embarked on his journey towards enlightenment (Mahāthera, 1998; Mihita, 2019; Obeyesekere, 2009) in thick forests.

In his initial journey, it is said that Shakyamuni Buddha was guided by the two saints *Āḷāra Kālāma* and *Udraka Rāmaputra* in India who were very well known as the masters of meditation (Upadhyaya, 1971). The teachings Shakyamuni Buddha received from them are related to the “third and fourth four immaterial spheres” (Anālayo, 2011). It has also been reported that after receiving the teachings by the two saints, Shakyamuni Buddha furthered

his quest while traveling to various Northern regions of India as he felt some of his questions were still unanswered despite the guidance of the two sages. This quest led to the insight of adopting a “middle-way” also known as the “The Noble Eightfold Path” rather than dwelling into the extreme viewpoints of “indulgence and mortification” (Dhammacakkappavattana Sutta, Translated from Pali by Thanissaro Bhikkhu, 1993).

The Noble Eightfold Path is illustrated as *Dharmachakra* (Sanskrit) and *Dhamma* (Pali) which is represented as a wheel with eight spokes. The aim of this path is to surrender the “I” in order to experience attunement with the nature and its surroundings which in turn will lessen the frequent pain and hurt felt by the human being (Anālayo, 2019; Harvey, 2015; Rahula, 1974). The eight spokes are: (i) *Right View* which outlines that suffering occurs due to the desires each human being has and these desires are never-ending. In order to end or lessen this suffering, there is a need to be aware and accept this reality; (ii) *Right Intention* refers to the way an individual should perceive, i.e., being more reality oriented rather than viewing things as we prefer/like them to be which might not be factual and real; (iii) *Right Speech* and (iv) *Right Action* outlines the prohibitions related to morality, such as not to harm, lie, steal, and commit wrongful deeds but to assist others also to lead a morally strong and disciplined life. The other four spokes outlined in the Dharmachakra are related to having a (v) *Right Livelihood* meaning not to engage in violent acts that could harm others, and animals but to have careers that promote law and peace; (vi) *Right Effort* includes acts and efforts that assist in renunciation of the “I” which is the root of suffering and pain; (vii) *Right Mindfulness* involves focus and awareness by reflecting on the body, emotions, mental states, and phenomena; and (viii) *Right Concentration* refers to one-pointedness cultivating stillness which is also known as *Dhyana* (Bart, 2012; Srinivasan, 2013b).

Shakyamuni Buddha outlined four stages that enhance this state of increased concentration (Dhyana) wherein during the first stage, along with the cognitive obstacles there is a sense of bliss that is attained progressing to the second stage when only bliss remains and all the obstacles cease, furthering it to the next stage when the bliss fades and ultimately there is stillness, and tranquility with no sense of suffering and pain but only happiness.

The *Four Noble Truths* is the path that leads to the abolition of suffering which is also known as the Right View described in the Dharmachakra above. This path led Shakyamuni Buddha to the persistent determined practice to achieve “*sammā-sambodhi*” i.e., complete awakening under the Bodhi tree in Gaya district (located in present day Bihar state) of India (Analayo, 2011). After achieving the complete awakening, Shakyamuni Buddha went to meet his first meditation teachers Āḷāra Kālāma and Udraka Rāmaputra but he found that they had already died, thus he continued to travel near present day Varanasi (Uttar Pradesh region of India) and reached Sarnath where he taught his first sermon to the five disciples (Analayo, 2011). In this way, a group (*sangha*) was formed and Shakyamuni Buddha continued to preach while continuing to deepen his practice of enlightenment.

India and its ancient traditions are considered to have historical, geographical and cultural links with the Buddhist tradition and have also been attributed with playing a major role in the life of Shakyamuni Buddha and his journey towards enlightenment. Out of the four Buddhist pilgrimage sites, Lumbini (birthplace of Buddha) is located in Nepal and the other three sites are Sarnath, Bodh Gaya and Kushinagar located in India’s present day Varanasi city, Gaya and Kushinagar district in the state of Uttar Pradesh and Bihar

respectively. Bodh Gaya in the present-day Bihar region of India is known to be the place where Shakyamuni Buddha sought enlightenment at the age of 35 years under a Bodhi tree (Anderson, 2018; Gopal, 1990; Strong, 2007). It is still considered to be the major pilgrimage site of the Buddhist tradition encompassing the Mahabodhi temple, the Great Buddha statue, lotus pond and six other sacred sites (UNESCO World Heritage Centre). Sarnath is accredited as the birthplace of Buddhism in India near the Varanasi city wherein Shakyamuni Buddha preached his first sermon to his five disciples which has now in the present day propagated to the different parts of the world (Thera, 1995). After 45 years of Buddha's journey towards enlightenment, Buddha rested his last breath under the Sala trees grove in Kushinagar, wherein a Buddha stupa of cremation is built (Schumann, 2003).

In present times, Buddha Jayanti also known as Buddha Purnima honoring the birth, enlightenment and death in the Theravada tradition is celebrated with fond remembrance in many countries and continents in the world. In India, Buddha Purnima is also known as Vesak or Buddha Jayanti which is looked upon as a blessed day. India declares it as a gazetted holiday and this day falls on a full moon night (known as Purnima) between April and May. This year in 2023, it will be celebrated on the Fifth day of May. On this day, devotees from all around the world visit the Mahabodhi temple in Gaya (present day state of Bihar in India) where Buddha achieved enlightenment under the Bodhi tree (Brown & Selig, 2000).

2.2. Role of language and its adoption (linguistic roots)

The teachings of Buddhism were inscribed and delivered in Pāli, also known as the Magadhan language as it was a language of the Magadh region (present day Bihar region). It was believed that Pāli was the language used by the Buddha to deliver his sermons (Norman,

1983), but discussions on the original language of the Buddha and his preaching have attracted attention of various scholars for a long period of time (Levman, 2016, 2020). Von Hinüber (2006) clearly stated that “...[t]he Buddha did not speak Pāli” (p.209). Pāli is a language/dialect derived after the “Asokan period” (Lamotte, 1988, p.563). It has been a language utilized by the monks to translate and simplify the Buddhist texts for religious purposes. Pāli is said to be a “mixed language”, combining three different dialects from the east, west and northwest (Geiger, 1916; Lamotte, 1988, p.563; Levman, 2014) majorly from the middle Indo-Aryan period of India (Thanissaro Bhikkhu, 2005). During this period, Sanskrit was one of the main *prakrits* and it has been reported that Pāli and Sanskrit are related to each other but still maintains its distinctiveness (Gombrich, 2006). Sanskrit is considered to be the major language of the Hindu philosophy and was also utilized in the ancient scriptures of Buddhism and Jainism to propagate the teachings in the Asian continent, mainly East, South and South East Asia (Howard, 2012). The Buddha Carita, attributed to the Indian poet Aśvaghoṣa (second century CE), the Maha vastu, and the Lalita Vistara, both written in the first century CE, are the most popular biographies of the Buddha in Sanskrit (Gowans, 2003).

Extensive work has been conducted regarding the original language of Buddha and its roots, by various authors such as Bechert, Gombrich, Karpik, Lamotte, and Norman since the early 1970s (Levman, 2019). It is believed that Pāli was not the original spoken language of Buddha, but a variation of Pāli in terms of “word form, morphology and sometimes semantic content” was used, also known as a *koine*. Levman (2016) defined *koine* as “an inter-dialect language which reduced linguistic variability by dialect levelling and simplification, through elimination of inter-dialect phonological differences which impede

understanding, and harmonization of the different dialects to a common language intelligible across all dialects” (p.1).

Although Shakyamuni Buddha had links with the Magadh kingdom as a prince, none of the places he was born, nurtured, sought enlightenment, or died were in Magadha (Roth, 1980). Succinctly put forth by Norman (1980) that even though Shakyamuni Buddha might have had some connection with the Old Māgadhī but “there was no single language or dialect used by the Buddha for his preaching” (p.75). Rather, it is said that Buddha was aware of multiple dialects and languages due to his extensive travel across India and spoke the languages of the masses who listened to his sermons (Chowdhury, 2009; Levman 2013).

2.3. Role of religion and meditation in the understanding of mindfulness in the Indian context (religious and meditation influences)

Even though it is widely believed that the roots of mindfulness practice are located in Buddhism, the history of mindfulness actually dates back much further and is connected to the Hindu yogic practices. Many scholars have reported that the inception of Hindu religion was between “mid-third Millennium BCE to around 1900 BCE” in the Indus valley, which is located in the present-day Pakistan (Welbon, 2004, p. 33) pointing out to the fact that many of the aspects of Buddhism were also present already in Hinduism (Hacker & Davis, 2006).

Dhyana (heightened state of concentration) is Sanskrit translation of the term *Jhana* (Pali), has been described in the Noble Eightfold Path. Dhyana in Indian philosophy has multiple meanings. It includes concept and practice of awareness, attention, concentration, focus, meditation, and contemplation which has been found as certain terminologies used to

describe mindfulness in modern psychology (Hatcher, 2007). It is difficult to ascertain the date of origin of the term Dhyana as many philosophers and research scholars mention that the date of origin fluctuates with the precise meaning and interpretation chosen. It is still unclear whether Dhyana can be viewed as a synonym for mindfulness in the Indian philosophy because India is a diverse country with varied cultural, traditional, linguistic and religious practices (Srinivasan, 2013a). But it is confirmed that Dhyana is practiced in different ways and formats under each religion in India. Even as Buddhism spread beyond India to various countries and continents, it continued to evolve into different schools and traditions. But it is interesting to note that the concept and practice of dhyana remained integral in all the schools and traditions although in different ways and formats (Bodhi, 2011; Chen, 1966).

The term Dhyana has been translated as *Chán* in Chinese, and *Zen* in Japanese (Lozano, 2012). Because the concept and practice of Dhyana is widespread in varied religions, cultures and traditions, the next section describes the religious landscape associated in the cultivation of understanding of mindfulness specifically within the Indian context.

2.3.1. Understanding Mindfulness from Hindu perspective

The modern religious landscape of India is diverse due to its varied cultural practices in each geographical region. Each inhabitant in India has the “right to freedom of religion” according to the fundamental rights outlined in the Constitution of India (Das, 2013). Sustaining a rich cultural and religious history, according to the Census of India: Data on Religion (2011), the five major religious concentrations in India are: Hinduism (79.8%), Islam (14.2%), Sikhism (1.7%), Buddhism (0.7%), and Jainism (0.4%) (Hussain et al., 2021;

Sahgal et al., 2021). All these religions and traditions practices mindfulness, commonly understood as Dhyana in various ways and formats (Chen, 1966).

Reviewing the religious landscape of India, specifically in Hinduism, which has the highest concentration (79.8%) in India and assumed to be in practice since “mid-third Millennium BCE to around 1900 BCE” (Welbon, 2004, p.33), discussions about mindfulness began with yoga and Vedic meditative practices with the implementation of *mantras*, prayers, *bhakti*, and *stuti* (Singh, 2022a). Mantras/mantram (commonly known as chanting in the West) involve repetition of a word or a phrase which eventually becomes the focal point cultivating awareness, attention, nonevaluative stance, and heightened concentration (Gonda, 1963; Oman et al., 2022; Singh, 2022b).

Prayers are vital routine aspects in Hinduism which is usually part of *puja* (worship) and reflects the *bhakti bhav* (nature of devotion). Prayers are considered to be a means to connect to the Divine through focused chanting of mantras and *shlokas* (verses) involving enhanced attention, non-evaluation, and non-reactive skills. This kind of enhanced attention required during prayers has been termed as “concentration of affectivity” (Bourgeault, 2009, p.21). The other means to connect to the Divine via prayer is to engage in relational presence with the Divine rather than being attentive and concentrative in the physical realm. This relational presence is achievable by engaging both the physical and mental realms, i.e., the body and the mind. This relational presence becomes the catalyst in transformation in an individual (Monroe & Jankowski, 2016; Sandage & Shults, 2007). The other aspect involved in *puja* (worship) is the complete surrendering of “I” and being fully immersed in the act of worship through prayers. In this practice, the individual is unaware of the observable nature,

world, surrounding environment and this state has been termed as “flow state” (Csikszentmihalyi & Csikszentmihalyi, 1992, p.78). This involves skills of deep awareness about the content and relational presence of prayer and detachment from the physical realm of the world while enjoying the presence with the Divine. This highlights that although the process begins from the physical realm (maintaining a posture, and chanting) but transforms quickly into the internal world of an individual where the outside matter (thoughts, beliefs, emotions, desires, and needs) becomes redundant in the process (Hill et al., 2000; Lebret et al., 2021).

2.3.2. Understanding Mindfulness in Islam, Sikhism, and Jainism

The second largest religious concentration in India is Islam (14.2%). Recently, a study conducted by Abdulkerim and Li (2022) identified the similarities between the practices of Islam and mindfulness as understood and propagated in the Western context. The authors mentioned that the prayer in Islam whether in the format of *salat* (ritualistic prayer), *dhikr* (repeating the name of God with devotion), or/and *dua* (prayer for self) are the concepts that cultivate and enhance mindfulness skills of Act with Awareness (Abdel-Khalek, 2011; Abdulkerim & Li, 2022; Shafi, 2005). Many research scholars have identified two concepts and practices of mindfulness predominant in the Islamic practices, i.e., Act with Awareness and Observe (Eltaiba & Harries, 2015; Fischer et al., 2010; Iqbal et al., 2023; Koenig et al., 2015). The concept and practice of Observe is evident in the term *muraqabah* meaning to notice/observe with attention. Williams et al. (2006) explained that keeping a non-evaluative stance/ remaining nonjudging might be difficult in the Islamic practice because of the utmost faith in the *Allah* (God) and the belief that suffering and pain occurs due to individual’s past immoralities, i.e., viewing any situation of suffering and pain from a religious perspective is

common in the Islamic tradition. This in turn makes individuals more aware and attentive towards internal self (thoughts, beliefs, actions, feelings, and emotions).

Similarly, in Sikhism (1.7% of India's population), *Naam Simran* and *Naam Japna* meaning repeating and remembering the Divine leads to *chetan*, i.e., awakening and enhanced awareness and in this process, the presence of the Divine can be experienced mindfully (Myrvold, 2016; Singh, 2022). The term *Simran* in Sikhism denotes present-moment awareness. *Simran* can be of the Divine's name, or a *sabd* (understood as mantra in Hinduism) which originally means freeing the mind from the observables (Kolhi, 1992; Mandair, 2012; Maskeen, 1993; Sandhu, 2004). The process towards *Simran* and *Japna* involves maintaining a posture, breath regulation, and control and initially the mantra recitation is audible which gradually moves to the internal process where one is aware of the mantra from the mind but does not have to verbalize. In this state, everything outside in the physical realm becomes redundant and there is practice of one-pointedness (Panesar, 2017). Although Sikhism emerged after Buddhism, the similarities and practices of Sikhism related to mindfulness are relevant here to fully understand the religious landscape of India which is important to consider while developing cultural understandings pertinent to India.

Jainism is practiced by 0.4% of India's population. The first teacher of Jain philosophy was Rsabhadeva and the last teacher who made the Jain philosophy widespread was Mahavira. It is believed to have originated before Buddhism during the sixth century BCE (Jain, 2019; Keown & Prebish, 2013). For further understanding about the Jain philosophy related to mindfulness, meditation, life, suffering, penance, and similarities and dissimilarities between Jainism and Buddhism at conceptual and practical level, which is

beyond the scope of the present discussion, the interested reader is referred to a book written recently by Praveen Jain (2019).

Each religion in India has their own text and scriptures. Earliest teachings are mentioned in the Vedas and Upanishads. The next section outlines the various ways mindfulness was already introduced within the Indian landscape before the origination of Shakyamuni Buddha and His teachings.

2.4. Role of ancient scriptures, Vedas and the Upanishad tradition in understanding Buddhism and Mindfulness

As reviewed briefly in the previous sections, regarding some of the geographical and linguistic links of Buddhism to the Indian subcontinent, the following section attempts to provide a brief overview about the ancient scriptures, Vedas and Upanishad viewpoints regarding the concept and practice of mindfulness as conceived and understood by the general population, religious practitioners, and meditation practitioners in India. Vedas are considered to be the most ancient and revered literature in the Indian philosophy and Upanishads are extensive discussions and extension of the Vedas (MacDonell, 2004). There are four Vedas, namely, Rigveda, Yajurveda, Atharvaveda, and the Samaveda, each dealing with a specific aspect, such as mantras, hymns, rituals, and everyday life (Bhattacharya, 2006; Flood, 1996) and there are more than 108 Upanishads out of which 13 Upanishads are considered to hold most importance (Easwaran, 2007; Phillips, 2009). Description and explanation of each Veda and Upanishad is beyond the scope of this thesis, but some of the important aspects describing the concept and practice of mindfulness have been described in this section.

In the understanding of mindfulness, many words/concepts have been used in the past in Indian thought and practice, which are relevant to certain skills outlined in the construct of modern mindfulness popularized in the West. Some of these terms include *sati* in Pāli, which was initially mentioned in the Rigveda much before the Buddha meaning “to remember/recollect/to bear in mind” (Rhys Davids, 1921; Sujato, 2011), in Sanskrit *smṛiti* (Dreyfus & Thompson, 2008), in Vedānta as *anusmṛiti* (Sivananda, 1936), in ancient scriptures as *dhyāna* meaning attention, awareness/meditation, and *sakshi* meaning observer/witness (Singh, 2022). In an attempt to trace the origins of Buddhism, many scholars have argued about the original philosophy and thoughts of Buddhism and mindfulness. Some of the authors have reasoned that it has some influences of Jainism, Sāṅkhya-yoga, Vedas and specifically Upanishads (Pande, 1995). But there is no one conclusive literature or source stating clearly about the inception of the concept and understanding of Buddhist mindfulness which has now been borrowed and popularized by Kabat-Zinn for practice in psychology (Rhys Davids, 2004).

Hicks (1936) mentioned that there are some of the ideas of the Sāṅkhya that can be traced to the Upanishads which had some role in the journey of Buddha towards enlightenment as Buddha’s earliest teacher Āḷāra Kālāma was believed to be a proponent of the philosophy of Sāṅkhya as informed by Aśvaghōṣa (edited by Cowell, 1893; Johnston, 1935). Buddha learnt arūpa samāpattis (yogic ideas) from his initial teachers’ Āḷāra Kālāma and Udraka Rāmaputra as mentioned in the Pāli Nikāyas. During this journey, he also practiced the foundational aspects of mindfulness practice such as appānakam jhānam (breath control) which has been mentioned in various Upanishads (prāṇa) as a mechanism of upāsānā, further classified into sampat, adhyāsa, and pratimā. (Gambhirananda, 1983). The

mention of this type of breath-regulation meditation/yoga has been mentioned in the Vedas as “pūraka, recaka and kumbhaka” (inhale, exhale and retain).

India is said to be the home of yoga and meditation. Meditation (Dhyana) has been the core practice in all religions mentioned above (Nirmala et al., 2020). The description and practice of yoga has been since the pre-Vedic period. There are four major types of yoga: *Gnana* (knowledge), *Bhakti* (devotion), *Karma* (act), and *Rajayoga* also known as king of all the yogic practices (Sivananda, 2010). The *Ashtanga Yoga* originally has its origins in the book *Yoga Korunta* which was written by a renowned sage Vamana Rishi. This was further put together and refined by Patanjali who in 200BC also put together the Yoga Sutras discussed in the following paragraphs.

The Ashtanga Yoga is popularly known as *Ashtanga Vinyasa Yoga* wherein the term Ashtanga means eight limbs of yoga, and Vinyasa links breath regulation to the body movement. The initial five steps out of the eight, namely, *Yama* (self-restraint), *Niyam* (discipline), *Asana* (posture), *Pranayama* (breath regulation), and *Pratyahara* (control of five senses) are primarily focused on the physical or the external realm (*Bahiranga*) and the last three, namely, *Dharna* (one-pointedness/concentration), *Dhyana* (deeper concentration where the outer physical realm is forgotten and the only focus is in being with the Divine); and *Samadhi* (contemplation) are considered to be the ultimate steps focused on the internal realm (*Antaranga*). Samadhi has also been known as Advaita by the great sage Adi Sankaracharya, Nirvana by Buddha (Mitchell, 2008; Travis & Shear, 2010).

Further, comparing the yogic practices outlined by Buddhism and the Yoga Sūtra of Patanjali, more similarities have been found than differences, such as Prajñā is considered to be the highest ability, the three samādhis out of the four mentioned in the Yoga Sūtra are in line with the initial three jhānas from Abhidhamma, ātmābhav (Yoga Sūtra IV) is similar to attabhāva (Pali), brahmaviharas (Buddhism concept) is similar to maitrī, karunā, upekṣā and muditā of the Yoga Sūtra I (Upadhyaya, 1971). The appropriate organization of these Yoga Sūtra's by Patanjali happened after the Buddhist tradition originated but the inception of the knowledge and the practical aspects of these practices originated during the pre-Vedic period (Beloved, 2010).

Buddhist scriptures such as the Dhyana-Sutra, the Dhammapada, and the Sutta-Nipāta describe various mindfulness techniques, as do Hindu scriptures such as the Upanishads (Dhyānbindu Upanishad linked to the Yajurveda), Patanjali's Yoga-sutras as explained above, and the Bhagavad Gita. The Bhagavad Gita, is the most influential scripture in Hinduism as it narrates the epic battlefield story of the Kurukshetra (present day state of Haryana in India) between the Pandavas and the Kauravas from the 500-200 BCE. Specifically, the Chapter 6 of Bhagavad Gita highlights both the principle and practice of Dhyana (Raju, 1992). The aim is to delve deeper into the internal self to reach the stage of Samadhi (as outlined in the Ashtanga Yoga) to attain ultimate bliss and harmony. Specific steps have been outlined in the Bhagavad Gita to cultivate mindfulness beginning from preparing the body through the practice of postures with undivided attention, regulating the breath by practicing deep breathing exercises at least three times (*Nadi shodhana*), then performing body scan while gently moving inward by mentally disconnecting from the outside, leading to deep concentration by focusing on the mantra of *Om* while continuing to

be still. This is when the practice of non-evaluation and nonreactivity is deepened as the Bhagavad Gita outlines that even though the images, sounds, or thoughts might disturb but to let it go without getting entwined in the loops of it (Easwaran, 2011).

The main concepts of mindfulness, such as “awareness” have been greatly mentioned as “*puruṣa* and *prakṛti*” in Sāṅkhya Kārika (19,65) and it has also been mentioned as alternative words in various Upanishads, such as Kaṭha Upaniṣhad (2.2.15), Muṇḍaka Upaniṣhad (2.2.10). Similarly, the concepts of attention, acceptance, wisdom, and psychological freedom have been traced to the various ancient Upanishad texts and in the second chapter of the Bhagavad Gītā as vital characteristics of Karma yoga. It can be observed and understood that although the technique and practices may differ but the core principle of Dhyana meaning the concept and practice of awareness, attention, nonreactivity, and nonevaluative stance remain the same in all the religious, meditative practices as well as the scriptures belonging to India.

2.5. Conclusion

Shakyamuni Buddha’s journey towards enlightenment included various geographical regions, as well as knowledge and understanding of various cultural and linguistic variations belonging to the Indian subcontinent. Because Shakyamuni Buddha travelled across the various regions in his journey to seek truth in life and enlightenment, he observed, learnt, adopted and rejected many ideologies, philosophies and practices which had helped in shaping the present-day Buddhism. Since his formative years till his death, he had spent the majority of his life in various regions in the larger Indian subcontinent and was influenced by the various practices predominant in each region where he travelled to deliver his sermons.

It also seems to be clear from understanding the linguistic roots that "...there was no single language or dialect used by Buddha for his preaching" (Norman, 1980, p.75) but multiple influences in his journey which makes it important to trace the path and connect the dots in the understanding of Buddhist philosophy to develop an accurate understanding of the mindfulness concept and its practice with some historical links to the Indian culture and traditions.

The various religious, meditative practices, and the ancient scriptures prevalent in the Indian context also reassures that the concept and practice of Buddhist beliefs and mindfulness have been into existence much before they were delivered by Buddha himself. It is also evident from this chapter that there is no synonymous term for mindfulness in the Indian context but Dhyana is closely related to the concepts that mindfulness entails as per the definition given by Kabat-Zinn (1994), such as purposeful attention, awareness, nonjudgment, and nonreactivity. The practice of observing the natural surroundings, and breath control/regulation are the primary focal areas which quickly becomes redundant as the goal is to lessen the noise of internal thoughts, maintaining stillness, calmness leading to connection with the Divine as per the Indian philosophy of mindfulness wherein enlightenment is the goal in Buddhist philosophies. Kabat-Zinn (2011) acknowledged the knowledge and practice of various cultural and religious practitioners belonging to different regions and speaking different languages in shaping the present-day mindfulness. Despite of the acknowledgement and understanding the roots of Buddhism geographically, linguistically, based on scriptures, religion, and meditation associated to the Indian context, there is no standardized therapeutic modality and assessment tool to assess mindfulness in the diverse sample belonging to India.

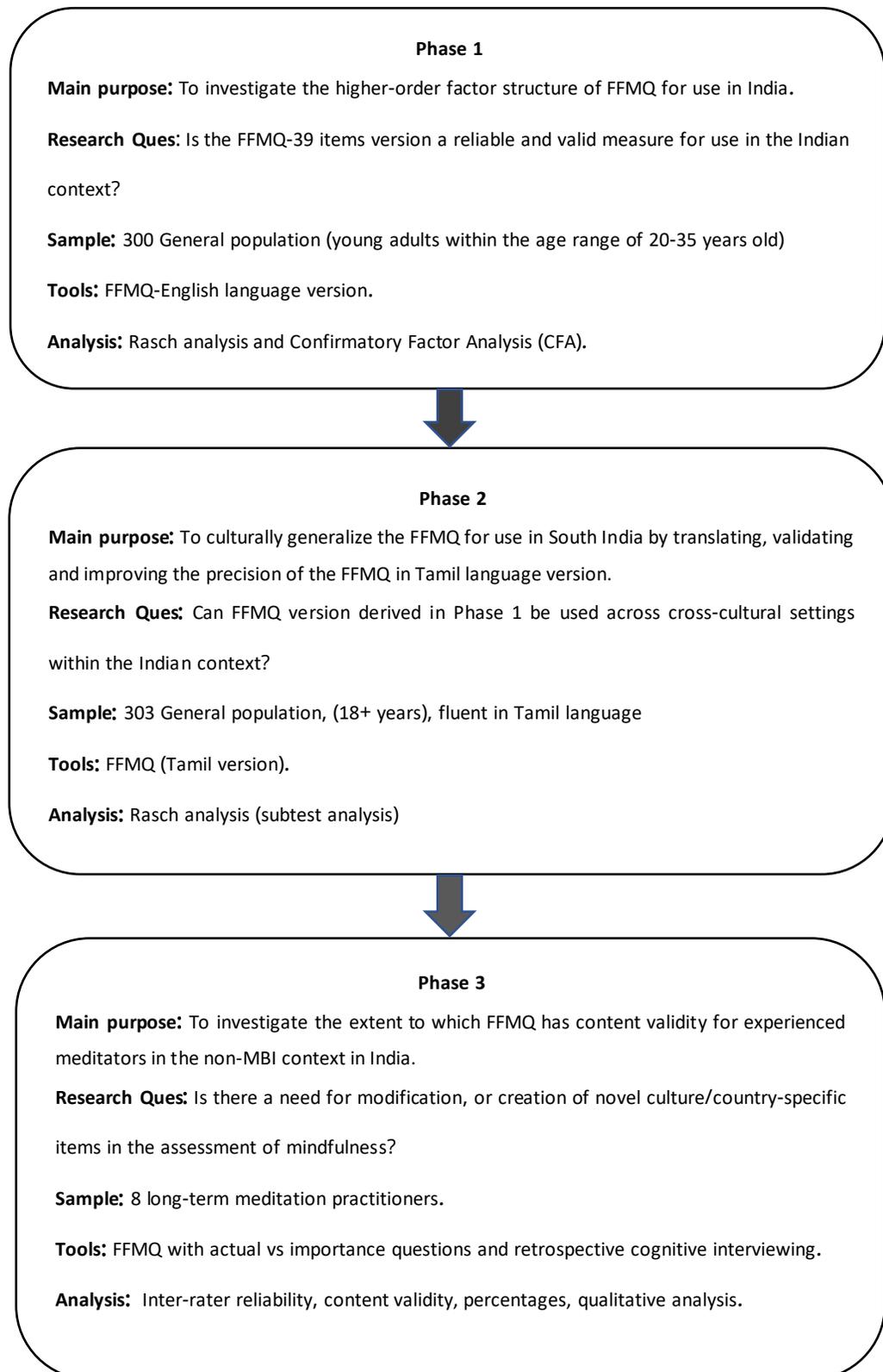
Chapter 3: Aims of the Research and Overview of Methodology

The aims of this research thesis were to investigate the multidimensional model of mindfulness, i.e., predominantly the five-factor model of mindfulness by using the FFMQ mindfulness assessment tool on samples from India, and to explore and understand to what extent the FFMQ has face validity for expert meditators in the non-MBI context in India. Given the geographical, cultural, and linguistic diversity in India, the studies in this thesis were conducted in various phases as outlined in Figure 3.1.

Phase 1 attempted to understand the workability of the predominantly US developed mindfulness assessment tool, FFMQ, in a general population recruited from India. Considering the geographical and linguistic diversity, Phase 2 attempted to translate FFMQ to Tamil language (language spoken predominantly in South India) and explore its psychometric properties for future use by other researchers. As a Hindi and Gujarati version (North, West, and Central India) of the FFMQ have already been explored by other authors, this phase catered to the general population from the South India. Furthermore, Phase 3 explored and probed the nuances in item content of FFMQ-English language version on an experienced meditators sample from the non-MBI context.

Figure 3.1.

Overview of the three phases of the study.



In total, 611 participants were recruited from India in this research. Each phase outlined in Figure 3.1. has been described in detail as further chapters. Chapter 4 is an article published in the journal Mindfulness. The manuscript (Chapter 5) has been submitted to the Indian Journal of Psychological Medicine and is awaiting reviewer's scores. The manuscript (Chapter 6) has been submitted to the Humanistic Psychologist journal.

Prelude: Chapter 4

The majority of the work related to mindfulness-based interventions and mindfulness assessments has been reported from the West (Baminiwatta & Solangaarachchi, 2021). As noted in the previous chapters, India has a strong historical link to mindfulness but there continues to be a dearth of evidence related to the validity of common mindfulness assessment tools in the Indian population.

Thus, the first study detailed in Chapter 4 aimed to explore the higher-order construct of mindfulness in India and evaluate the psychometric properties of the widely used 39-item Five Facet Mindfulness Questionnaire-English language version (FFMQ) on a sample recruited from India in 2019. Chapter 4 is a manuscript published in the journal *Mindfulness*.

Chapter 4: Validation of the English Language Version of the Five Facet Mindfulness Questionnaire in India: A Rasch Analysis

4.1. Introduction

Development and understanding of the concept of mindfulness in psychology was initiated by the work of Jon Kabat-Zinn since the late 1970s. Since then, various operational definitions have been devised for the purpose of research (Krägeloh et al., 2019). Many definitions have revolved around the importance of attention in characterizing the mindfulness construct (Brown & Ryan, 2003). Mindfulness is considered to be an active state of consciousness wherein an individual pays attention to each moment's experience, which is continually refined by a persistent practice of meditation and its application in everyday life (Kabat-Zinn, 2005). Other important elements considered to be characteristic of mindfulness include non-judgmental observation (Baer, 2003) and present-moment awareness (Shapiro, 2009). Thus, mindfulness has been defined as “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p. 145).

In the understanding of mindfulness and measuring/ assessing its components, various self-report measures have been developed in various contexts based on the state and trait mindfulness concept. State mindfulness in general refers to the present moment condition, whether an individual is able to cultivate mindfulness in the present moment (Lau et al., 2006) whereas trait mindfulness refers to a stable characteristic of a person to be able to be mindful daily or enter those mindful states frequently (Baer et al., 2006). Recently,

research suggests that mindfulness brings about both state (temporary) and trait (personality, long term practice) changes (Medvedev et al., 2017).

Presently, there are many trait-mindfulness scales including: The Freiburg Mindfulness Inventory (FMI; Buchheld et al., 2001; Walach et al., 2006), the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), the Cognitive and Affective Mindfulness Scale (Kumar et al., 2005) and then a revised version (CAMS-R; Feldman et al., 2007), the Southampton Mindfulness Questionnaire (SMQ; Chadwick et al., 2008), the Kentucky Inventory of Mindfulness Scale (KIMS; Baer et al., 2004), the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006) and the Philadelphia Mindfulness Scale (PHLMS; Cardaciotto et al., 2008). Two state mindfulness scales in widespread use are: Toronto Mindfulness Scale (Lau et al., 2006) and State Mindfulness Scale (Tanay & Bernstein, 2013). Even though the scales are widely available and utilized, they posit several issues as discussed in a review paper by Bergomi et al. (2013) suggesting that no single questionnaire can be accountable as a true measure of mindfulness and applicable to all populations across the world.

Currently, the most widely used assessment tool is the Five-Facet Mindfulness Questionnaire (FFMQ) which has been developed through factorial analysis after pooling of items from five different scales: the Freiburg Mindfulness Inventory (Buchheld et al., 2001), the Mindful Attention Awareness Scale (Brown & Ryan, 2003), the Mindfulness Questionnaire (Chadwick et al., 2005), the Kentucky Inventory of Mindfulness Skills (Baer et al., 2004), and the Cognitive and Affective Mindfulness Scale (Feldman et al., 2004). The FFMQ has five factors named Observing, Describing, Acting with Awareness, Nonjudging

and Nonreactivity. Each factor has been assigned with eight items each except for Nonreactivity, which consists of seven items, thus altogether combining to a 39-item questionnaire.

In the original development and validation of the FFMQ in English with US samples using exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and a higher-order CFA, Baer et al. (2006), confirmed that the four of the facets (Acting with Awareness, Describing, Nonjudging and Nonreactivity) can be described within the multifaceted mindfulness construct but results for the fifth facet (Observing) showed inconclusive results. When analyzed separately for a sample of meditators, the five-factor model showed acceptable fit, but misfit was reported for a dataset from respondents who were not regularly meditating. Later studies, however, reported that a five-factor hierarchical model worked well for both meditators and non-meditators, both when using CFA with item parcels (Baer et al., 2008) and without parceling (Christopher et al., 2012).

Further research continued to show inconsistent factor solutions when the English-language version of the FFMQ was administered to different samples from various cultural backgrounds and geographical locations. Williams et al. (2014) engaged three different samples from the United Kingdom: Adults who were recruited via online settings from the community using a convenience sampling technique, including (group 1) adults practicing meditation recruited via online meditation sites, local centers, (group 2) the Exeter Mindfulness Network, and (group 3) adults diagnosed with recurrent depression based on the DSM-IV criteria recruited from primary care services. They found that CFA analysis with item parceling showed a four-factor hierarchical model without the Observing factor to be

tenable for the sample of community adults and the clinical sample, whereas a five-factor model fitted to data from the meditators group well, consistent with the initial validation study by Baer et al. (2006). Siegling and Petrides (2016) reported in their study with participants from the United Kingdom that the Observing facet did not fit the five-factor solution using CFA (with item parceling) and argued that the removal of this facet from the instrument could be justified. Similarly, Gu et al. (2016) recruited samples with a history of recurrent depression from the United Kingdom. They collected and analyzed data using CFA (with item parceling) before and after a Mindfulness Based Cognitive Therapy (MBCT; Segal et al., 2002, 2013) intervention and found that a four-factor hierarchical model (excluding the Observing facet) fits well with the sample pre-MBCT whereas a five-factor model showed acceptable fit for post-MBCT data. In other cases, in contrast a five-factor model appeared suitable even for participants without formal mindfulness experience. In a study with a New Zealand sample, Medvedev et al. (2017) used a subtest approach in their Rasch analysis. The five-factor model was found to provide adequate fit, although two items were required to be deleted.

Despite the historical link to mindfulness within Indian cultures, surprisingly little research has explored the concept of mindfulness in these populations. One exception is a study by Mandal et al. (2016) who developed and validated a Hindi version of the FFMQ using a sample of 300 non-meditators recruited from Varanasi, Uttar Pradesh, India. They had established an adequate fit of a four-factor model without the Observing facet and finalized a 28 items questionnaire to utilize with the Hindi-speaking population of India. The Hindi language version of the FFMQ showed good internal consistency for the scale and the four facets, ranging from 0.61 to 0.82. While the Hindi version of the FFMQ certainly has

utility in India for the assessment of mindfulness, evaluation of versions in some of the other languages spoken in the country are also necessary. This includes English, which is widely utilized in India in educational, organizational, government, and administration settings (Montaut, 2010). India is a very large country with approximately 460 different languages and English is considered to be the “subsidiary official language nationwide” (Joshi, 2020, pg.2). It is either the secondary or third language for many in the Southern and North-East regions of India. In some regions, it is not uncommon to encounter some resistance towards the use of Hindi, and in such cases the preferred language (apart from the local language) is English. In that sense, English may be regarded to function as a *lingua franca* in India (Kachru, 1983; Mehrotra, 2003). In our psychometric evaluation of the English-language FFMQ in India, our work is also able to provide a psychometric baseline from which to commence investigations into the extent to which the construct of mindfulness as measured by the FFMQ can be generalized to Indian populations.

In the past literature, classical test theory approaches including EFA and CFA have been predominantly applied to ascertain factor structures, with comparatively fewer studies utilizing an item-response theory (IRT) approach (Medvedev et al., 2017). The present study utilized Rasch analysis due to its ability to provide detailed information about item performance. Other advantages include investigation of ordering of response thresholds, differential item functioning by demographic factors, and local dependency of items. Using a so-called subtest approach, Rasch analysis is able to differentiate between response dependency due to method effects and due to dimensionality, in a similar way to bi-factor modelling in CTT (Lundgren-Nilsson et al., 2013). Rasch analysis has been documented to be an advantageous strategy in assessing, understanding, and improving the precision of

psychometrics of mindfulness instruments and other health-related outcome measures (Hobart & Cano 2009; Medvedev et al., 2017; Siegert et al., 2010). Lastly, the focus of our analyses was not necessarily on identifying the best functioning model as this may result in idiosyncratic factor solutions and thus an inflation of different scoring systems available around the world. A solution may thus be preferable if it has slightly inferior psychometric properties but nevertheless meets criteria for an adequate solution. The present exploration of the English-language FFMQ in India thus tested the conventional five-factor solution. This study thus explored the suitability of the FFMQ to assess mindfulness in India.

4.2. Method

4.2.1. Participants

The total sample for the present study comprised 300 participants recruited from the general population in New Delhi, India. The inclusion criteria for the sample recruitment required participants to be in the age range of 20 to 35 years. This was to ensure a homogeneous sample could be obtained in terms of sufficient proficiency in English. Exclusion criteria included presence of any significant psychiatric illness, neurological trauma or brain disease, intellectual disability and current or past history of substance abuse. Participants were also required to be unfamiliar with the practice of meditation. This was to ensure that the sample is again homogeneous and that the scale could be evaluated for its ability to assess trait mindfulness as one would typically do in cross-sectional studies or as part of assessment prior to a mindfulness-based intervention.

Based on these criteria, the total sample constituted 163 females (54.3%) and 137 males (45.7%) with mean age of 27.14 years ($SD=4.04$). The majority of the participants were

salaries employees (62.3%) with an annual average income of at least 300,000 Rupees (41.0%).

4.2.2. Procedure

The participants for this cross-sectional study were initially recruited via the researchers' networks. They were briefed about the purpose of the study as well as the inclusion and exclusion criteria to assist in recruiting further participants utilizing a purposive snowball sampling technique, keeping in mind the inclusion and exclusion criteria for the purpose of the study. Each participant received a phone call from the researcher to confirm their participation in the present study, and, along with rapport building, the relevance and information pertaining to the study was explained to them. This was also outlined in an information sheet with accompanying consent form addressing India's data protection act, confidentiality and the participant's right to discontinue participation at any given time. Finally, a suitable time was decided to meet participants individually or in a group for the purpose of completion of the questionnaire to ensure that the questionnaire was completed in full. The participants were met either at their work-place or home/hostel settings. They were briefed again about the procedure outlined above, and then they were asked to complete the demographic details and were also given a general instruction sheet to begin marking the responses on the FFMQ. The total time taken to administer the test was approximately 20 minutes. No incentives were provided to the participants for their participation in this study. Upon completion, all the participants were thanked for their participations and de-briefed.

4.2.3. Measures

FFMQ (Baer et al., 2006) presents 39 self-report items that are rated on a five-point Likert-type scale ranging from “1 = never or very rarely true” to, “5 = very often or always true”. The questionnaire assesses the five facets of mindfulness. The Observing facet captures the tendency to notice or attend to internal and external experiences, such as sensations, emotions and cognitions. Examples of items in this facet are: “When I take a shower or bath, I stay alert to the sensations of water on my body” and “I notice how foods and drinks affect my thoughts, bodily sensations, and emotions”. The Describing facet reflects the tendency to explain or label one’s experience in words, such as “I am good at finding words to describe my feelings” and “It’s hard for me to find the words to describe what I’m thinking”. Acting with Awareness facet brings full awareness and undivided attention to current activity or experiences. Example statements are: “When I do things, my mind wanders off and I’m easily distracted” and “I don’t pay attention to what I’m doing because I’m daydreaming, worrying, or otherwise distracted”. The Nonjudging facet assesses the extent to which one maintains a non-evaluative stance toward inner experiences. Examples of statements for this facet are: “I criticize myself for having irrational or inappropriate emotions” and “I make judgments about whether my thoughts are good or bad”. The fifth facet of this questionnaire, Nonreactivity, reflects the tendency to allow thoughts and feelings to come and go, without getting caught up in them, such as “In difficult situations, I can pause without immediately reacting” and “I watch my feelings without getting lost in them”. All items of Acting with Awareness, Nonjudging, Nonreacting and three items of Describing (total 19 items) were negatively phrased and this needed to be reverse coded prior to analysis so that higher scores reflect a higher level of mindfulness. The FFMQ has been reported to have adequate reliability, convergent and discriminant validity, and incremental validity in the prediction of

psychological symptoms (Baer et al., 2006). The subscales have strong internal consistency ranging from Cronbach's alpha= .75 to .92 with samples of meditators and non-meditators (Baer et al., 2008).

4.2.4. Data analysis

All descriptive statistical analyses were performed using SPSS Version 25.0., and RUMM2030 (Andrich et al., 2009) was used for Rasch analysis (Fig.4.1., Overview of the analysis strategy). A likelihood-ratio test ascertained the suitability of the unrestricted Partial Credit model for our dataset with all 39 FFMQ items. Individual item analysis was conducted initially as a baseline model, followed by investigation of the higher-order structure of the FFMQ using a subtest analysis (Lundgren-Nilsson et al., 2013). This approach has been found to be an effective strategy in a previous evaluation of the FFMQ using Rasch analysis (Medvedev et al., 2017). Combining facet items into subtests can address local dependency that arises between items due to their shared item content. This approach involves creating summary scores of locally dependent items and testing a further iteration of the model (Lundgren-Nilsson et al., 2013). If this subtest solution provides a satisfactory unidimensional fit to the Rasch model, it can be concluded that the subtests constitute elements within a higher-order structure of mindfulness. Careful consideration at each step of the iterative analysis followed the guidelines comprehensively outlined by Siegert et al. (2010) and Balalla et al. (2019). The present study examined goodness of fit for each model on the basis of the following criteria: item-trait interaction examined by chi square value was not significant, item thresholds were not disordered, individual item fit residuals were between the acceptable range of -2.50 and to +2.50, item location mean approximated 0.00, and person and item fit residuals approached 0.00 with SD=1.00. Differential item functioning (DIF) was also

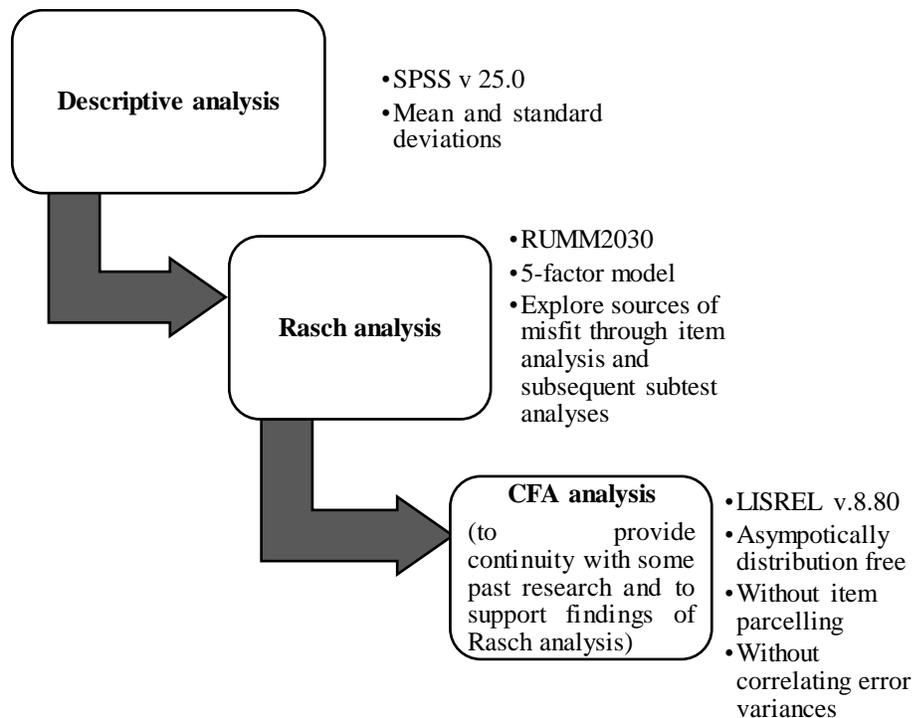
examined for the four socio-demographic categories available for the dataset (age, gender, occupation, and annual income). This investigated to what extent items contribute to the latent trait (in this case mindfulness) in the same way for different demographic groups. Unidimensionality was investigated using Smith's (2000) test. When applied to individual subscales, we thus tested to what extent subscales represent one single construct. When applied to subtests of item clusters by subscale, a unidimensional solution would indicate that a single higher-order factor of mindfulness can be postulated. Lastly, within Rasch analysis, reliability is expressed as Person Separation Index (PSI), which is interpreted in the same way as Cronbach's alpha (Tennant & Conaghan, 2007).

To further corroborate our findings, we investigated the factor structure yielded from the Rasch analysis using CFA with the software package LISREL Version 8.80 (Jöreskog & Sörbom, 1993). Even though items exhibited acceptable skewness and kurtosis, CFA was performed using the asymptotically distribution free method of diagonally weighted least squares, which is the most appropriate for ordinal-level data (Flora & Curran, 2004). We did not use item parceling and employed a conservative approach of not correlating the error co-variances of items. The following fit-index cut-off values were considered to evaluate model fit: root-mean square error of approximation (RMSEA) <0.06 , comparative fit index (CFI) >0.95 and standardized-root-mean-square residual (SRMR) <0.08 (Marsh et al., 1988; McDonald & Ho, 2002). CFA was performed to provide continuity with other past research such as the Hindi version (Mandal et al., 2016), Dutch version (Bruin et al., 2012), Italian version (Giovannini et al., 2014), and the English-language version (Aguado et al., 2015; Gordon, 2018; Gu et al., 2016). Another reason for performing CFA

was to lend support to the findings yielded from Rasch analysis to investigate the higher-order structure using another analytic approach.

Figure 4.1.

Overview of the analysis strategy employed in the present study



4.3. Results

4.3.1. Baseline model fit

The baseline analysis included all 39 items without any higher-order factor structure suggested by any subtests (Table 4.1., 5F), which did not show an acceptable fit ($\chi^2 (195) = 479.50, p < .01$). Three items of the Describing facet showed elevated significant (Bonferroni adjusted) fit residuals (Table 4.1.): item 12 (7.40), item 16 (6.14), and item 22 (7.14). Smith's (2002) test indicated evidence for multidimensionality. No DIF was found for any socio-demographic (person) factors. Due to their high degree of misfit, these three items of the Describing facet required deletion prior to continuing further investigation of the higher-

order factor structure. Thus, in the subsequent analysis of the five-factor model, items 12, 16, and 22 were not included (Table 4.1., 5F1). This model showed an acceptable fit ($\chi^2(180) = 184.45, p > .05$) but failed the test of unidimensionality (Table 4.1.).

Table 4.1.

Summary of fit statistics for the baseline and the final Rasch analyses of the FFMQ item fit residual (value and standard deviation), person fit residual (value and standard deviation), item-trait interaction, goodness of fit (χ^2 and p -value), person separation index (PSI), and results from Smith's (2000) test of unidimensionality. The three models were baseline model; baseline (5F1) after deleting three misfit items from the Describing facet (Items 12, 16, & 22), and the final five-factor final model using subtest analysis approach (5F2).

Analyses	Item fit residual		Person fit residual		Item-trait interaction		PSI	Significant t -tests (Smith's test for unidimensionality)		
	Value / SD		Value / SD		χ^2 (df)	P		%	Lower bound	Unidimensional
5F	0.47	1.99	-0.54	2.60	479.70 (195)	<.01	0.86	26.33	23.87	NO
5F1	0.41	0.83	-0.51	2.44	184.45(180)	0.39	0.90	26.00	23.53	NO
5F2	0.34	1.50	-0.40	1.20	28.49 (25)	0.28	0.81	6.67	4.20	YES

Table 4.2.

Item number, wording of the items, item location, standard error (SE), item fit residual, and chi square for the FFMQ 39-item baseline model (5F).

FFMQ Item number	Item wording	Item location	SE	Item fit residual	Chi square^a
1	When I am walking, I deliberately notice the sensations of my body moving.	0.55	0.06	0.86	6.59
2	I'm good at finding words to describe my feelings.	-0.27	0.06	-0.02	2.48
3	I criticize myself for having irrational or inappropriate emotions. ^R	0.05	0.05	0.81	3.13
4	I perceive my feelings and emotions without having to react to them.	0.09	0.06	1.06	5.13
5	When I do things, my mind wanders off and I'm easily distracted. ^R	-0.15	0.05	0.83	4.89
6	When I take a shower or bath, I stay alert to the sensations of water on my body.	0.11	0.05	0.23	1.60
7	I can easily put my beliefs, opinions, and expectations into words.	-0.37	0.06	-0.37	5.39
8	I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted. ^R	0.45	0.05	-0.02	1.62
9	I watch my feelings without getting lost in them.	0.11	0.06	0.76	3.13
10	I tell myself I shouldn't be feeling the way I'm feeling. ^R	-0.15	0.06	0.29	0.62
11	I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	0.18	0.05	0.84	4.94
12	It's hard for me to find the words to describe what I'm thinking. ^R	-0.12	0.05	7.41	92.31*
13	I am easily distracted. ^R	0.05	0.05	0.61	1.69
14	I believe some of my thoughts are abnormal or bad and I shouldn't think that way. ^R	0.16	0.05	0.22	2.02
15	I pay attention to sensations, such as the wind in my hair or sun on my face.	-0.30	0.05	-0.82	11.81
16	I have trouble thinking of the right words to express how I feel about things. ^R	-0.24	0.06	6.14	78.99*
17	I make judgments about whether my thoughts are good or bad. ^R	-0.13	0.06	-0.76	7.35
18	I find it difficult to stay focused on what's happening in the present. ^R	0.34	0.06	-0.44	1.91
19	When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.	-0.07	0.06	-0.18	6.07
20	I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.	-0.23	0.05	-1.03	12.68

21	In difficult situations, I can pause without immediately reacting.	-0.07	0.06	0.60	4.63
22	When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words. ^R	-0.22	0.06	7.14	83.86*
23	It seems I am "running on automatic" without much awareness of what I'm doing. ^R	0.43	0.06	0.13	5.17
24	When I have distressing thoughts or images, I feel calm soon after.	0.22	0.06	0.97	7.41
25	I tell myself that I shouldn't be thinking the way I'm thinking. ^R	-0.05	0.06	-0.99	12.27
26	I notice the smells and aromas of things.	-0.43	0.05	-1.01	7.93
27	Even when I'm feeling terribly upset, I can find a way to put it into words.	0.00	0.06	-0.14	8.44
28	I rush through activities without being really attentive to them. ^R	0.27	0.06	-0.54	1.77
29	When I have distressing thoughts or images I am able just to notice them without reacting.	-0.02	0.07	-0.26	8.26
30	I think some of my emotions are bad or inappropriate and I shouldn't feel them. ^R	0.03	0.06	-0.75	10.48
31	I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.	-0.21	0.05	-1.10	12.22
32	My natural tendency is to put my experiences into words.	-0.29	0.06	-0.39	4.41
33	When I have distressing thoughts or images, I just notice them and let them go.	0.03	0.06	1.10	8.56
34	I do jobs or tasks automatically without being aware of what I'm doing. ^R	0.54	0.06	-0.29	6.26
35	When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about. ^R	-0.06	0.06	-0.75	3.24
36	I pay attention to how my emotions affect my thoughts and behavior.	-0.40	0.06	-0.84	16.99
37	I can usually describe how I feel at the moment in considerable detail.	-0.17	0.06	-0.12	9.75
38	I find myself doing things without paying attention. ^R	0.34	0.06	-0.66	3.19
39	I disapprove of myself when I have irrational ideas. ^R	0.00	0.06	-0.15	10.49

^a=degrees of freedom overall was 5

^R=reverse coded items

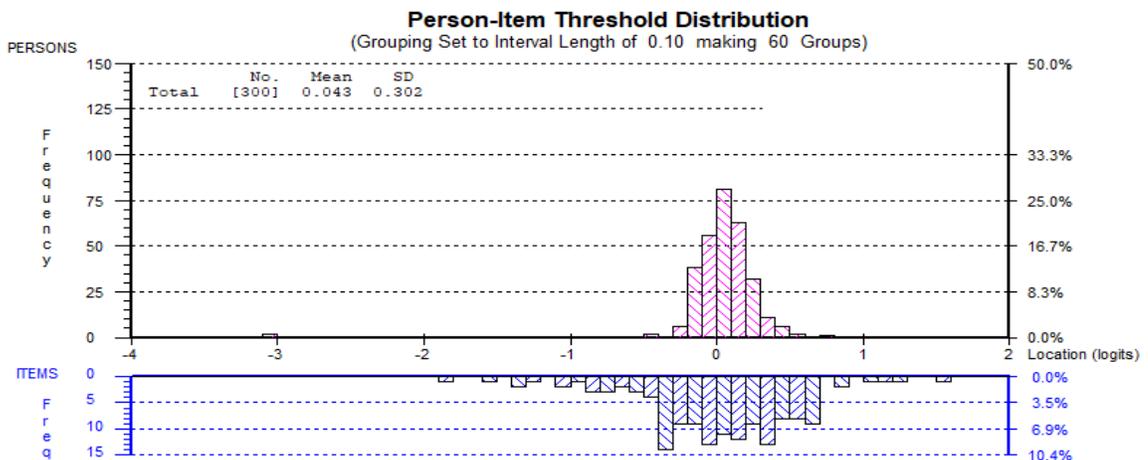
*= $p < .01$, Bonferroni adjusted

4.3.2. Five-factor model fit

Using the subtest analysis approach as outlined by Medvedev et al. (2017), five subtests were created named: Observing, Acting with awareness, Nonjudging, Describing and Nonreactivity. Each subtest had 8 items each as categorized in the original instrument but guided by our first analysis, the three misfitting items were not included in the Describing subtest. No significant DIF was found for any person factors (Fig.4.2., Person-item distribution plot). The analysis showed an acceptable fit ($\chi^2(25) = 28.49, p=0.28$). For this five-factor higher-order structure, unidimensionality was confirmed (Table 4.1., 5F2). Although, compared to models 5F and 5F1, PSI dropped when using subtests in model 5F2, the value still indicated good reliability. However, with $PSI=0.81$, the value was slightly below the 0.85 criterion used to indicate the scale is suitable for assessment of within-participant changes, and instead may preferably be used for between-group comparisons (Tennant & Conaghan, 2007).

Figure 4.2.

Person-item thresholds distributions for the FFMQ with three items discarded and facet subtests

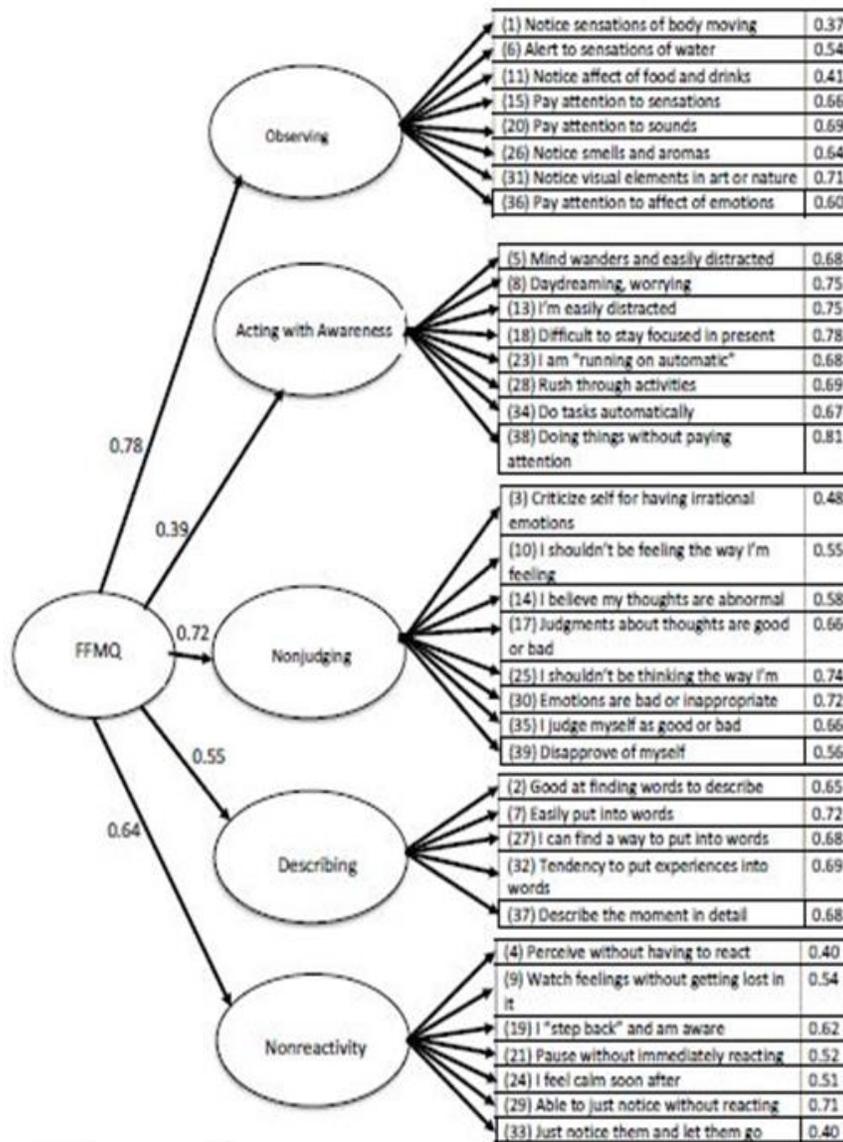


4.3.3. Confirmatory Factor analysis: Five-factor model fit

Keeping in view the aim of the present study to investigate the higher-order model of mindfulness for its suitability in India, to further support our findings derived from the Rasch analysis and to provide continuity with past research utilizing classical test theory approaches, CFA was performed. The CFA model corroborated our findings for the higher-order five-factor model without the three misfitting items of the Describing facet. RMSEA (0.05), CFI (0.96) and SRMR (0.09) values confirmed the acceptable five-factor model fit as evidenced through Rasch analysis. Considering that we did not correlate any item error variances, the fact that SRMR was found to be marginally above the cut-off levels can be deemed as acceptable (Hermida, 2015). Some of the item factor loadings of the items were found to be at the lower end of the ideal range (between 0.40 and 0.50): items 1 and 11 of the Observing facet, item 3 of the Nonjudging facet, and item 4 and 33 of the Nonreactivity facet (Fig. 4.3., Factor loadings).

Figure 4.3.

Factor Loadings



4.4. Discussion

The aim of the present study was to investigate the higher-order structure of mindfulness using the FFMQ-English language version in a sample recruited from India. It also aimed to provide an acceptable model fit for the recruited sample which would open the

pathway for future research to ascertain the cross-cultural generalizability and validity of the mindfulness instrument. Overall, a five-factor solution without three misfitting items of the Describing facet totaling to 36 items was found to provide an acceptable fit for use with the present sample from India. This finding from Rasch analysis was subsequently confirmed with CFA.

When testing a baseline model, three items from the Describing facet were found to be misfitting, which was followed up by a subtest analysis (Medvedev et al., 2017) to investigate a higher-order factor structure. Medvedev et al. (2017) found acceptable fit of five factors but two misfitting items (Items 24 and 32 from Nonreact and Describe facet) were removed from the original questionnaire, whereas in the present analysis, three items (Items 12, 16 and 22) from the Describing facet were removed due to elevated fit residuals. The final five-factor model using the subtest analysis approach met the criteria of unidimensionality based on Smith's (2002) test confirming that these five factors without the three mis-fitting items adequately assess the higher-order construct of mindfulness in a sample of non-meditators from India.

In the previous literature, issues related to the FFMQ factor structure have often been reported about the Observing facet for the English language version (Aguado et al. 2015; Gordon 2018; Gu et al. 2016). Inconsistent factor structures such as reported for the English-language version of the FFMQ were also noted for translations into various different languages. While CFAs of the Dutch (Bruin et al., 2012), Chinese (Deng et al., 2011), Japanese (Sugiura et al., 2012), and Italian versions (Giovannini et al., 2014) pointed toward a five-factor solution, a four-factor model appeared more suitable in other cases. For

Portuguese (Ramos et al., 2018) and German versions (Tran et al., 2013), the Nonreactivity facet was discarded resulting in a 26-items Portuguese version of the FFMQ and a 20-items German version of the FFMQ questionnaire. For the Polish (Radoń, 2014), Hindi (Mandal et al., 2016) and French versions (Heeren et al., 2011), the Observing facet was discarded yielding a four-factor solution. When utilizing the Dutch version of the FFMQ in a sample of pregnant women, Truijens et al. (2016) concluded that a three-factor solution without Observing and Describing and reducing the number of items to 12 was required.

The present study using the English-language version of the FFMQ in Delhi did not confirm the issues reported when the Hindi version was validated in another part of India (Varanasi). Mandal et al. (2016) reported that the Observing facet did not fit well within the overall factor structure of the FFMQ-Hindi, but in the present study, the five-factor model was adequate as long as three misfitting items of the Describing facet had been discarded. These three items may reflect specific features of mindfulness as expressed by the KIMS (Baer et al., 2004) items that were included in the FFMQ during its development. The KIMS was specifically designed to assess certain skills which are cultivated with the practice of mindfulness-based interventions such as dialectical-behavioral therapy (DBT; Hayes et al., 2004) involving Observing, Describing and Nonjudging aspects of the approach. As the participants in the present study were not directly exposed to mindfulness-based interventions and practice, there could be possible variability in the comprehension and understanding of the item statements. Additionally, as argued by Rudkin et al. (2018), FFMQ Observing facet does not sufficiently address aspects of emotional awareness. The misfit for the three Describing items could also potentially be accounted for by differences in the style of communication adopted by the Indian communities and personality traits that are

considered to be socially desirable. The Indian community has been categorized as generally adopting a high-context communication style (non-verbal, introvert, silent and not believing in long talks) as described by Hall (1976) in his initial understanding of the communication style which was further reiterated by Lewis (2005). This reflects their response towards describing their feelings and emotions to others as assessed by the Describe facet of FFMQ by the statements such as “I can easily put my beliefs, opinions and expectations into words”, “Even when I’m feeling terribly upset, I can find a way to put it into words”, and “My natural tendency is to put my experiences into words.” Nishimura et al. (2008) explained that the major drive to describe and communicate for the Indian communities is to preserve harmony and unity in relationships rather than prioritizing conveyance of accurate information. Medvedev et al. (2016) also argued that the statements of the Describing facet are ambiguous in the sense that they insufficiently differentiate between tendency and ability.

Haas and Akamatsu (2019) concluded that cultural differences are relevant in explaining the difference in the conceptual understanding of mindfulness in the East and the West. They also suggested that further studies should attempt to utilize and investigate the efficacy of Rasch analysis in the investigation of cross-cultural differences and generalizability. The present study provided some further steps towards this goal by utilizing Rasch analysis to demonstrate the suitability of the higher-order factor of mindfulness in India. The steady increase and popularity in utilizing Rasch model has been illustrated in a systematic review (Leung et al., 2014) but only recently the thoroughness in reporting the outcomes of Rasch studies has improved. Leung et al. (2014) suggested that the recommended way of reporting the Rasch results is to be able to present tables that permit conversion of ordinal-level data to interval-level scores, which will thus assist in increasing

the precision of measurement scales. This recommendation has now recently been implemented in mindfulness research, such as for the KIMS (Medvedev et al., 2016), FFMQ (Medvedev et al., 2017), the Comprehensive Inventory of Mindfulness Experience (CHIME; Medvedev et al., 2019), and the Interpersonal Mindfulness in Parenting- Korean version (IM-P-K; Kim et al., 2018). In the present study, our primary rationale was to start an investigation of the generalizability of the higher-order construct of mindfulness in India. Given the diversity and size of the country, a more diverse sample from various parts of the country will need to be obtained before suitable conversion tables can be developed. The present study has demonstrated that the five-factor structure of the FFMQ appears tenable in an Indian sample, giving confidence that further studies in India will be able to confirm that. The advantage of the English-language version is that it may be applicable in a wide range of regions where, apart from local languages, English may occasionally be preferred over Hindi when completing questionnaires. However, more work will also need to be conducted to translate the FFMQ into other languages of India and to explore to what extent the five-factor structure can be replicated there.

4.5. Limitations

The following limitations need to be acknowledged: The study recruited a homogeneous sample within a limited age range, with no prior exposure and experience with meditation and from a localized region of North India. Past literature showed the variability of model-fit to be related to prior experience in meditation. Thus, further research should aim to recruit a more heterogeneous sample with a wider age range as India is a diverse country with varied cultural and geographical locations. India provides an interesting context for mindfulness, not only due to its historical links to mindfulness, but also due to its cultural

diversity. Using the English-language version of the FFMQ permits investigation of cross-cultural generalizability, but additional translations are necessary to explore the effect of linguistic variation.

Prelude: Chapter 5

The FFMQ English version gave promising results by confirming a modified five-factor model with three items (Item 12, 16, and 22) from the Describe facet deleted due to elevated fit residuals to be used within the Indian context. The study was first of its kind to be done in India but was limited in approach as it could only recruit participants fluent in English reading and writing. The only other study assessing the psychometric properties of FFMQ in India using CFA was conducted by Mandal et al. (2016) who translated the FFMQ into Hindi language version and recruited participants from North India (specifically Varanasi region in Uttar Pradesh). The authors confirmed a 26-item questionnaire, a four-factor model without the Observe facet and few items from the other facets removed. The other study (unpublished dissertation) translated the FFMQ into Gujarati version (Patel & Saha, 2018) for its utility in the Western region of India. As pointed out aptly in the previous chapter and also in the studies by other authors, such as Christopher et al. (2012), Deng et al. (2011), Haas and Akamatsu (2019) that cross-cultural validity of FFMQ should be explored by recruiting samples from other geographical locations, culture, and ethnicity. Thus, the next study translated the FFMQ into Tamil language version and recruited participants from Tamil Nadu (Southern region of India) to explore the psychometric properties of FFMQ and make the assessment tool more generalizable to use in the Indian context. The data for this study was collected in 2021. This is a manuscript accepted in the Indian Journal of Psychological Medicine in October 2023.

Chapter 5: A Tamil Version of the Five Facet Mindfulness Questionnaire: Translation and Validation Using Rasch Analysis.

5.1. Introduction

Kabat-Zinn developed the Mindfulness-Based Stress Reduction (MBSR) program in the late 1970s in the United States of America (Kabat-Zinn, 1982). Gradually, mindfulness-based interventions, including MBSR and Mindfulness-Based Cognitive Therapy (MBCT), gained momentum worldwide (Teasdale et al., 2000). A lot of research has documented the utility of mindfulness as a therapeutic intervention (Krägeloh et al., 2019). In this context, the most commonly used definition of mindfulness is “...paying attention in a particular way: on purpose, in the present moment, and non-judgmentally” (Kabat-Zinn, 1994, p.4).

Research in mindfulness needs adequate scales to assess mindfulness. Many such tools have been developed, and the most widely researched tool is the Five Facet Mindfulness Questionnaire (Baminiwatta & Solangaarachchi, 2021). The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006) was derived from the pooling of items that were examined with factor analyses from five self-report mindfulness assessment tools, namely, the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004), Mindfulness Attention and Awareness Scale (MAAS; Brown & Ryan, 2003), the Mindfulness Questionnaire (Chadwick et al., 2005), the Cognitive Affective Mindfulness Scale (CAMS; Feldman et al., 2004), and the Freiburg Mindfulness Inventory (FMI; Walach et al., 2006). The FFMQ assesses the higher-order construct of mindfulness by assessing five facets, namely, Observe (noticing internal and external stimuli), Describe (put words to experiences/label with words), Act with awareness (attention, awareness without distraction

in the present), Nonjudge (attitude of non-evaluation towards own experiences, thoughts, and feelings), and Non-React (not getting entangled into thoughts and feelings but letting them just come and go).

A pertinent reason for the high number of citations FFMQ has been that it has been translated into many languages to establish cross-cultural validity. However, the five-factor model has been confirmed in a few studies but not others (Baer et al., 2008, 2022; Christopher et al., 2012; Williams et al., 2014). Studies that demonstrated different fit models for the FFMQ English version include those confirming a four-factor model without the Observe facet (Gu et al., 2016; Haas & Akamatsu, 2019; Siegling & Petrides, 2016).

Much of the mindfulness research has been done in the Western context. Recently, there has been a small increase in publications related to this topic in India. More research is needed about India, particularly because of its historical connection to meditative practices and because its philosophy had inspired modern mindfulness research in the first place (Baminiwatta & Solangaarachchi, 2021; Oman & Singh, 2018).

To enable systematic research in Indian contexts, the validity of suitable questionnaires needs to be established first. The English version of FFMQ was explored for its psychometric properties in India (Raman et al., 2021). It was found that a modified five-factor model with three items (Items 12, 16, and 22) from the Describe facet deleted can be utilized with the general population in India. The authors acknowledged that to explore and understand the relevance and generalizability of a questionnaire in a cross-cultural and geographical setting, the need arises for translation and assessment in commonly spoken

languages. To date, the following versions have been validated in Indian languages: The Hindi version of the FFMQ confirmed the utility of a 28-item FFMQ-H with a four-factor solution without the Observe facet (Mandal et al., 2016). A Gujarati version has also been examined for its utility with the Gujarati-speaking population (Patel, 2018). These two studies cater to most of the population located in the North and Western regions of India (Mandal et al., 2016; Patel, 2018).

Tamil is a major language in the Southern regions of India. It is the official language in the Tamil Nadu state and Puducherry, where more than 72 million people reside (Census of India, 2011). Tamil is also spoken widely and recognized as an official language in Singapore and Sri Lanka. Countries like Malaysia, Fiji, Trinidad, Mauritius, and East Africa also have Tamil-speaking populations (Mesthrie, 2008). Thus, given the widespread use of Tamil across various locations of the world and specifically in the Indian context, this study translated the FFMQ to a Tamil version and assessed its utility by testing its psychometric properties.

Many studies have demonstrated the advantage of Rasch analysis in improving an instrument's precision, especially in the context of mindfulness assessment tools such as MAAS (Medvedev et al., 2016a), KIMS (Medvedev et al., 2016b), FFMQ (Medvedev et al., 2017), and the Comprehensive Inventory of Mindfulness Experiences (CHIME; Medvedev et al., 2019). Hence, this study utilized Rasch analysis to determine the psychometric properties of the Tamil language version of the FFMQ (FFMQ-T). Thus, the objective of this study was to translate the FFMQ- English version to the FFMQ- Tamil version and calibrate

it using Rasch analysis. This will hopefully help broaden the range of available assessment tools suitable for assessing mindfulness in the Indian context.

5.2. Method

5.2.1. Participants

The study recruited 303 participants from the general population of Tamil Nadu. To ensure that the participants were able to comprehend the questions, the entry criteria required the participants to be proficient in Tamil (reading, writing, and speaking) and to be above the age of 18 years, which is considered the legal age. Participants with any significant past history or present condition of neurological trauma, mental illness, intellectual impairment, and/or substance abuse were excluded.

5.2.2. Procedure

The participants were recruited using snowball sampling through the researchers' networks of clinicians and colleagues who were requested to provide or involve more participants from their own networks living in Tamil Nadu. The people from the network were emailed the information sheet outlining the purpose of the study, inclusion and exclusion criteria, a link to access the questionnaire (using Google Forms), questionnaire instructions, and the approximate time taken to complete the questionnaire (20 minutes). Participants were asked to self-identify based on the inclusion and exclusion criteria, as no screening tests were conducted for the same. The information sheet also explained aspects related to anonymity, consent, data storage, and ethics approval. This study was approved by the author's institutional ethics review board.

Anonymity was maintained such that the participants could not be identified by their responses. Completion of the questionnaire was considered as consent to participate. Participation in the study was voluntary, and at any given time, the participants could withdraw from the participation. No participants were provided any incentive to complete the questionnaire or for the participation.

5.2.3. *Measures*

The FFMQ (Baer et al., 2006), in its original English version, consists of 39 items marked on a 5-point Likert scale ranging from 1 (*never or very rarely true*) to 5 (*always or very often true*). The five subscales/facets of the questionnaire (Observe, Describe, Act with awareness, Nonjudge, and Non-react) have eight items each, except for Non-react, which has seven items. In total, 19 items are negatively worded and thus need to be reverse-coded so that a higher score represents a higher level of mindfulness. The negatively worded items are three items from the Describe facet (Items 12, 16, and 22) and all items of the Act with awareness, Nonjudge, and Non-react facets.

This study used the method of translation-back translation to develop FFMQ-T, which was also used in developing the FFMQ-H (Mandal et al., 2016). For this, initially, two independent translators proficient in both English and Tamil, having a professional degree/diploma in translation studies and a university degree in another subject, were requested to translate the original FFMQ English version into Tamil. Further, two independent clinicians/clinical psychologists thoroughly familiar with the subject matter were requested to check for nuances in terms of grammar and meaning of the translated FFMQ-T. Then, the FFMQ-T was back-translated into English by another clinician. This back-translated version was scrutinized for any minor errors by two further independent

professionals proficient in both Tamil and English. Considering the similarities between the item content of the original English version and the back-translated version, the final Tamil language questionnaire was found to be appropriate. The direction of the wording of the items (positive and negative wording) was maintained in the FFMQ-T to mirror the structure of the English version.

5.2.4. Data analyses

Descriptive statistics were conducted using SPSS version 28.0. All negatively worded items of the FFMQ-T were reverse scored so that, for every item, a higher score indicates a higher level of mindfulness.

Rasch analysis was conducted using the software RUMM2030 (Andrich et al., 2009). Rasch analysis includes conceptual criteria such as interpretability of the solution as well as consideration of previous findings from research. The steps to conduct Rasch analysis were as follows (Ballala et al., 2019): Firstly, the likelihood-ratio test was completed, confirming the use of the unrestricted Partial Credit model for all the items (39 items) of the FFMQ-T. An initial analysis with all the items included served as a reference point (baseline), followed by an iterative exploration of those items with disordered thresholds and/or misfit (i.e., item fit residual is ± 2.50). Misfitting items can be considered candidates for deletion, after which analysis can be re-run to scan for any further individual item misfit. Differential item functioning (DIF) was also checked for the person factors and confirmed by graphical inspection. DIF assesses the extent to which the items contribute to mindfulness differently based on different demographic variables or person factors, which in this study was based on gender, level of education, income, occupation, and meditation practice. In order to confirm an adequate fit, the chi-square (item-trait interaction) should be non-significant, with no

evidence of disordered thresholds, no significant DIF by personal factors, and sufficiently high internal scale reliability (>0.70) expressed as Person Separation Index (PSI), the mean of item location should approximate 0.00, and the fit residuals (person and item fit) should approach 0.00 with standard deviation (SD) of 1.00. After every overall model and individual item analysis, a test of unidimensionality was also conducted to confirm unidimensionality (Smith, 2002).

Unidimensionality is determined when a “confidence interval for a binomial test of proportions is calculated for the observed number of significant tests, and this value should overlap the 5% expected value for the scale” (Tennant & Connaghan, 2007, p.1361). Rasch analysis is iterative because there are a series of analysis steps where each step is separately evaluated based on the criteria mentioned above. In this study, a subtest analysis approach (Lundgren-Nilsson et al., 2013) was also used, wherein the facet items are combined into subtests (super-item, testlet) to deal with concerns arising with shared item content, thus addressing local dependency. Subtest analysis helps to explore sources of local dependency and whether there is local response dependency (method effect) or local trait dependency (multidimensionality). If the fit with the facets subtests by facet is non-significant, then there is evidence of a higher-order construct of mindfulness (Medvedev et al., 2017). Once an adequate model has been identified, ordinal-to-interval conversion tables were generated, following recommendations for the final analysis step of Rasch analysis (Leung et al., 2014). The use of such scores has been demonstrated to increase measurement precision (Norquist et al., 2004).

5.3. Results

During the process of data screening, three participant entries were deleted from the main analysis due to undifferentiated responding across questionnaire items, namely scores that were identical across or differed only by a score of 1 across the entire 39-item questionnaire. Thus, the total participants for analysis were 300, including 155 females (51.7%) and 145 males (48.3%). Their mean age was 40.40 years ($SD = 13.29$). As per the projected trend, the median age of the Tamil Nadu population a decade from now is expected to be around 40 years (Rukmini, 2020). The majority were salaried employees (51.7%) and had an annual average income more than 500,000 Rupees (39.7%). Most (73.3%) of participants no prior experience with any form or type of meditation practice. These demographic variables were suitable for DIF analyses, except for age, which had to be transformed into approximately equal-sized categories first: 18 to 32 years (34.0%), 33 to 46 years (33.7%), and 47 to 81 years (32.0%).

The baseline analysis included all 39 items without any pre-supposed higher-order factor structure. Item locations are shown in Table 5.1. This model did not show an acceptable fit, as indicated by the significant chi-square (Table 5.2., A1). Of the eight items that are typically assigned to the Observe facet, seven were found to have significantly elevated misfit: Items 1 (3.91), 6 (3.39), 11 (6.01), 15 (5.50), 20 (4.57), 26 (6.89), and 31 (5.21). Two items of the Nonjudge facet, Items 17 (3.23) and 35 (4.29), Item 7 (-2.66) from the Describe facet, and Item 13 (-2.87) of the Act with awareness facet also showed elevated fit residuals. Smith's (2002) test indicated significant deviation from unidimensionality. No DIF was evident based on any socio-demographic factors.

Table 5.1.

Item number, wording of the items, item location, standard error (SE), item fit residual, and chi square for the FFMQ 39-item baseline model.

FFMQ Item number	Item wording	Item location	Item fit residual	Chi square^a
1	When I am walking, I deliberately notice the sensations of my body moving. (OBS)	0.79	4.01	108.49
2	I'm good at finding words to describe my feelings. (DES)	-0.15	-2.13	49.41
3	I criticize myself for having irrational or inappropriate emotions. R (NJ)	-0.40	-0.95	16.68
4	I perceive my feelings and emotions without having to react to them. (NR)	-0.03	-1.50	30.89
5	When I do things, my mind wanders off and I'm easily distracted. R (ACT)	-0.14	-1.48	36.59
6	When I take a shower or bath, I stay alert to the sensations of water on my body. (OBS)	0.68	3.42	96.13
7	I can easily put my beliefs, opinions, and expectations into words. (DES)	-0.23	-2.66	49.87
8	I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted. R (ACT)	-0.27	-0.92	29.72
9	I watch my feelings without getting lost in them. (NR)	-0.09	-1.28	32.35
10	I tell myself I shouldn't be feeling the way I'm feeling. R (NJ)	-0.04	0.60	18.35
11	I notice how foods and drinks affect my thoughts, bodily sensations, and emotions. (OBS)	0.51	5.99	158.04
12	It's hard for me to find the words to describe what I'm thinking. R (DES)	-0.52	-2.18	59.46
13	I am easily distracted. R (ACT)	-0.38	-2.86	61.30
14	I believe some of my thoughts are abnormal or bad and I shouldn't think that way. R (NJ)	-0.37	-1.96	43.41
15	I pay attention to sensations, such as the wind in my hair or sun on my face. (OBS)	0.42	5.57	162.02
16	I have trouble thinking of the right words to express how I feel about things. R (DES)	-0.22	-1.26	36.92
17	I make judgments about whether my thoughts are good or bad. R (NJ)	0.63	3.34	137.87
18	I find it difficult to stay focused on what's happening in the present. R (ACT)	-0.40	-1.57	30.70
19	When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it. (NR)	0.15	0.79	7.53
20	I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing. (OBS)	0.59	4.58	116.07
21	In difficult situations, I can pause without immediately reacting. (NR)	-0.16	-0.59	25.22
22	When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words. R (DES)	-0.06	-0.21	33.94
23	It seems I am "running on automatic" without much awareness of what I'm doing. R (ACT)	-0.21	-0.91	22.82
24	When I have distressing thoughts or images, I feel calm soon after. (NR)	0.22	2.07	19.72
25	I tell myself that I shouldn't be thinking the way I'm thinking. R (NJ)	-0.05	1.00	33.22
26	I notice the smells and aromas of things. (OBS)	0.38	6.85	161.27
27	Even when I'm feeling terribly upset, I can find a way to put it into words. (DES)	-0.25	-2.45	57.51
28	I rush through activities without being really attentive to them. R (ACT)	-0.27	-0.66	23.56
29	When I have distressing thoughts or images I am able just to notice them without reacting. (NR)	0.05	0.22	13.47

30	I think some of my emotions are bad or inappropriate and I shouldn't feel them. R (NJ)	-0.08	1.18	11.28
31	I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow. (OBS)	0.47	5.20	114.11
32	My natural tendency is to put my experiences into words. (DES)	0.11	-0.41	14.62
33	When I have distressing thoughts or images, I just notice them and let them go. (NR)	0.13	-0.39	8.95
34	I do jobs or tasks automatically without being aware of what I'm doing. R (ACT)	-0.32	-1.61	34.72
35	When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about. R (NJ)	0.40	4.42	102.73
36	I pay attention to how my emotions affect my thoughts and behavior. (OBS)	-0.12	-0.95	22.66
37	I can usually describe how I feel at the moment in considerable detail. (DES)	-0.31	-1.79	38.55
38	I find myself doing things without paying attention. R (ACT)	-0.52	-1.47	33.81
39	I disapprove of myself when I have irrational ideas. R (NJ)	-0.06	1.96	9.79

^a=degrees of freedom overall was 5

^R=reverse coded items

OBS= Observe; DES= Describe; ACT= Act with awareness; NJ= Non-judge; and NR= Non-react

Given the misfit of seven of the eight Observe items, as well as frequent previous reports of misfit of the Observe facet, including in samples from India, in further iterations in this present study, all eight items pertaining to the Observe facet were deleted (Gu et al., 2016; Mandal et al., 2016; Siegling & Petrides, 2016; Williams et al., 2014). Thus, a new model without the Observe facet (Table 5.2., B1) was tested. Although this model showed a better fit ($\chi^2(248) = 1302.63, p < 0.01$), it was still significant. Additionally, the unidimensionality test revealed evidence against unidimensionality (Smith, 2002). Item 33 of Non-react exhibited severely disordered item thresholds. There were several items with both misfit and disordered thresholds: Items 17 (7.22) and 35 (9.30) of the Nonjudge facet; Items 19 (3.73), 24 (3.99), and 29 (2.77) of Non-react; Item 32 (2.66) of Describe, and Item 13 (-4.24) of Act with awareness. Even after deleting these items, the resulting 23-item questionnaire exhibited significant overall misfit and multidimensionality (Table 5.2., B2). While there were still five misfitting items (Items 12, 14, 30, 37, and 39), the misfit was minor as it did not exceed 3.00. Instead of deleting items further and reducing the diversity

of item content even further, the subsequent analyses explored to what extent the misfit may have been due to local response dependency.

Table 5.2.

Summary of fit statistics for initial, intermediate, and the final Rasch analyses of the FFMQ-T. In addition to analyses of the overall scale, results from analyses of individual facets are shown (ACT=Act with awareness, NJ=Non-judge, NR=Non-react, and DES=Describe).

Analyses	Item fit residual		Person fit residual		Goodness of fit		PSI	Significant <i>t</i> -tests	
	Value / SD		Value / SD		χ^2 (df)	<i>P</i>		%	Lower bound %
Overall scale									
A1 (39 items)	0.49	2.71	-0.30	2.28	2063.76 (312)	<0.01	0.75	47.85	45.40
B1 (31 items)	0.02	2.99	-0.40	2.21	1294.04 (248)	<0.01	0.88	19.80	17.35
B2 (23 items)	0.26	1.72	-0.40	2.03	389.46 (184)	<0.01	0.90	15.18	12.73
B2s (four-factor subtest model with 23 items)	-0.75	1.65	-0.59	1.16	45.55 (32)	0.06	0.82	6.60	4.15*
Individual facets									
ACT	0.26	0.75	-0.44	1.45	27.97 (28)	0.46	0.76	1.32	-1.13*
NJ	0.18	0.93	-0.36	1.22	57.34 (42)	0.06	0.69	1.32	-1.13*
NR	0.23	0.88	-0.54	1.45	23.71 (15)	0.07	0.61	0.00	-2.45*
DES1 (without Item 7, and 32)	-0.14	1.75	-0.51	1.62	91.67 (28)	<0.01	0.74	3.63	1.18*
DES2 (without Items 7, 22, and 32)	-0.07	1.89	-0.53	1.70	71.36 (30)	<0.01	0.72	2.97	0.52*
DES3 (subtest analysis: Item 2+12; Item 16+37)	-0.13	0.86	-0.50	1.22	25.21 (16)	0.06	0.78	1.32	-1.13*
Overall scale									
B3s (Four-factor subtest)	-0.63	1.38	-0.58	1.16	43.83 (32)	0.08	0.81	7.26	4.81*

model with 22 items)

**Unidimensional confirmed based on results from Smith's test (2000)*

Model B2s combined the remaining 23 items as subtests within their respective facet: Describe (without Item 32), Act with awareness (without Item 13), Nonjudge (without Items 17 and 35), and Non-react (without Items 19, 24, 29, and 33). The resulting model (Table 5.2., B2s) showed a good fit ($\chi^2(32) = 44.57, p > 0.05$), with no subtest exhibiting misfit. There was no DIF in any of the socio-demographic factors and no evidence of deviation from unidimensionality.

Before concluding that a final version of the FFMQ-T had been reached, the suitability of the remaining 23 items as stand-alone subscales needed to be confirmed first. This was also necessary to be able to generate final ordinal-to-interval conversion tables for both the total scale as well as individual subscales. The subsequent analyses thus explored the psychometric properties of the remaining four subscales using the same Rasch analysis approach outlined above.

5.3.1. Individual subscale analysis

The fit was non-significant for three of the subscales: Act with awareness (7 items) with Items 5, 8, 18, 23, 28, 34, and 38; Nonjudge (6 items) with Items 3, 10, 14, 25, 30, and 39; and Non-react (3 items) with Items 4, 9, and 21. However, for the Describe subscale (with Items 2, 7, 12, 16, 22, 27, and 37), the chi-square was significant (Table 5.2., DES1), which appeared to have been due to a misfit of Item 22. When Item 22 was thus deleted in a subsequent iteration, the model was still significant (Table 5.2., DES2). Thus, using a subtest analysis approach (Item 2+12; Item 16+37) showed adequate fit and confirmed unidimensionality (Table 5.2., DES3).

Deletion of Item 22 in the individual subscale only would have resulted in a mismatch in the final set of items compared to the overall scale (c.f. B2s where Item 22 was included). To avoid such a mismatch, the subsequent analyses explored to what extent a higher order with Item 22 is also tenable. Model B3s was identical to B2s except for the fact that Item 22 was excluded (Table 5.2., B3s). This analysis showed adequate fit ($\chi^2(32) = 41.28, p > 0.05$) and confirmed unidimensionality for the remaining 22 items belonging to four facets, namely, Describe without Item 22 and 32, Act with awareness without Item 13, Nonjudge without Item 17 and 35, and Non-react without Item 19, 24, 29, and 33. No DIF was found, but the person-item distribution plots illustrated that a substantial proportion of participants were not covered by the items (Fig.5.1.). Particularly for the Non-react subscale, a very large proportion of the participants (top bars in pink) were outside the range of trait levels suitably covered by the items (blue bars facing down). With a PSI of 0.61, this subscale also had inadequate reliability (Table 5.2.). PSI for Nonjudge could be considered adequate as it is just below the cut-off value of 0.70 for group assessment. For Act and Describe, PSI values were 0.76 and 0.78, respectively, and thus also acceptable.

Fig. 5.2. shows the person-item threshold plot for the total score of the 22-item FFMQ-T. Unlike for the individual subscales, the coverage provided by the items was acceptable, as only the participants with the top 3% of mindfulness scores were not covered. With a PSI of 0.82, reliability is sufficient for group comparisons but falls short of the 0.85 mark for individual pre- versus post-test assessments (Tennant & Conaghan, 2007).

Figure 5.1.

Person-Item Threshold Distribution for individual facets- Panel 1 (ACT) for Act with awareness facet, Panel 2(DES3) for Describe facet, Panel 3 (NJ) for Non-judge facet, and Panel 4 (NR) for Non-react facet.

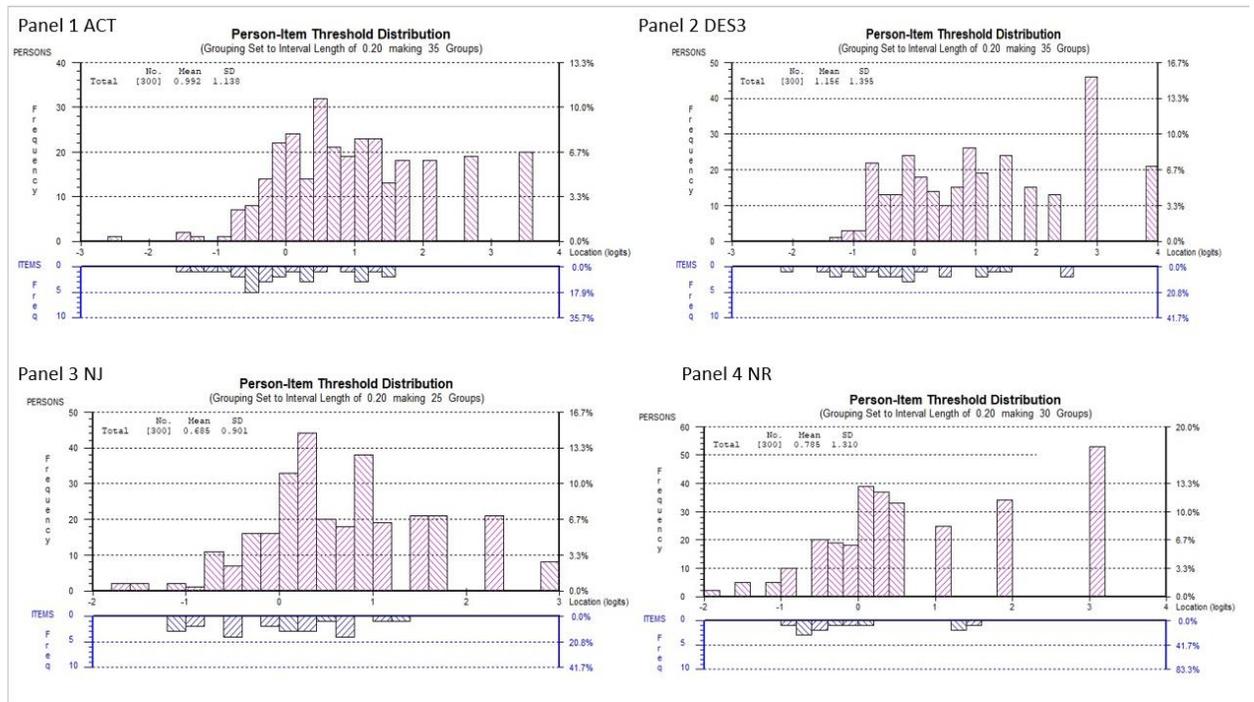
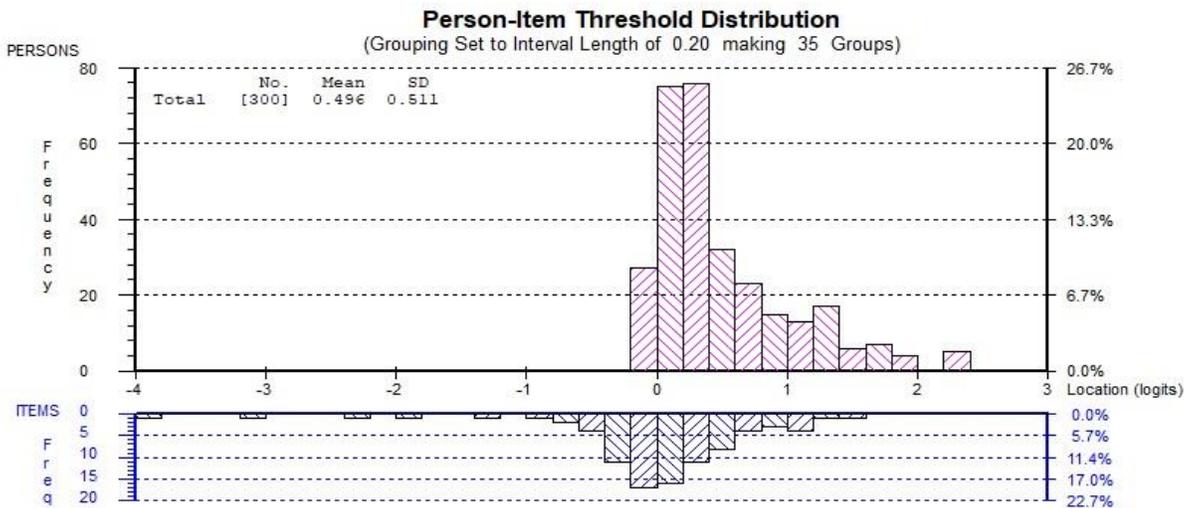


Figure 5.2.

Person-Item Threshold Distribution of 22 items FFMQ-T.



After achieving adequate fit on the Rasch model, a conversion table (from ordinal to interval scale) was also created (Table 5.3.) for the overall four-factor model with 22 items as well as for individual facets (Table 5.4.) using the estimates derived from the Rasch analysis. Conversion tables can only be reported for data with no missing data, which was fulfilled in this study as no participants had any missing data. Conversion tables help improve the precision of the assessment tool. The authors may be contacted for assistance when converting the scores.

Table 5.3.

Conversion table for the total score of the 22-item FFMQ-T.

Total score of the 22-item FFMQ-T					
Ordinal	Interval	Ordinal	Interval	Ordinal	Interval
22	22.00	56	74.51	90	81.60
23	32.57	57	74.69	91	81.93
24	40.71	58	74.89	92	82.30
25	46.98	59	75.06	93	82.68
26	51.98	60	75.24	94	83.08
27	55.87	61	75.41	95	83.52
28	58.86	62	75.59	96	84.00
29	61.15	63	75.77	97	84.50
30	62.94	64	75.95	98	85.05
31	64.35	65	76.12	99	85.66
32	65.50	66	76.29	100	86.32
33	66.46	67	76.48	101	87.04
34	67.28	68	76.66	102	87.87
35	67.98	69	76.84	103	88.80
36	68.60	70	77.03	104	89.89
37	69.14	71	77.21	105	91.18
38	69.63	72	77.38	106	92.77
39	70.07	73	77.56	107	94.81
40	70.47	74	77.76	108	97.68
41	70.84	75	77.96	109	102.37
42	71.18	76	78.15	110	110.00
43	71.50	77	78.35		
44	71.80	78	78.55		
45	72.08	79	78.76		
46	72.34	80	78.97		
47	72.60	81	79.19		
48	72.84	82	79.42		
49	73.06	83	79.66		
50	73.30	84	79.90		
51	73.52	85	80.14		

52	73.72	86	80.41
53	73.92	87	80.68
54	74.12	88	80.98
55	74.31	89	81.28

Table 5.4.

Conversion table for individual facets. ACT: Act with Awareness; DES: Describe; NJ: Non-judge; and NR: Non-react.

ACT		DES		NJ		NR	
Ordinal	Interval	Ordinal	Interval	Ordinal	Interval	Ordinal	Interval
7	7.00	6	6.00	6	6.00	3	3.00
8	10.09	7	8.37	7	9.14	4	4.23
9	12.14	8	9.93	8	11.21	5	5.10
10	13.50	9	10.95	9	12.59	6	5.71
11	14.54	10	11.73	10	13.63	7	6.23
12	15.38	11	12.39	11	14.47	8	6.70
13	16.11	12	12.97	12	15.18	9	7.18
14	16.75	13	13.51	13	15.81	10	7.70
15	17.34	14	14.02	14	16.38	11	8.31
16	17.88	15	14.52	15	16.91	12	9.13
17	18.40	16	15.01	16	17.41	13	10.36
18	18.90	17	15.51	17	17.89	14	12.21
19	19.38	18	16.01	18	18.36	15	15.00
20	19.86	19	16.53	19	18.84		
21	20.34	20	17.08	20	19.31		
22	20.82	21	17.68	21	19.80		
23	21.31	22	18.32	22	20.31		
24	21.82	23	19.04	23	20.86		
25	22.35	24	19.85	24	21.46		
26	22.91	25	20.78	25	22.14		
27	23.52	26	21.86	26	22.92		
28	24.18	27	23.14	27	23.88		
29	24.92	28	24.74	28	25.16		
30	25.76	29	26.95	29	27.08		
31	26.74	30	30.00	30	30.00		
32	27.92						
33	29.46						
34	31.71						
35	35.00						

5.4. Discussion

This study translated the FFMQ English version to a new Tamil language version and attempted to assess the workability of the Tamil version in a sample of Tamil speakers in

India. Consistent with other work on investigating the psychometric properties of the FFMQ in India (Raman et al., 2021), the present study utilized Rasch analysis, which has unique advantages over classical test theory approaches such as confirmatory factor analysis (Medvedev et al., 2022). Rasch analysis of the FFMQ-T revealed that the Observe facet caused a substantial significant misfit and thus had to be excluded. After excluding the Observe facet, 31 items remained in the analysis. In subsequent analysis steps, other items from each of the four facets were excluded: Items 22 and 32 from the Describe facet, Item 13 from Act with awareness, Items 17 and 35 from Nonjudge, and Items 19, 24, 29, and 33 from Non-react, resulting in the 22-item FFMQ-T. Subtest analysis confirmed that this four-factor, 22-item questionnaire has a higher-order factor structure and may thus be interpreted as a single score in addition to individual facet scores. After the Rasch analysis confirmed a 22-item questionnaire with a four-factor solution, using the Rasch estimates, conversion tables were also created. It is recommended to create conversion tables to report Rasch results (Leung et al., 2014), and it is also common practice in other Rasch analysis studies, including those conducted with the FFMQ (Medvedev et al., 2017, 2018). In the past, conversion tables have been provided for KIMS, FFMQ, and CHIME (Medvedev et al., 2016, 2017a, 2017b, 2019). Conversion tables improve the precision of the assessment tool, in this case, FFMQ-T.

The initial analysis in the original validation study noted low correlations for the Observe facet with the other four facets but still retained it (Baer et al., 2006). While some other work with the English- version also concluded that the Observe facet could be presented within a five-factor model (Christopher et al., 2012; Hawley et al., 2017; Pang & Ruch, 2019; Shallcross et al., 2020; Taylor & Milllear, 2016), other studies showed that the Observe facet did not fit the factor structure well (Gordon, 2018; Gu et al., 2016; Haas & Akamatsu, 2019;

Lecuona et al., 2021; Siegling & Petrides, 2016). Similar issues with the Observe facet were reported in studies on various translation versions of the FFMQ, such as the Polish (Radon, 2014), French (Heeren et al., 2011), Dutch (De Bruin et al., 2012), Mexican Spanish (Meda et al., 2015), and Hindi versions (Mandal et al., 2016). The Hindi version, FFMQ-H, confirmed a four-factor model with 28 items wherein the three items (Items 4, 10, and 33) and the Observe facet were excluded from the final questionnaire. While the Observe facet was retained in the validation of the English version of the FFMQ for use in India (Raman et al., 2021), our results with the Tamil version were thus similar to that of the Hindi version.

A systematic exploration of the FFMQ Observe facet revealed some reasons for the frequently occurring issues with this subscale (Rudkin et al., 2018). One of the critical complexities of the Observe facet is that it taps into a variety of observing aspects, including both internal and external stimuli. This wide spectrum of observation may cause misinterpretation or generalization of responses, as it is challenging to gauge these two very different types of stimuli precisely. In developing the CHIME, researchers recognized a clear distinction between these aspects of observation (Bergomi et al., 2014). This recognition implies that a more detailed or separate measurement of these observation aspects may provide a more accurate portrayal of an individual's mindfulness. Given these issues with the FFMQ's Observe facet, future research could explore the functioning of the CHIME in diverse cultural contexts, including India. It might be beneficial to assess whether the questionnaire works better in its subscale version (Medvedev et al., 2019) or as a unidimensional measure, considering the unique cultural and societal factors (Wilkinson et al., 2023). Apart from the Observe facet, several items of each of the other facets had to be removed from the FFMQ-T due to significant misfit. This includes two items from the Describe facet: Item 22 ("When I have a sensation in my body, it's difficult for me to

describe it because I can't find the right words") which was also found to be misfitting in the previous study using the original English translation in India (Raman et al., 2021), and Item 32 ("My natural tendency is to put my experiences into words") which was found to be misfitting in another study using the English-language version of the FFMQ (Abujaradeh et al., 2020). This could be attributed to the high context of communication followed in collectivist cultures such as Southeast Asia and India. The high context of communications reflects those cultures wherein individuals tend to adopt a non-verbal language of quietness and introversion. In these cultures, describing and expressing an emotion in words becomes difficult or not seen socially desirable (Afrouzi et al., 2021; Afshan et al., 2015; Hall, 1976).

Further to the two significant misfitting items in the Describe facet, Item 13 from Act with awareness was also discarded in validating FFMQ-T. The item wording was ambiguous as it seemed to categorize distraction in levels, i.e., it might be difficult for participants to express or mark the levels of distraction in scaling terms such as *easily*. A study by Pelham et al. (2019) utilizing the English version of the FFMQ concluded that some items of the Act with awareness facet may be affected by method factors related to the item valence (similarity in wording). Examples are Items 13 ("I am easily distracted") and 5 ("When I do things, my mind wanders off and I'm easily distracted"). These two items have similar wording, showing duplication of items that could potentially affect the "stability of the facets" (Karl & Fischer, 2020, p.2). It was also mentioned that this duplication of items could potentially "compromise unidimensionality" which has been found in the present study, because "reliability coefficients will be artificially inflated" as well as "...the loadings will no longer reflect the true relations of the items to the construct" (Pelham et al., 2019, p.2630).

Two items from the Nonjudge facet, Items 17 (“I make judgments about whether my thoughts are good or bad”) and 35 (“When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about”), require participants to categorize their emotions and feelings into exclusive and extreme binaries that involve subjective interpretation of what constitutes or classifies as good or bad, possibly making it hard for the participants to mark responses (Eid & Diener, 2001). Cross-cultural research on the classification of emotions argues that there is often an element of both positive and negative within an emotion, such as “pursuit of happiness is not always positive” (An et al., 2017, p.2). Another study argued that an individual can experience contrasting emotions at the same time, and there are differences in how each culture experiences and expresses emotions (Gruber et al., 2011). In this regard, it has been reported that in collectivist cultures, such as East Asia and India, individuals prefer and place a lot of importance on peace and calmness compared to more individualistic cultures such as North America (Tsai et al., 2007). Classifying one’s own thoughts, feelings, and emotions could create conflict within the individual, which might not be preferred by individuals belonging to a more collectivist culture as they prefer peace and calmness instead of upheaval and conflict. This could be a potential hindrance in marking the responses to the two Non-react items (Items 17 and 35), requiring participants to classify thoughts, feelings, and emotions in strict categories of *good or bad*. More such examples of preferred emotions and feelings have been outlined in research aimed at exploring emotional experience, expression, and regulation (Eid & Diener, 2001). These studies confirm that it is difficult to categorize emotions and feelings into exclusive binaries as each society or culture has a different lens of perception, and there are times when dichotomous emotions and feelings are experienced simultaneously, making it hard to classify them as good or bad.

In our validation of the FFMQ-T, four items were discarded from the Non-react facet (Items 19, 24, 29, and 33). In past research involving translations of the original English version also, issues with items from this facet have been noted. The FFMQ-Chinese version found low-reliability coefficients for this facet compared to the other four facets (Deng et al., 2011). Similarly, the FFMQ-Portuguese version (Ramos et al., 2018) discarded the Non-react facet from the overall factor structure. Two items of the Non-react facet (Items 4 and 33) were also dropped from the overall factor structure in the study using the FFMQ-H (Mandal et al., 2016). Similar results were found in studies using German (Tran et al., 2013), Spanish (Anchorena et al., 2017), and Polish versions (Radon, 2014). The present study found a 22-item version of FFMQ-T valid for the use of Tamil-speaking population. This study is an extension of the previous study utilizing the FFMQ-English version in an Indian sample from Delhi, which identified future direction to translate the English version to other languages spoken in India considering its diversity and assess the extent of replication of the five-factor structure (Raman et al., 2021). This study confirmed the four-factor model without Observe facet and a few items each from the other four facets, making it a 22-item questionnaire to measure mindfulness.

Although adequate fit to the Rasch model was achieved for the higher-order four-factor model as well as each of the four subscales individually, in all cases, PSI values fell short of the 0.85 cut-off for individual assessment (Tennant & Conaghan, 2007). For the Nonjudge facet, reliability may be considered marginally acceptable as it was only just below the cut-off value for group assessment. On the other hand, the Non-react subscale scores for the FFMQ-T need to be considered unreliable. Together with the evidence from the person-item distributions of the subscale scores, which indicated that available items did not cover a large proportion of participants, one needs to conclude that it is not advisable to use the

subscale scores of the FFMQ-T if robust assessment is required. As a discussion tool or preliminary analysis, subscale scores may have some value. However, for group comparisons of mindfulness scores, the total score of the FFMQ-T needs to be used. Future research needs to explore whether the low reliability of the subscale scores of the FFMQ-T is related to cultural factors. For the English version, PSI values were found to range between 0.76 and 0.89 (Medvedev et al., 2017). The previous English version validated in India did not conduct Rasch analysis at the item level but reported an identical PSI value (i.e., 0.81) for the overall scale when using the English FFMQ (with three items discarded) in India (Raman et al., 2021).

5.5. Limitations

This study has to acknowledge some limitations relating to the diversity of the sample and the used sampling technique (snowball), which was necessitated due to ongoing limitations in collecting data during the COVID-19 pandemic. The sample recruited was specifically localized in the Tamil Nadu region. Given the limited demographic characteristics available, it is difficult to ascertain to what extent our sample may have been biased. Our sample had to identify themselves according to the inclusion and exclusion criteria, which is also a potential limitation of the study. Thus, the sample might not be entirely representative of the general population of Tamil Nadu. In terms of average age, it appears that the sample was similar to the average age predicted for the Tamil Nadu population. Nevertheless, more diverse samples speaking the Tamil language should be recruited, using random sampling, from various countries (Singapore, Malaysia, and Sri Lanka) to be able to generalize the results. Further, while the FFMQ has often been used as a measure of dispositional mindfulness in general populations (Medvedev et al., 2018), it has also been used frequently to evaluate the effects of interventions (Baer et al., 2022). The

effects of familiarization with meditation on the comprehensibility of FFMQ items (including the FFMQ-T) should thus be explored specifically, including the potential for response shift (Krägeloh et al., 2018).

Lastly, it is worth noting that our exploration of the FFMQ-T varied from the psychometric investigation of the English version used in India (Raman et al., 2021). While the latter incorporated both confirmatory factor analysis and Rasch analysis, our assessment of the Tamil version solely employed Rasch analysis. Although this methodological difference does raise the question of whether our findings could be influenced by the specific analytical tools employed, it is unlikely that our results varied dramatically due to the sole use of Rasch analysis. In the case of the English version employed in India (Raman et al., 2021), Rasch analysis did not necessitate a substantial deletion of items. Only three items were removed to enable a suitable fit. Likewise, a Rasch analysis study of the English version used in New Zealand required the removal of two items only (Medvedev et al., 2017). From these precedents, it is clear that Rasch analysis does not generally lead to extensive item deletion. Consequently, our results about FFMQ-T can be considered a revealing insight into the instrument's factor structure rather than a product of the analysis method. Nevertheless, additional research is warranted to further investigate the extent to which these results can be replicated and how well the factor structure translates to Indian contexts. Future studies should ideally incorporate diverse psychometric analysis methods to validate these findings. This approach will provide a comprehensive understanding of the applicability and functionality of the FFMQ in different linguistic and cultural settings. As an example of the issues/limitations that may result from applying the Rasch analysis on an existing tool, the failure of the present study to support the popular "five-factor" structure of the original "Five Facet Mindfulness Questionnaire" itself may be noted. In the present study, the Rasch

analysis has shown that while four of the five facets of mindfulness, viz., Describe, Act with awareness, Nonjudge, and Non-react were identified as capable of yielding a composite measure of “Mindfulness”, the fifth facet, viz., Observe, failed to show that it is an additive component of mindfulness.

This study confirmed the usability of a 22-item FFMQ-T questionnaire to measure mindfulness. The 22-item FFMQ-T consists of a four-factor model without the Observe facet and a few items from the other four facets.

Prelude: Chapter 6

The results of Chapter 4 and 5 indicate that the FFMQ can be used with the general population. In its truest format FFMQ-English language version showed that a modified five-factor model without three items of the Describe facet (Items 12, 16, & 22) indicate a higher order factor of mindfulness while the translated version indicated that a modified four-factor model without the Observe facet and a few items from each facet, resulting in a 22-item FFMQ-T is suitable to be used with Tamil speaking population in India. Although, the results achieved in FFMQ-T indicate a higher order factor but the results need to be relied on with caution considering the reliability is fairly low indicated through PSI in Rasch analysis. Both the studies using FFMQ-English and FFMQ-Tamil have been conducted on general population with no significant prior experience in meditation whereas the original validation study by Baer et al. (2006) and subsequent researches, such as Christopher et al. (2012), Deng et al. (2011), Gordon (2018), Haas and Akamatsu (2019), Pelham et al. (2019), and Tran et al. (2013) have recommended to replicate the findings on experienced meditators to develop a generalizable instrument in a specific culture. Thus, keeping this recommendation in view and in an attempt to make FFMQ more generalizable for the use within the Indian context, the study articulated in Chapter 6 recruited long-term meditators from large scale meditation organizations in India. The participants completed the standard English-language FFMQ as well as a version inquiring about the perceived importance of each FFMQ item, followed by a retrospective cognitive interview to understand the reasons for marking certain responses, giving perspective about what is considered to be important and unimportant aspects in mindfulness assessments according to the Indian context. The data for this study was collected in 2022. This manuscript has been accepted for publication in the *Humanistic Psychologist* journal in October 2023.

Chapter 6: The Relevance of the Five Facet Mindfulness Questionnaire According to the Views of Experienced Meditators in India.

6.1. Introduction

Mindfulness has been translated from the Pāli word *sati* (Rhys Davids, 1921), and the Sanskrit words *smriti* or *anusmriti* are alternate words from the Vedic tradition (Brahma Sūtra, 2.2.25). Mindfulness became popularized in psychology through the extensive work conducted by Jon Kabat-Zinn in developing a streamlined and structured protocol for the Mindfulness-Based Stress Reduction (MBSR) program (Kabat-Zinn, 1990), which aims to improve psychological well-being through a combination of various meditation and mindfulness exercises. Many studies since then have explored the efficacy of MBSR as a treatment approach to cultivate positive attributes and to improve overall wellbeing (Kabat-Zinn, 1998; Shapiro et al., 1998; Speca et al., 2000). Recent psychotherapeutic modalities have also included mindfulness skills training, such as Dialectical Behavioral Therapy (DBT; Linehan, 1993), and Acceptance and Commitment Therapy (ACT; Hayes et al., 1999).

The most widely used definition of mindfulness in psychology was given by Jon Kabat-Zinn (1994) as “paying attention in a particular way, on purpose in the present moment, and nonjudgmentally” (p. 4). In mindfulness practice, individuals observe their own streams of consciousness, in what is commonly referred to as a meta- or self-awareness state, which may help prevent the cognitive biases and attentional problems associated with various disorders (Waszczuk et al., 2015). Mindfulness has been defined as a state attained through the cultivation of mindfulness skills (Lau et al., 2006) or as a trait (Brown & Ryan, 2003). Trait mindfulness reflects one’s stable characteristic/disposition to be mindful (Brown & Ryan, 2003; Burzler & Tran, 2022). Repeatedly practicing state mindfulness during

meditation sessions can enhance trait mindfulness (Garland et al., 2010; Kiken et al., 2015; Vago & Silbersweig, 2012).

To assess trait mindfulness and effectiveness of mindfulness-based interventions (MBIs), many mindfulness-based assessment tools have been developed and validated (Krägeloh et al., 2019; Medvedev et al., 2022). According to a recent bibliometric analysis by Baminiwatta and Sollangarachchi (2021), one of the most widely used assessment tools in the studies related to mindfulness is the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). The FFMQ was originally developed and validated on a population consisting of both meditators and non-meditators in the US (Baer et al., 2006). The items of the FFMQ have been pooled from five different existing trait mindfulness questionnaires, namely the Freiburg Mindfulness Inventory (FMI; Buchheld et al., 2001), the Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003), the Kentucky Inventory of Mindfulness Scale (KIMS; Baer et al., 2004), Southampton Mindfulness Questionnaire (SMQ; Chadwick et al., 2008), and the Cognitive and Affective Mindfulness Scale (CAMS-R; Feldman et al., 2005). All of their 112 items were subjected to confirmatory factor analysis (CFA) resulting in a 39-item questionnaire assessing mindfulness with five facets: Observe, Describe, Act with Awareness, Nonjudge, and Nonreact.

The items on the Observe facet assess the skills pertaining to attending to internal and external stimuli (for example, Item 15 is worded “I pay attention to sensations, such as the wind in my hair or sun on my face”). The Describe facet has items related to the ability to translate experiences into words (for example, Item 27 “Even when I’m feeling terribly upset, I can find a way to put it into words”). The Act with Awareness facet constitutes items focusing on attention and awareness in the present with minimal distraction (Item 18 “I find it difficult to stay focused on what’s happening in the present”). The Nonjudge facet assesses

the ability to maintain a non-evaluative stance towards one's own feelings, thoughts, and inner experiences (Item 25 "I tell myself that I shouldn't be thinking the way I'm thinking"). The items in the Nonreact facet reflect a stance of not getting entwined into loops of thoughts and feelings but understanding and accepting the nature of thoughts that come and go (Item 29 "When I have distressing thoughts or images, I am able to just notice them without reacting").

The majority of the research related to mindfulness using FFMQ has been conducted in the West. Recently, the FFMQ-English-language version (Raman et al., 2021), a Hindi version (Mandal et al., 2016), a Gujarati version (Patel & Saha, 2017), and a Tamil language version (Raman et al., 2023) have been validated for use with general population samples in India. To date, however, there is no literature exploring the validity of the FFMQ with experienced non-MBI and non-Buddhist meditators from India.

India's link to meditative practices has been described as ancient (Gellner, 2001; Raj, 2022). It is said to be mentioned in the Vedas, Upanishads, and Bhagavad Gita as old as 5000 to 3500 BCE (Coomaraswamy, 2011; Chandra & Ranjan, 2022). The majority of mindfulness practices in various spiritual and religious groups in India understandably occurs outside the context of the recently emerging Western MBIs (Hyland, 2015; Mehta & Talwar, 2022; Nita, 2019). Despite the emergence of Buddhism in the Indian subcontinent, the religion does not have a strong presence in modern India, as indicated by the Indian census, according to which less than 1% of the population are Buddhist. Given this understanding of the philosophical roots of meditation and the Buddhist tradition in the Indian subcontinent and the fact that it no longer has a strong presence in the country, there is a need to investigate to what extent the FFMQ has content validity for expert meditators in the non-MBI and non-Buddhist context in India. Not only will this be useful from the point of view of measurement

validity but it would also help advance our theoretical understanding of cross-cultural generalizability of the concept. Keeping this in view, this study aimed to explore and identify the nuances in the item wording of the FFMQ, making the questionnaire more culturally generalizable by recruiting experienced meditators from India and utilizing a sequential mixed-method explanatory approach (Cameron, 2009), involving ratings of actual FFMQ-English language items and their perceived importance, and engaging in post-rating cognitive interviews. Cognitive interviewing (Beatty & Willis, 2007; Willis & Miller, 2011) is a qualitative interview technique that has been previously used in mindfulness-related studies (Belzer et al., 2013; Christopher et al., 2014; Feng et al., 2018). The aim for using cognitive interviews in this study was to delve deeper into how the participants understood the items on the questionnaire and understand the reasons for participant ratings of each item, which could give a more in-depth perspective regarding the questionnaire. Thus, the utility of a mixed-method explanatory approach is in its ability to help deepening our understanding and providing direction for modifying the questionnaire, if necessary, with specific relevance to the Indian context.

6.2. Method

6.2.1. Participants

Initially, eight long-term meditators from large scale meditation organizations in India were recruited for this study, but for analysis purposes, responses of only six participants were considered because one of the participants did not agree to be interviewed and the recording of a further participant had insufficient tonal quality to permit transcription. The inclusion criteria required participants to be senior meditation practitioners/gurus who have been practicing meditation, for a minimum of 10 years and were sufficiently proficient in the

English language to be able to comprehend the questions of the FFMQ and to be able to answer the interview questions. Participants with any significant psychiatric or neurological conditions and intellectual impairment were excluded from participation.

Participants in this study represented diverse meditative practices in India. Two participants practiced Rajayoga, also known as the ‘king of all yogas’. This practice involves being aware of the passing nature of thoughts and allowing them to come and go without distraction as described by Pandya (2019) and Vivekananda (2009). Two other participants practiced Sahaj Samadhi meditation, which is a natural and easy meditation technique practiced with or without a personalized mantra. This meditation focuses on cultivating positive attributes and increasing awareness, as outlined by Peckham et al. (2019). One participant practiced Samyama meditation, a stage described as *Samadhi* (the eighth limb) in Ashtanga yoga (eight limbs of yoga), according to Patanjali’s Yoga Sutras as explained by Sadhasivam (2021). Additionally, one participant practiced Vedic yogic practices and Vedantic meditation, primarily focusing on awareness of the *Brahman*, also known as absolute reality or supreme existence. These practices involve contemplation, awareness, and transcendence beyond the ego, body, time, and space (Sri Ramakrishna Math, 2010; Venugopal, 2012), similar to the non-dualism followed in some meditative practices (Meling, 2022).

6.2.2. Procedure

The participants for this study were recruited through the first author’s network of individuals familiar with meditation organizations and practitioners in India. A formal email was sent to these organizations and practitioners, the specific names of which have been kept confidential to ensure participant and organizational privacy. The email detailed the study’s purpose, the approximate time required to complete the questionnaire and interview, as well

as the exclusion criteria. Along with the email, an information sheet was sent, emphasizing participants autonomy and their right to withdraw from participation. The sheet also provided instructions for completing the questionnaire, the purpose of the cognitive interview, and included a consent form. Additionally, it outlined the participants' role in the study and explained how the results would be disseminated.

Once the participants had indicated their consent by responding to the email, they received the questionnaire. The participants were given options to either mark the responses prior to the interview (retrospective interview) or to mark them simultaneously with the interview (concurrent interview). The total time to administer the questionnaire and conduct the interview was approximately 120 min. To ensure anonymity, each participant was given a participant identification number as Participant 2, 3, 4, 5, 6, and 8.

All the recruited participants preferred a retrospective interview at a convenient time for them. Before recording the interview, oral consent was obtained for audio/video recording. After the consent was recorded, a new recording was initiated for the cognitive interview. In this study, participant's ratings of importance items were used as a discussion stimulus in the retrospective cognitive interview.

The interview questions were a combination of general and context-specific questions. The general questions were tailored to inquire about the participants' general view and impressions of the questionnaire and identify any potential comprehension difficulties. Based on the answers on general questions and ratings as either high (rating of 4 or 5) or low (rating of 1 or 2) on the FFMQ importance questions (see Measures section), the context-

specific questions asked the participants to delve deeper into the item content of those marked as high and low, such as, “why do you think this item is highly or least important, and what does it suggest/indicate about mindfulness.”

No compensation, gift, or incentives were provided to the participants. This study was approved by the authors’ institutional ethics review board [Auckland University of Technology Ethics Committee (AUTEK 21/297)].

6.2.3. Measures

The FFMQ (Baer et al., 2006) was used in this study. It is a 39-item questionnaire that is analyzed in terms of five separate facets, with eight items each forming part of the subscales Observe, Describe, Act with Awareness, and Nonjudge, and seven items for the Nonreact facet. The questionnaire is marked on a 5-point Likert scale where 1 = *never or very rarely true* and 5 = *very often or always true*. In total, 19 items are negatively worded: three items from the Describe facet (Items 12, 16, and 22) and all items of Act with Awareness and Nonjudge facets. Prior to data analysis, these items are reverse scored so that high scores on all the 39-items are reflective of higher levels of mindfulness.

In addition to the 39 items of the FFMQ, a corresponding importance rating was presented alongside each item. The importance questions have been used in previous research such as when creating items for quality-of-life scales (Herrman et al., 1993). The importance questions assessed the importance/relevance of each item according to the meditators in this study. For example, Item 1 (“When I’m walking, I deliberately notice the sensations of my body moving”) was worded in its importance question format as follows: (“It is important to me to notice the sensations of my body moving”). Each importance item was presented right after the original FFMQ item so that it was clear precisely to which FFMQ item this rating was referring to. The importance questions were also marked on the standard FFMQ 5-point

Likert scale ranging from 1 = *never or very rarely true* to 5 = *very often or always true*. The responses to the importance questions did not require reverse scoring because the direction of item wording was kept positive for all items. For example, the negatively worded Item 5 from the Act with Awareness facet (“When I do things, my mind wanders off and I’m easily distracted”) had its corresponding importance item worded as (“It is important to me to not to get distracted or let my wander off while doing things”).

6.2.4. Data analysis

The philosophical underpinning of this study was scientific realism (Fletcher, 1996), and the method employed was a sequential mixed-method explanatory approach (Cameron, 2009) in which the qualitative data are used as an adjunct explaining/supporting the results of the quantitative analysis. In the present study, quantitative analyses were conducted, and then qualitative statements from the interview transcripts were coded according to the levels of agreement identified in the quantitative analyses. Subsequently, these qualitative statements were used to support or explain the quantitative results.

For the quantitative analysis, firstly, the mean (M) and standard deviation (SD) for each of the five FFMQ subscales were calculated to provide an overview of the mindfulness scores of the six meditators. For the importance ratings, inter-rater reliability was calculated using the intraclass correlation coefficient (ICC; Koo & Li, 2016; Shrout & Fleiss, 1979) and Fleiss kappa (Fleiss, 1981). ICC is used as a measure of reliability between two or more raters rating the same questionnaire. A higher ICC coefficient suggests that the assessment tool is consistent and can handle the nuances between the raters’ ratings, indicating reliable and consistent results (Bobak et al., 2018). ICC is considered to show poor reliability if it is 0.50 or lower, moderate if it is between 0.50 to 0.75, good if it is between 0.75 to 0.90, and

excellent if above 0.90 (Koo & Li, 2016). Additionally, this study reports Fleiss kappa as an additional nonparametric measure. Fleiss kappa is an extension of Cohen's kappa as it assesses the level of agreement between three or more raters. It is an alternative nonparametric statistical procedure to calculate inter-rater reliability. Fleiss kappa values range from 0 = *no or chance agreement* to 1 = *perfect agreement* (Falotico & Quatto, 2015; Fleiss, 1973, 1981), wherein a kappa value between 0.01-0.20 is considered to show slight agreement, 0.21 to 0.40 shows fair agreement, 0.41 to 0.60 is moderate agreement, 0.61 to 0.80 is substantial, and above 0.80 is suggests almost perfect agreement (Fleiss, 1971; Viera & Garrett, 2005).

Content validity was calculated following the guidelines stipulated by Yusoff (2019). Content validity is defined as “the degree to which elements of an instrument are relevant to and representative of the targeted construct for a particular assessment purpose” (Yusoff, 2019, p.49). Content validity is expressed as a content validity index (CVI). Prior to CVI calculation at subscale level (S-CVI), all the importance items related to each subscale were recoded as either 0 or 1. Ratings of 1, 2, and 3 were recoded as 0, while ratings of 4 or 5 were recoded as 1. In this study, the content validity index at the *scale level* (S-CVI) was calculated using the averaging method (Ave), which reflects the average rating given by the six meditators to determine the relevance of each subscale (Yusoff, 2019). The derived CVI was interpreted based on the guidelines provided by Polit et al. (2007); a CVI of 0.83 and above is considered to be acceptable.

After calculating the inter-rater reliability and CVI, the range (maximum score minus minimum score) for each importance item across the participants was calculated, which

helped in classifying items of high agreement (range ≤ 1), moderate agreement (range = 2), and low agreement (range ≥ 3). This classification explored which items in each subscale were found to be relevant according to the meditators' sample. For example, if for a particular item, the lowest rating was 3 and the highest was 5, then the item was categorized as having moderate agreement amongst raters, since the range in scores was 2.

The qualitative data from the cognitive interviewing (Beatty & Willis, 2007; Willis & Miller, 2011) were used to obtain information about the reasons for some of the participant choices in the quantitative part. For the qualitative data, all six interview recordings of the participants were transcribed by the first author and cross-checked by two professional transcribers. After transcription, the authors familiarized themselves with the content in the transcripts, created codes based on high, general, and low agreement items as identified in the quantitative analysis. Then the corresponding supportive statements were highlighted and noted to compare with the quantitative results.

6.3. Results

The mean FFMQ scores for each subscale are presented in Table 6.1. When compared with the mean scores reported for each subscale in some of the studies recruiting meditators using the 39-item FFMQ, such as Baer et al. (2008), Pang and Ruch (2019), Williams et al. (2014), these results indicate that the meditators in the present study had higher mindfulness scores on each subscale except on the Observe and Nonjudge subscales. Both these subscales, Observe ($M=31.96$) and Nonjudge ($M=32.44$), were found to have slightly higher mean scores for the meditators sample in the Baer et al. (2008, p.337) study.

Higher mean values on the Observe subscale were also reported in the study ($M=30.48$) by Pang and Ruch (2019), as well as in a study ($M=30.88$) by Williams et al. (2014). Due to small sample size in the present study, it was not appropriate to test for statistically significant differences.

Table 6.1.

Mean scores presented for each subscale. These scores are based on actual ratings on the FFMQ (as opposed to importance ratings) by six meditators.

Subscales/Facets	Item summary score	
	<i>M</i>	<i>SD</i>
Observe	30.33	2.66
Describe	33.00	4.69
Act with Awareness	35.17	3.25
Nonjudge	30.67	6.98
Nonreact	29.67	2.80

The ICC was 0.91 for the entire scale consisting of importance items, which can be interpreted as excellent inter-rater reliability. The Fleiss kappa statistic that was calculated as an alternative nonparametric statistic for the entire scale consisting of importance items showed ‘fair’ inter-rater reliability (0.27). Overall, the inter-rater reliability was therefore satisfactory.

The CVI at subscale level showed acceptable subscale level validity (S-CVI) for Act with Awareness (0.96) and Nonreact (0.98) according to the interpretation by Polit et al. (2007) whereas the other three subscales/facets, namely, Observe (0.63), Describe (0.67), and Nonjudge (0.50), were found to have low S-CVI. Overall, the study found satisfactory inter-rater reliability for the entire scale and acceptable content validity for two subscales.

The CVI indicates that there are certain subscales which the meditators in this sample seem to find irrelevant and not descriptive of the overall mindfulness construct.

The categorization of high, moderate, and low agreement was completed for all the items which were categorized under five facets (Observe, Describe, Act with Awareness, Nonjudge, and Nonreact) of the questionnaire. Table 6.2. lists the scores given by individual participants on each of the importance items, as well as mean (*M*), standard deviation (*SD*) and median (*Med*) as measures of central tendency. This table helps in reviewing the levels of agreement at individual item levels and at subscale level. Note that the agreement categorization applies to the extent to which raters' scores were similar. Inherently, this does not mean that high agreement items are also high in importance. However, in our results, there was no instance where raters were in high agreement that an item was not important (Table 6.2.). By definition, low agreement items cannot be considered as either important or unimportant because the range of scores was too large.

Table 6.2.

Individual participants' importance ratings on each item of the five facets. Each item of the facet is classified as a high, moderate or low agreement items based on the range of ratings by the participants. Rating scores, overall mean (M), standard deviation (SD), median (M) for each item are grouped by subscale and are listed in order of high, moderate, and low agreement items.

Item	Agreement	2	3	4	5	6	8
OBSERVE							
36 (pay attention to how my emotions affect my thought and behavior)	High <i>M=4.67; SD=0.52; Med=5.00</i>	4	5	5	4	5	5
11 (notice how foods and drinks affect my thoughts, bodily sensations & emotions)	Moderate <i>M=4.17; SD=0.75; Med=4.00</i>	5	4	3	4	4	5
31 (notice visual elements in art or nature, such as colors, shapes, textures, patterns of light and shadow)	Moderate <i>M=4.33; SD=0.82; Med=4.50</i>	5	5	3	4	4	5
1 (notice sensations of my body moving)	Low <i>M=2.67; SD=1.03; Med=3.00</i>	4	3	3	3	2	1
6 (stay alert to sensations of water on my body while taking shower or bath)	Low <i>M=3.17; SD=1.17; Med=3.50</i>	4	3	4	4	3	1

15 (pay attention to sensations, such as wind in my hair or sun on my face)	Low <i>M=3.67; SD=1.03; Med=4.00</i>	4	5	3	4	4	2
20 (pay attention to sounds, such as clocks ticking, birds chirping or cars passing)	Low <i>M=3.67; SD=1.21; Med=3.50</i>	3	5	3	4	5	2
26 (notice smells and aromas of things)	Low <i>M=3.50; SD=1.05; Med=3.50</i>	4	5	3	4	3	2
DESCRIBE							
2 (describe my feelings in words)	Moderate <i>M=3.83; SD=0.98; Med=3.50</i>	3	5	3	4	3	5
7 (put my beliefs, opinions and expectations into words)	Moderate <i>M=4.00; SD=0.89; Med=4.00</i>	3	3	4	4	5	5
12 (find right words to describe what I'm thinking)	Moderate <i>M=4.33; SD=0.82; Med=4.50</i>	4	5	3	4	5	5
16 (think of right words to express how I feel about things)	Moderate <i>M=4.33; SD=0.82; Med=4.50</i>	4	5	3	4	5	5
22 (find the right words to describe when I have sensation in my body)	Moderate <i>M=3.67; SD=0.82; Med=3.50</i>	4	3	3	3	5	4
27 (put my feelings into words even when I am feeling terribly upset)	Moderate <i>M=4.00; SD=0.63; Med=4.00</i>	4	5	3	4	4	4
32 (put my experiences into words as my natural tendency)	Moderate <i>M=4.17; SD=0.98; Med=4.50</i>	5	5	3	3	5	4
37 (describe how I feel at the moment in considerable detail)	Low <i>M=3.83; SD=1.33; Med=4.00</i>	3	5	2	3	5	5
ACT WITH AWARENESS							
13 (remain focused and not be easily distracted)	High <i>M=4.50; SD=0.55; Med=4.50</i>	4	5	4	4	5	5
18 (stay focused on what's happening in the present)	High <i>M=4.67; SD=0.52; Med=5.00</i>	4	5	4	5	5	5
23 (aware of what I am doing without seeming as I am 'running on automatic')	High <i>M=4.83; SD=0.41; Med=5.00</i>	5	5	5	4	5	5
28 (attentive to activities when I rush through them)	High <i>M=4.67; SD=0.52; Med=5.00</i>	4	5	5	4	5	5
34 (aware of the jobs and tasks that I am doing)	High <i>M=4.67; SD=0.52; Med=5.00</i>	4	5	5	4	5	5
38 (pay attention while doing things)	High <i>M=4.67; SD=0.52; Med=5.00</i>	5	5	4	4	5	5
5 (not to get distracted or let my mind wander off while doing things)	Low <i>M=4.17; SD=1.17; Med=4.50</i>	4	5	2	4	5	5
8 (pay attention to what I am doing and not become distracted by daydreaming and worrying)	Low <i>M=4.33; SD=1.21; Med=5.00</i>	5	5	2	4	5	5
NONJUDGE							
39 (not to be harsh to myself when I have irrational idea)	High <i>M=4.67; SD=0.52; Med=5.00</i>	5	5	4	4	5	5
3 (criticize myself for having irrational or inappropriate emotions)	Moderate <i>M=1.67; SD=1.03; Med=1.00</i>	1	3	3	1	1	1
35 (not to judge myself depending what the distressing thought/image is about whether I am good or bad)	Moderate <i>M=4.50; SD=0.84; Med=5.00</i>	5	5	3	4	5	5
10 (tell myself that I shouldn't be feeling the way I am feeling)	Low <i>M=3.33; SD=1.37; Med=3.50</i>	1	4	3	4	3	5
14 (believe that some of my thoughts are abnormal or bad and that I shouldn't think this way)	Low <i>M=2.67; SD=1.51; Med=3.00</i>	1	3	3	3	1	5

17 (not to make judgments about whether my thoughts are good or bad)	Low <i>M=4.17; SD=1.17; Med=4.50</i>	5	5	2	4	5	4
25 (tell myself that I shouldn't be thinking the way I am thinking)	Low <i>M=3.50; SD=1.52; Med=3.50</i>	1	5	3	3	4	5
30 (know that some of my emotions are bad or inappropriate and I should not feel them)	Low <i>M=2.83; SD=1.84; Med=2.50</i>	1	5	3	2	1	5
NONREACT							
9 (watch my feelings without getting lost in them)	High <i>M=4.67; SD=0.52; Med=5.00</i>	5	5	4	4	5	5
19 (step back whenever I have distressing thoughts and be aware of the thought and image without getting taken over by it)	High <i>M=4.50; SD=0.55; Med=4.50</i>	4	5	4	4	5	5
21 (pause in difficult situations without immediately reacting)	High <i>M=4.50; SD=0.55; Med=4.50</i>	4	5	4	4	5	5
24 (feel calm soon after I have a distressing thought or image)	High <i>M=4.67; SD=0.52; Med=5.00</i>	4	5	5	4	5	5
29 (notice the distressing thought or images without reacting to them)	High <i>M=4.67; SD=0.52; Med=5.00</i>	4	5	5	4	5	5
33 (notice the distressing thoughts or images and let them go)	High <i>M=4.67; SD=0.52; Med=5.00</i>	4	5	5	4	5	5
4 (not to react to my feelings and emotions)	Moderate <i>M=4.33; SD=0.82; Med=4.50</i>	4	5	4	3	5	5

In total, 14 items out of the 39 importance rating items were categorized as having high agreement among the six long-term meditators (range ≤ 1). One item each from the Observe (Item 36) and Nonjudge (Item 39) facets were found to be high agreement items. Items 13, 18, 23, 28, 34, and 38 of Act with Awareness had high agreement among the participants. Similarly, six items of Nonreact had high rater agreement: - Items 9, 19, 21, 24, 29, and 33. None of the items from the Describe facet had a range reflecting high agreement.

Thirteen out of the 39 importance rating items were marked as having low rater agreement, meaning that the item ratings had a range value of 3 and above. From the Observe facet, five items (Items 1, 6, 15, 20, and 26) were marked as having low agreement, one item from the Describe facet (Item 37), two items from the Act with Awareness facet (Items 5 and 8), and five items from the Nonjudge facet (Items 10, 14, 17, 25, and 30) were marked as items reflecting low agreement (range ≥ 3). No item of the Nonreact facet was categorized

as having low agreement. Twelve items from the 39 importance rating items were categorized as having moderate agreement.

Table 6.3. presents the percentages of items in the categories of high, moderate, and low agreement, separately for the five facets of the FFMQ. In all cases (as can be seen in Table 6.2.), items with high rater agreement were also rated as being important (with scores of 4 and 5). In instances where at least one rater indicated that an item was not important (i.e., rating of 1 or 2), there was at least one other rater who found it moderately or highly important. The Observe and Nonjudge facets had only 1 item each out of 8 items (12.5%) where all raters agreed that it has high importance. Act with Awareness had 6 out of 8 items (75%) marked as highly important by all raters, and Nonreact had 6 out of 7 items (85.7%). In summary, the quantitative results showed that the items on the Act with Awareness and Nonreact facets were generally viewed by all raters as highly important (range ≤ 1), i.e., the responses on the 5-point Likert scale of FFMQ importance ratings were marked by meditators in this study as either 4 or 5.

Table 6.3.

Percentage of high, moderate and low agreement as to importance items, presented by facets.

Facet	High	Moderate	Low
Observe	12.5% (1/8 items)	25% (2/8 items)	62.5% (5/8 items)
Describe	0 (0/8 items)	87.5% (7/8 items)	12.5% (1/8 items)
Act with awareness	75% (6/8 items)	0 (0/8 items)	25% (2/8 items)
Nonjudge	12.5% (1/8 items)	25% (2/8 items)	62.5% (5/8 items)
Nonreact	85.7% (6/7 items)	14.3% (1/7 items)	0 (0/7 items)

The qualitative results support the findings of the quantitative analysis. Among the items that were considered important by all raters is Item 18 (stay focused on what's happening in the present) of the Act with Awareness facet. This item received a rating of 5

by four of the six participants, and the remaining two participants rated it as 4. One of the participants (Participant 4) described the high importance of this item as follows:

“...being fully present and concentrated, so, even if there are distractions and not being pulled by it. If there are distractions, I acknowledge that okay, there is a distraction, but what do I need to do about it, do I need to give my attention or do I need to simply say okay hi, but listen, this distraction, I will attend to it later on. Because what I’m doing right now is important.”

Similarly, for Item 13 (remain focused and not be easily distracted) of the Act with Awareness facet, five participants gave a rating of 5 on a 5-point Likert scale on the FFMQ importance item. An excerpt of Participant 4, while elaborating the reason for rating this Item 13 with the maximum score, is:

“...when one is able to master the distraction, then, one can gain stability. Hence, I feel that understanding what distracts you and then mastering your concentration (in Hindi – we call it as *Ekagrata*). Distraction happens when you are empty inside, so mastering it is important in our practice, and always being laser focused.”

Six items of the Nonreact facet were also found to be rated by all participants as highly important. The items were: Item 9, 19, 21, 24, 29, and 33. In support of these quantitative findings, for Item 9 (watch my feelings without getting lost in them), Participant 5 elaborated on the reason for rating this item with the highest possible rating (5) on a 5-point Likert scale as follows:

“I see myself apart from these feelings, you know not being identified with these feelings. I observe these feelings and I see that rising above these feelings gives me a bigger joy. So, I watch it but not dwell inside it.”

Similarly, for Item 19 (step back whenever I have distressing thoughts and be aware of the thought and image without getting taken over by it) Participant 2 reported that:

“That's important for me, that's important for any meditator actually. It's important in the sense that you always have an eye on it, i.e., come back to the centeredness. I chose the witness state over just unaware engagement.”

On Item 21 (pause in difficult situations without immediately reacting), Participant 6 mentioned that the pause tends to give them some space to think and plan better. The verbatim transcript of the participant is as follows:

“As soon as you are into a negative situation, the way you react is going to be always negative. It will first of all spoil your mood and due to it the day is spoilt for yourself and others around you. So, the pause is important in our practice, it gives me some space and time and to come back to the normal state of mind.”

On Item 29 of the Nonreact facet, (notice the distressing thought or images without reacting to them), Participant 8 reported that:

“...not getting subjected to the external environment as now we are a master of our own thoughts and emotions. So, when you are highly reactive, it means you are getting affected by the external environment. Your emotion, thoughts, and reactions are all owned by the external situation, whether good or bad. In our practice, we practice equanimity even in a positive situation or a negative situation, instead of reacting, we understand the whole scenario and are completely in control of own thoughts, and in that little space I may come to a right decision as to what I am, and take that time to evaluate, or to ponder, and then accordingly take a decision, how my action is going to result.”

On the same item, Participant 4 mentioned that:

“...in one of the scriptures in India, it is told that you do your best and then we just kind of leave it to the higher one, just be okay with it, and whatever fruit you get, you should be fine with it. This helped me see that you know it's...it's Okay, you will be calm right, your inner stability is much more precious than what results you're getting.”

On some of the items of Describe that were categorized under moderate agreement, the participants mentioned clearly the difficulty arising with the wording of items that either suggested ability or tendency to express in words. Participant 2, on Item 12 (find right words to describe what I'm thinking), reported that:

“If you ask me about ability, that's a very black and white thing to state whether I do or not. I will have to say a yes or no depending on whether I have that ability. But if you ask me, if this is important to me, it's likely that I am going to be in the middle option. Because it's not unimportant, but it's also not important in the way then.”

Participant 5 commented on the wording of *tendency* used in the Describe facet, such as Item 32 (natural tendency is to put my experiences into words):

“I don't feel that urge to put my experiences into words, every time. It is not my natural tendency, but if asked for it, if it can help someone or, at times, if I want to express it, and that would enhance my experience or my understanding, then possibly I would put it into words but not always.”

Participant 6 while elaborating on the reason for rating Item 37 (usually describe how I feel at the moment in considerable detail) of the Describe facet as the mid-option of *somewhat agree*, mentioned that the description in words to others is a choice they have, and they might not engage in it always:

“Depending upon the situation, sometimes it's just not important to explain yourself to everybody or give reasons to everybody as to how do you feel, why you feel etc., because it may not be important to everyone. It may be only for a few people, so I do it very, very selectively.”

The Observe and Nonjudge facets were categorized as facets having low agreement among the raters. Some of the issues with the items on the Observe facet reported by experienced meditators in this study were outlined by Participant 2 when reflecting on Item 1 (I deliberately notice the sensations of my body moving):

“The item uses the word *deliberate*. In the beginning, you deliberately notice and then, once that becomes a practice, it's sort of [that] your awareness expands into that circle where it becomes a part of you and there is no deliberation.”

The majority of the participants rated the items on the Observe facet as low in importance. Participant 2 explained that:

“The focus is the inner world, wherein the external sound or noise or the feelings of the physical level becomes little mundane and secondary. So, it's more to do with what you are experiencing within. For meditators, life is something that I experienced within me and not outside me.”

A participant mentioned that, in the initial years of meditation, attending to external stimuli was important and required effort. However, but as the practice deepens, the attention is internal to thoughts and emotions and not to external stimuli.

“...initially, when you would start as a meditator, you would start with very basic things like notice your body, notice your breath, sensations and feelings when they come up... it's not like something which is an aim that you have to achieve but they're just sort of ladders to climb.”

Participant 8 re-iterated the irrelevance of items on the Observe facet:

“In our practice, we try to move away from the physical dimensions (physical body, relationships, nature etc.) of this particular existence to a non-physical level, i.e., the practice of soul consciousness. The thought and the experience of the physicality of this physical body, and this world, is a hindrance. It is an impediment, which brings us to this lower energy level whereas the aim is to rise above.”

The Nonjudge facet was the second facet that was found to have most items where raters did not agree in terms of whether they are important or not. Some of the participants believed in the importance of a nonjudging/nonevaluative stance as their common practice, but the item wording to categorize as good or bad, did not suit them well. One of the participant's stated:

“The duality of defining or the interpretation of this word of normal, I was trying to figure it out from what perspective should I answer this question. For me, everything is normal, there is nothing abnormal.”

Participant 3 also stated along similar lines that:

“There's nothing good or bad... Good or bad is defined by the society, for e.g., in my home, what was good 10 years ago is not good anymore. So, I don't define anything based

on good or bad, whatever you do, you have to face the consequences of it. So, the attention and awareness are on the actions, thoughts, and feelings but not categorizing or labelling.”

Thus, it can be concluded that the qualitative responses made by the participants on the cognitive interview questions support and explain/justify the quantitative results in this study.

6.4. Discussion

This study aimed at delving deeper into the extent to which the FFMQ has content validity for expert meditators in the non-MBI context in India. This was conducted using a sequential mixed-methods explanatory approach, using both quantitative and qualitative data to understand the *why* of responses – a method which has been used previously in a similar context by Feng et al. (2018). The present study attempted to fill the gaps in the research of mindfulness assessments which has been identified in various research, specifically in the context of the Indian subcontinent. The previous studies utilizing the original English-language version of the FFMQ (Raman et al., 2021), Hindi-language version of FFMQ (Mandal et al., 2016), Tamil-language version of FFMQ (Raman et al., 2023) recruited participants from the general population whereas this study recruited a long-term meditators sample. The need to recruit an experienced meditators sample and to utilize mixed-methods approaches has been identified by other past researchers (Christopher et al., 2012; Deng et al., 2011; Gordon, 2018; Tran et al., 2013). De Bruin et al. (2012) suggested the use of structured interviews in validation studies of the FFMQ, which was employed in the present study. Additionally, several researchers, such as Christopher et al. (2012), Medvedev et al. (2017), and Karl and Fischer (2020) expressed the need for more studies using the FFMQ in diverse samples which has also been attended to in this present study by recruiting non-MBI

and non-Buddhist meditators from India. India is diverse in its culture, geography, languages, types of meditation, and religious context.

The present study confirmed that the two facets with the highest percentage of agreement were Act with Awareness and Nonreact wherein the majority of the items were viewed as highly important and indicative of a higher order construct of mindfulness. This was evident from the percentage values shown in the results section as well as the supporting qualitative statements derived from the cognitive interviews. The Act with Awareness facet in the FFMQ is intended to measure "...the tendency to bring full awareness and undivided focus to actions and experiences" (Karl & Fischer, 2020, p.2). As described by the long-term meditators in this study in their verbatim statements, undivided and sustained attention, taking a pause and engaging in self-reflection, and being laser focused are all vital skills that are cultivated and maintained through long-term meditation practice. Participant 4 in this study used the Hindi term *Ekagrata*, meaning focused attention/undivided attention, while elaborating on Item 13 (remain focused and not be easily distracted) of Act with Awareness. But the participant was also aware that it is situation dependent while explaining the reason behind rating Item 18 (stay focused on what's happening in the present) highly. The participant clearly explained that, if a distraction arises, the presence of the distraction is acknowledged but quickly compartmentalized to deal with it later rather than entangling oneself into the distractions and forgetting the task at hand. This is similar to the theme "skillful mindfulness" found in the study by Feng et al. (2018, p.449). It is also reflective of cognitive flexibility and emotional self-regulation, in other terms, heedfulness (Gilpin, 2008). Heedfulness (*apramāda* in Sanskrit) is understood as "a sense of monitoring of cognitions to ensure one does not deviate from one's goal or instructions" (Krägeloh, 2018, p.96).

Many neuropsychological findings based on meditator samples have found enhanced executive functions, specifically selective and sustained attention (Posner & Rothbart, 2007; van Leeuwen, 2012), self-regulation, and decision making (Allen et al., 2012). A study by Hodgins and Adair (2010) demonstrated the difference between meditators and non-meditators on tasks assessing concentration. The researchers confirmed that there was enhanced awareness and attention with minimal interference due to situation or environmental conditions in the meditators sample and that the meditators tended to demonstrate attentional flexibility, engage more in perspective taking, and remain less reactive.

A study conducted on Rajayoga meditators from India by Raman et al. (2015) found that long-term Rajayoga meditators (more than 10 years of meditation practice) have enhanced executive functions compared to short-term (5 years or less) meditators and non-meditators. This finding is important in this context because, in the present study, there were two experienced meditators practicing Rajayoga meditation for more than 15 years. Lutz et al. (2008) commented that long-term regular meditation practice shows enhanced action of brain regions responsible for attention, which could be a potential reason why the meditators in this study also could relate better to the items of the Act with Awareness facet and marked them as highly important. Given that the meditators in this study were daily practitioners of different types of meditation over the past 11-25 years, awareness, attention and cognitive flexibility, which are components of the Act with Awareness facet, could be enhanced (Jo et al., 2015; Marchand, 2014) making them mark the items on this facet with high agreement.

Similarly, six out of the seven items of the Nonreact facet were rated as either 4 or 5 by all the meditators in this study, categorizing this facet as high agreement and also high in importance. The Nonreact facet in the FFMQ measures “the tendency to accept emotions and states as transient and refrain from reacting to them” (Karl & Fischer, 2020, p.2). It is believed that long-term meditation practitioners develop the ability to be open, accepting, and flexible towards experiences. One such study by Baer et al. (2012) involving mindfulness training showed increased non-reactivity in participants after Week 3 and Week 6 of training from the baseline scores. According to the mindfulness-stress buffering theoretical model described by Creswell and Lindsay (2014), acceptance is the central aspect in trainings of mindfulness, wherein the individual begins to fully accept any aspect of physical sensations and emotional aspects without necessarily having the urge to modify or react to them. Gillespie et al. (2015) confirmed that training in mindfulness shows a decline in the need to be reactive. Along similar lines, May et al. (2018) also found that meditation training helps individuals in being less reactive compared to the general population. Studies by Lilja et al. (2012) and Soler et al. (2014) have demonstrated a strong relationship between the Nonreact facet and meditation practice and both these studies concluded that the Non-React facet is more explanatory of acceptance than the Nonjudge facet.

Another reason for high ratings on the items pertinent to both the Act with Awareness and Nonreact facets, according to the practice context in India, is that the meditators in this study have been practicing meditation that includes elements of all the four yogas: *gnana* (knowledge), *bhakti* (devotion), *karma* (action), and *raja* yoga. Specifically, karma yoga, also known as the yoga of action (Raju, 1954) includes practices wherein an individual brings their entire focus, awareness, and attention to the performance of action, no

matter how minor a task is. This focus involves noticing thoughts and emotions but keeping an elevated thought of selfless service, making them detached from the outcome of the actions (Feuerstein, 2011). The Bhagavad Gita extensively discusses all the four types of yoga and its practice in daily living (Hodkinson, 2006).

The goal of meditators in this sample is to be able to be deeply aware of any thoughts and feelings but being detached/disengaged from it and to cultivate objectivity in perspective, step back, pause and then view the perspective. This practice is similar to the concept and practice of *decentering*. Decentering involves three processes as outlined by Bernstein et al. (2015), and Shoham et al. (2017) described it as, “meta-awareness, disidentification from internal experience, and reduced reactivity to thought content (p.123)”. This concept was highlighted in the qualitative statements of the participants responding to the items on the Nonreact facet. This practice of decentering in turn lets the meditators in this study observe their own thoughts, feelings, and emotions with wider awareness, clarity, and objectivity, permitting them to choose and decide better in life situations (Franquesa et al., 2017).

The qualitative statements of the participants on the items of the Nonreact facet also reflect that Observe, as a facet in itself, does not hold much value for them. Relevant instead is observing with a purpose, such as observing or witnessing the feelings, emotions, behavior with a goal to rise above those feelings without getting entwined in their content. This is similar to “purposeful mindfulness” as reported by Feng et al. (2018, p.449) in their study with Buddhist practitioners. The results in the present study with non-Buddhist and non-MBI participants were similar as participants in both studies highlighted goal-oriented, skillful, and purposeful mindfulness.

In many factor-analysis studies, the Observe and Describe facets have been found to be questionable when assessing the higher-order construct of mindfulness in meditators (Gu et al., 2016; Medvedev et al., 2017; Siegling & Petrides, 2016). Studies by Raman et al. (2021) used the English version of the FFMQ, Mandal et al. (2016) used the Hindi version, and Raman et al. (2023) used the Tamil version. All these studies recommended that the Observe facet and a few items from the Describe facet be discarded when using the FFMQ with samples recruited from India. In this present study, seven of the eight items on Describe facet were categorized as having moderate rater agreement as the participants rated it as either 3, 4, or 5 on a 5-point Likert scale of FFMQ. A study by Christopher et al. (2014) and Feng et al. (2018) reported that Buddhist mindfulness does not tend to involve describing experiences, whether internal or external. A recent study by Iqbal et al. (2023) conducted with a sample from Pakistan also found that, in a more collectivist society, the Describe facet seems to be of less value as individuals in collectivist societies like India and Pakistan find the act of describing one's feelings, and emotions as a mark of disrespect towards elders (Markus & Kitayama, 1991, 1998). The meditators in this study did not completely disregard the items on the Describe facet as to be redundant, but there were inconclusive results regarding whether the items of this specific facet are important or not. This could be attributed to the item wording indicating either the *ability* or *tendency* to express one's feelings, thoughts, and experiences in words to others. Additionally, many of the FFMQ items, particularly the Observe and Describe items, had been drawn directly from the KIMS (Baer et al., 2004). The KIMS has been designed to express mindfulness skills to be developed in therapeutic settings such as Dialectical Behavior Therapy (Linehan, 1993), which appears to be the reason that these items may not work well with non-clinical samples and also those engaging in general spiritual practice such as in Buddhism (Feng et al., 2018).

The meditator participants in the present study did not agree as to whether the items on the Observe and Nonjudge facets are important or not. The participants in this study gave an extended perspective that there is a possibility that the external attention to stimuli could be the primary phase of meditation but, as meditation practice deepens, the external world fades and more focus is given to the internal world such as feelings and emotions. This meditation process from beginner to experienced meditator has been explained in other research studies (Donald, 2019; Eknath, 2017; Yousaf, 2021), although it may certainly depend on the specific type of meditation practiced. The item wording on the Observe facet may not be relevant to the specific meditative practices of the participants in the present study, because the item content is more indicative of noticing the external stimuli, such as “It is important to me to stay alert to the sensations of water on my body while taking shower or bath” (Item 1). Ancient texts such as the Vedas describe meditation as the work of internal process/inner faculty consisting of “mind, intellect, and ego” rather than external stimuli, events, and environment (Sharma, 2015). Additionally, one of the types of meditation, Rajayoga, also considered as the king of all the yogas, centers its attention towards mental aspects rather than physical ones (Agarwal et al., 2020; Daniel, 2011; Vivekananda, 2009). Thus, the items on the Observe facet were found to be less important to the meditators recruited in this study. However, a larger sample is necessary to explore this in more detail.

In the Nonjudge facet, the items required the participants to classify their thoughts, feelings, and emotions as either good or bad or as normal versus abnormal. The participants in the interview stated their difficulty in understanding, judging, and categorizing their experiences in terms of these two binary categories, which is not the usual practice for them.

The focus of the meditators was not to engage with a thought or emotion, label it, or describe it, but to remain detached from it and let it pass. A study conducted by Lusnig et al. (2020) on Zen meditators clearly mentions that, for long-term meditation practitioners, any passing thought is not classified as either good or bad, but it is allowed to pass by knowing that it is transient in nature. Cross-cultural studies conducted on emotional expression and regulation by Eid and Diener (2001) as well as Gruber et al. (2011) and also a study on the FFMQ-Tamil version (Raman et al., 2023) have confirmed the difficulty in marking responses involving judging good or bad, normal or abnormal, i.e., on the Nonjudge items.

Overall, this study confirms the results found in previous research involving meditators that the Act with Awareness and Nonreact facet items are perceived to be the most important ones of the five facets assessed by the FFMQ. The instability of the Describe items was replicated in this study as the items in this facet were viewed as moderately important by the meditators in this study. Although the sample size was small, the selection of participants resulted in a fairly accurate representation of meditators in India.

This study cannot be generalized to all the religious, yogic, and meditative practices of India but is best considered as preliminary work on the utility of mindfulness assessments, specifically, the FFMQ with non-MBI and non-Buddhist meditators in the Indian context. There is a need for more cross-cultural validation studies involving both meditators and non-meditators as well as mixed-method approaches (Christopher et al., 2012; Deng et al., 2011; Haas & Akamatsu, 2019). Recently, Oman (2023) recommended that viewpoints from varied cultural and religious backgrounds should be incorporated to make mindfulness global concept and practice. The presentation of importance questions along with the actual FFMQ

questions and the use of cognitive interviewing to deepen our understanding of the conceptual differences on the items of the FFMQ is a unique method that was employed in this study. More such studies will be useful to promote a deeper understanding of cross-cultural differences and generalizability of mindfulness assessment tools within the Indian context. India has varied meditative practices and is the home of yoga and meditative practices; thus, a larger sample size should be recruited, and replication studies should be conducted to further explore the conceptual basis and usefulness of mindfulness assessment tools in India which were originally developed and utilized in the West. This includes replication of this study with mindfulness practitioners in India whose practices were acquired in an MBI context. An additional interesting dimension here would be to determine to what extent Indian cultural contexts may then influence such practices, as MBIs are generally not explicit about topics such as morality (Krägeloh, 2016).

6.5. Limitations

Like any study, the present study is not without limitations. This study cannot be generalized to all the regions in India, due to its constrained sample size, type of meditation practice, recruitment of long-term meditators. Further studies should recruit a larger sample size, and different comparative groups such as short-term meditators, long-term meditators, and those with no prior experience with meditation. Samples practicing different types of meditation practice should be recruited and assessed using other available mindfulness assessment tools, to explore the utility of these assessment tools in the Indian context.

Chapter 7: Discussion and Conclusion

This thesis is intended to be a catalyst for many future research studies about the cultural generalizability of mindfulness within India. India is a country embedded with geographical, linguistic, religious, and demographic diversity. This research thesis attempted to understand the concept and practice of mindfulness, and explore the usefulness of a multidimensional (five-factor) model of mindfulness as assessed by the FFMQ in the Indian context.

As outlined in Chapter 2, Shakyamuni Buddha and the journey of Buddhism has a deep sense of belongingness to India. Geographically, Shakyamuni Buddha attained awakening in Bodh Gaya (Bihar region), taught the first sermon to five disciples in Sarnath, and rested his last breath under the Sala grove in Kushinagar, which are located in present-day Uttar Pradesh region of India. To commemorate Buddha and his teachings, a stupa has been built in Sarnath (Schumann, 2003). In the journey towards enlightenment, it has been reported that Shakyamuni Buddha's first teacher was Āḷāra Kālāma who taught Buddha early meditation known as the *dhyānic* state (Wynne, 2007). Once Āḷāra Kālāma felt that Shakyamuni Buddha had the same stage as his, he invited Buddha to lead his community but Shakyamuni Buddha had quest for more, so he parted ways from Āḷāra Kālāma and met Udraka Rāmaputra who taught him more advanced meditation known as *arūpa samāpatti* (Armstrong, 2004; Eliade, 2009; Wynne, 2007). The literature review also suggests that the concept and practice of mindfulness was well embedded in the Indian context in varied ways and formats much before it was introduced by Shakyamuni Buddha in the Buddhist practice. Various ancient texts prominent in India such as the Rigveda, Bhagavad Gita, and Ramayana have outlined the practice of mindfulness in various ways such as breath regulation,

meditation, chanting, contemplative techniques, postures (*hatha yoga*), and concentrative/focused meditation. In the Indian context, there is no single, clear synonymous word to denote mindfulness but the concepts/dimensions of mindfulness have been understood and practiced as *Dhyana*, meaning contemplation, meditation, heightened awareness, attention, and non-evaluative stance.

The present-day construct of mindfulness as understood and practiced in psychology introduced by Jon Kabat-Zinn in the late 1970s. Extensive research output on the subject of mindfulness can be noted from the Western countries, such as the USA and Europe as mentioned in Chapter 1 of this thesis. Only recently, has there been a slight increase in research related to mindfulness from India (Baminiwatta & Solangaarachchi, 2021). This research interest has been witnessed in relation to understanding the utility of various MBI programs on different population within the Indian context. To understand the mechanism of action of the MBIs (Baer et al., 2006; Carlson et al., 2007), many mindfulness assessment tools has been developed in the US and validated in Europe. However, only one study by Mandal et al. (2016) explored psychometric properties of FFMQ in India, highlighting the need for more studies related to exploring and validating mindfulness assessment tools in the Indian context.

Identifying and responding to this need for more work to be conducted in a culturally, geographically, and linguistically diverse country like India required careful planning and execution of series of studies. This is not an exhaustive or definitive study addressing all the nuances of cultural generalizability of mindfulness assessments in the Indian context, but as mentioned earlier, this should be considered as the foundation for future research within the

Indian context related to this topic. Keeping this in mind, this research thesis was divided into three phases, and each phase had a specific research question to be explored and answered. Each phase/study followed logically from the previous phase/study making the process of this thesis a linear journey. The overarching aim of all the three phases was to be able to explore to what extent the multidimensional model (five-facet) has relevance in the Indian context.

The first phase of the study validated the FFMQ-original English language version for use with participants recruited from India (Raman et al., 2021). This study recruited participants (general population) with no prior experience with meditation, living in the northern region of India, and were fluent in English language. The results indicated that the multidimensional (five-factor) model of mindfulness as assessed by FFMQ is suitable for use with the sample. No dimension/facet/subscale was found to be redundant but at item level, three items from the Describe facet (Items 12, 16, and 22) were found to be misfitting, both in CFA and Rasch analysis. This misfit could be because of the item wording creating confusion in marking the responses on the specific items of the Describe facet. The three misfitting items of the Describe facet found in the Phase 1 study involved either a tendency or ability to put feelings, thoughts, and beliefs into words easily, such as Item 7 “I can easily put my beliefs, opinions, and expectations into words” indicates an ability to perform this action “easily”. The word “easily” is ambiguous, making it difficult for the participants to mark. Similarly, Item 32 “My natural tendency is to put my experiences into words” is specifically indicative of tendency which may or may not be the preferred means for participants due to cultural reasons as explained further.

Another reason for the item misfit from a cultural point of view could be that the communication style adopted by Indian population is typically a high-context communication style wherein the intention and focus of communication is to preserve harmony instead of just accuracy of information (Nishimura et al., 2008). Thus, the item wording reflecting ability and tendency might not accurately fit as it is not the preferred outcome to express through words accurately. Also, the high-context communication involves more non-verbal communication as well as value placed on introversion is higher, there is less belief in long talks which might be a social phenomenon inhibiting participants from verbalizing each and every aspect of their life, such as their thoughts, beliefs, feelings, and emotions to others (Lewis, 2005).

Phase 1 study demonstrated that the modified FFMQ-English language version could be utilized in India (Raman et al., 2021) but considering that the sample recruitment was restrictive in age range, and language, the second study (Phase 2, Chapter 5) in this thesis, recruited participants from wider age range (18 years and above) and translated the FFMQ-English language version into the Tamil language (FFMQ-T). Only this specific language translation was conducted because, a Hindi language version of FFMQ (FFMQ-H) was already validated by Mandal et al. (2016) catering to the majority of the population in Northern India. A Gujarati version of FFMQ is also available as part of an unpublished Master's dissertation by Patel and Saha (2017) catering to the West and Central India. In the East of India, Bengali is not the only language spoken in the region but multiple languages and dialects are spoken, making it difficult to translate and access this region of India. In South India, large concentration of population is fluent in Tamil. Tamil is considered to be part of the ancient Dravidian language which has been credited as “classical language” in

India (Krishnamurti, 2003). It is the oldest spoken language presently in existence in the world (Kannan, 2014). It is spoken and also considered as official language in other countries apart from India, such as Singapore, and Sri Lanka (Mesthrie, 2008).

Given the wide popularity of the Tamil language in South India as well as in other countries, the FFMQ-English language was translated into a Tamil language version. The total sample recruited for this study was 303 participants (general population) located in the Tamil Nadu region of South India with the majority population speaking Tamil in their daily life. Participants were asked to rate their responses on the items of the translated Tamil language version of FFMQ. Due to undifferentiated responding across the items in the questionnaire, three participants were excluded from the final analysis. The data of 300 participants were analyzed using Rasch analysis. Throughout Phase 1 and Phase 2 (Chapter 4 & 5) in this thesis, the Rasch reporting guidelines as outlined by Tennant and Conaghan (2007) were followed for Rasch results.

Iterative Rasch analysis could not resolve consistent misfit of the Observe facet items. Using a subtest approach, a higher-order fit of the FFMQ-T could be achieved after deletion of additional items from each of the remaining four facets. The resulting final model for the FFMQ-T questionnaire was a four-factor solution (Describe, Act with Awareness, Nonjudge, and Nonreact) with 22 items in total (Raman et al., 2023). The ordinal-to-interval conversion tables provided in this study ensured that the FFMQ-T can be used with enhanced precision and parametric statistics. These results were not dissimilar to the other version in similar populations such as the Hindi version of FFMQ (Mandal et al., 2016) which found Observe facet to be misfitting.

This study had a few limitations, as it continued to question the generalizability of FFMQ in the Indian context. This study recruited a sample fluent in a specific language, belonging to a specific geographical context, and those who had no significant prior experience with meditation, making it limited in its generalizability. Many researchers in the past have identified the need to recruit culturally diverse sample, meditators sample to explore the cultural generalizability of the multidimensional (five-factor) model of mindfulness (Christopher et al., 2012; Deng et al., 2011; Gordon, 2018; Haas & Akamatsu, 2019; Oman, 2023; Tran et al., 2013). Thus, the effects of familiarization with meditation on the comprehensibility of FFMQ items should be explored specifically, including the potential for response shift as people increase in meditation skill.

Little is known about the extent to which FFMQ represent content that could be considered relevant for experienced meditators in Indian cultural and spiritual contexts (i.e., non-MBI context). For this purpose, a sequential mixed-method explanatory approach (Cameron, 2009) was used for this study (Phase 3, Chapter 6). In this study, six long-term meditators practicing meditation for more than 10 years associated with three different large-scale meditation organizations in India were recruited. Participants completed the standard English-language FFMQ as well as a version inquiring about the perceived importance of each FFMQ item, followed by a retrospective cognitive interview to understand the reasons for marking certain responses. Inter-rater reliability for the entire scale, content validity index for each subscale, and range for each importance item across the participants was calculated. In addition to the quantitative analysis, qualitative statements from the cognitive interviews were used to explore the reasons for high and low ratings of some of the items identified through the quantitative analysis.

Most of the items on the FFMQ facets Act with Awareness (75%), Nonreact (85.7%) were found to have high agreement among the meditators as they rated it either 4 or 5 in the 5-point Likert scale, and 87.5% of the items of the Describe facet were found to have general agreement amongst the meditators. While there was participant agreement in terms of the relevance of the majority of FFMQ items, the Observe and Nonjudge facets were seen to have questionable face validity.

Observe has been found to be a misfit in previous studies in India (Mandal et al., 2016; Raman et al., 2023) conducted with general population. The reason for why the items on the Nonjudge facet were found to be categorized under low agreement were found in the qualitative statements derived from the transcripts of the cognitive interviews of the participants. Specifically, the items on the Nonjudge facet asked the participants to classify their thoughts, feelings, and emotions as either good or bad; normal or abnormal. This duality in defining or classifying was reported to be problematic. This has also been found in the study involving general population marking their responses on FFMQ-Tamil language version. A study conducted by Lusnig et al. (2020) on Zen meditators clearly mentions that for long-term meditation practitioners, any passing thought is not classified as either good or bad but it is allowed to pass by knowing its transient nature.

This study has limited generalizability as it recruited small experienced meditators sample, but it can be considered as a preliminary work on the utility of mindfulness assessments, specifically, using the FFMQ with the meditators in the Indian context. There is still a need for more cultural validation studies involving both meditators and non-

meditators using mixed method approach to be able to make definitive conclusions of the utility of FFMQ with meditators belonging to the non-MBI context in India.

7.1. Integrated discussion and conclusion

Chapter 2 of the thesis clearly established the role India plays in the understanding of mindfulness and also points out the dearth of literature and empirical work supporting the explanation of mindfulness as a multidimensional model, namely the five-factor model (Baer et al., 2006) as understood in the Western context. Considering the importance of exploring this in the Indian context, this thesis (Chapter 4) validated the most widely used FFMQ-English language version (Baer et al., 2006) in the Indian context. India is a diverse country in terms of language, culture, geography, and meditation practices; thus, a subsequent study (Phase 2, as outlined in Chapter 5) translated the FFMQ into Tamil language version and attempted to validate a five-factor model. Both these studies recruited participants belonging to general population, with no significant prior experience of meditative practices.

Because the original validation study of FFMQ recruited both meditators and non-meditators (Baer et al., 2006; 2008), in the third phase of this thesis (Chapter 6), long-term meditators belonging to the non-MBI context were recruited to explore and understand whether the items of FFMQ are considered to be important, and if not, explore the reasons for it. All the three studies showed variable results as shown in Table 7.1. below.

Table 7.1.

Summary of facets found important in three phases of this research thesis.

Phase number	Language	Sample	Solution	Total number of items
Phase 1	FFMQ-English	300 participants (general population) from North India	Five-factor model	36-item questionnaire (Items 12, 16, & 22 of Describe facet deleted)
Phase 2	FFMQ-Tamil	300 participants (general population) from South India	Four-factor model (without Observe facet)	22-item questionnaire (Observe facet removed, 3 items: Items 7, 22, and 32 of Describe facet, Item 13 from AA, Items 17 and 35 from Nonjudge, & Items 19, 24, 29, and 33 from Nonreact facet deleted.
Phase 3	FFMQ-English importance questions	6 long term meditators from different parts of India	Two-factor considered important (Act with Awareness & Nonreact)	14-item questionnaire without Describe facet, except Item 36 and Item 39, the rest of the Observe and Nonjudge facet were deleted.

The multidimensional model, specifically the five-factor model seems to be working with the general population, overall, with an FFMQ-English language version. But a reduced multidimensional model (specifically two-dimensional) with Act with Awareness and Nonreact facets was found to have appropriate content validity with the meditators sample in the Indian context. The results show variability in relevance of facets of the FFMQ depending on the population under study. From the perspective of ratings provided by general population on the FFMQ-English language version, a higher-order construct of mindfulness is tenable using the multidimensional model whereas the findings from the meditators sample confirm two dimensions/facets/subscales to be indicative of higher order construct of mindfulness. The potential reasons for these findings in the Phase 3 (Chapter 6) of the thesis have been explained.

7.1.1 Overlap and differences of Buddhist mindfulness, contemporary mindfulness, and evidence from meditators from India

Over the past decade, there has been growing interest in knowing and understanding whether the mindfulness as assessed and interpreted in contemporary psychology is similar or different to the Buddhist understanding of mindfulness (Christopher et al., 2009; 2012; Ditrich, 2016; Feng et al; 2017; Krägeloh, 2013; Monteiro et al., 2015). There was an entire special issue in the journal *Contemporary Buddhism* in the year 2011 focusing on diverse perspectives and intersection of science and dharma related to mindfulness. Also, one of the issues (Volume 6, issue 1) published in the year 2015 in the *Mindfulness* journal included many articles exploring this link between contemporary understanding and Buddhist mindfulness, lineage of mindfulness, and need for integration of science and Buddhism (Amaro, 2015; Gordon et al., 2014; Greenberg & Mitra, 2015; Monteiro et al., 2014; Purser, 2014; Shonin & Gordon, 2014). These studies have outlined the conceptual differences in defining mindfulness, importance of mindfulness in Buddhist philosophy and how mindfulness is viewed in psychology, and whether the mindfulness assessment tools are truly able to handle the nuances found between both Buddhist mindfulness and mindfulness in psychology.

Right intention has been given importance in the Noble Eightfold Path as well as in the mediation practices in India. The intention outlined in Buddhism is to alleviate greed, suffering (*dukkha*), ignorance, and craving which is similar to the practices followed in India by the mediators and the *yogis* but the means and ways are different (Gokhale, 2020). The focus of meditation practices in India is on transcendence/ Samadhi, thus the intention of practices is to connect and witness the deep inner self, also known as “nonchanging pure

consciousness” which helps in alleviating suffering and ignorance but generate bliss, and peace (Sharma, 2015, p.234). This could be viewed as goal-oriented mindfulness which was also found in the study by Feng et al. (2018). This aspect of right intention does not have any direct mention in conceptualization of mindfulness and mindfulness assessments in psychology (Ditrich, 2016; Gethin, 2014; Harvey, 2015; Salzberg & Kabat-Zinn, 1997).

This specific aspect of witnessing the deep inner self rather than the external stimuli could be a potential explanation for why items on the Observe subscale in the FFMQ were found to be less important by the experienced meditators in the Phase 3 study of this thesis. The external stimuli such as sounds, aromas, sights, and touch are seen to be means rather than the end products indicative of mindfulness, as the attention to physical body is viewed as a first stage, leading to attending to the inner faculty consisting of mind, ego, intellect, and *chitta* (memory bank) which further leads to the higher stage of witnessing the deep inner self. Thus, the noticing of external stimuli involves first stage physical body sensation which is not the ultimate goal of meditators in this study. The Vedic texts also highlights that the focus of meditators is on “expansion of consciousness beyond the day-to-day experience of duality” (Sharma, 2015, p.235).

Mindfulness in Buddhism is understood as consisting of aspects of evaluation and introspection whereas mindfulness in psychology focuses more on a stance of nonjudgment and non-evaluation, cultivating acceptance (Krägeloh, 2013). Ancient Indian scriptures and literature support both evaluative stance and acceptance. Evaluation of the *karma* (deeds and actions), also known as karma yoga has been emphasised in the Bhagavad Gita (Bhattacharjee, 2021; Tripurāri, 2010), using the power of *viveka* (discernment) to

differentiate between real and unreal, i.e., permanent or temporary have also been emphasized in the Vedas and Upanishads. This power of discernment has been correlated to higher intelligence, knowledge, and wisdom (Frawley, 2020; Perumpallikunnel, 2013). In the same continuum, Indian philosophy also underlines the importance of acceptance, such as the *Vijnamaya kosha* (sheath of wisdom) emphasizes self-acceptance and ability to witness own thoughts and feelings without getting entangled into it (Narayanan, 2007). It is believed that this is the “stage for increasing awareness of one’s defences, increasing psychological insight, and increasing mindfulness” (Atwal, 2010, p.155). The meditators recruited in the third phase of the research study indicated the difficulty in categorizing their thoughts, feelings, and emotions into *good or bad, normal or abnormal* as they found these to be strict and extreme categories. Although the quantitative results were indicative that the Nonjudge facet was unimportant for meditators, it should be explored further in future research considering that Indian philosophy emphasises on both acceptance and evaluation as described above.

Overall, the experienced India-based meditators in this research study (Chapter 6) categorized Act with Awareness and Nonreact facet as highly relevant, Describe facet as neutral, and indicated that the Observe and Nonjudge facets are not as important as the other two facets (Act with Awareness and Nonreact). It is important to note that mindfulness as a higher order construct can be assessed using modified FFMQ with the general population but an alternate assessment tool could be explored and implemented with the experienced meditators sample in the Indian context.

There are certain speculative concerns whether the level or intensity of meditation practice might also be important to consider in further research studies. Because the meditators in this study described that in their journey of meditation, during the early years of meditation practices, effort and focused attention had to be given to breath, posture, and noticing the external stimuli to stabilize their body but as they progress in their journey, the focus turn inwards and align to the goal of connecting with the Divine.

Also, the evidence from the Phase 3 results shows that the meditators scored higher in each subscale/facet on FFMQ actual questions, indicating that they are not less mindful but they find certain facets to be more in alignment to their practices than others. It could also possibly be due to a ceiling effect. Thus, different versions of the scale designed for different levels of meditators in their journey could be a possible alternative such as beginners in meditation practices (between 1-4 years), mid-level practitioners (5-9 years), and experienced practitioners (10 years and above). This will give more in-depth information about the validity of each subscale for usage in the Indian context.

This research thesis is not claiming that it is representative of the entire population of India but speculating whether mindfulness as a single construct can be assessed using the multidimensional model of mindfulness (commonly the five-facet model) or different dimensions/facets/subscales need to be assessed individually in different contexts within India. This thesis is comprehensive but not an exhaustive account of cultural generalizability of multidimensional model of mindfulness in the Indian context. As this is the first study on such a large scale to be conducted in India with an overarching aim to explore cultural generalizability of the five-factor model of mindfulness in the Indian context, it is important

to examine the fine details and nuances in the understanding of mindfulness according to different cultural, religious, and spiritual contexts and explore the similarity and differences in the understanding and practice of mindfulness within different cultural contexts in order to bridge the gap and devise a more comprehensive mindfulness assessment tool in the future.

7.1.2 Monitoring and Acceptance Theory (MAT)

The previous section explored and considered some of the similarities between understanding mindfulness in Buddhist practices, Indian philosophy, and in psychology. The overlap in intentions, theory, and understanding provided reasoning to why Observe, Describe, and Nonjudge facets were found to be less important by the meditators in this research. The results of the first two phases of research recruiting general population (Chapter 4 & 5) in this thesis confirmed a modified five-factor and a modified four-factor model. These results are not dissimilar to previous studies conducted in the West and in India (Karl et al., 2020). But, the meditators sample in the third phase of the study found two factors/subscales/facets, Act with Awareness (monitoring) and Nonreact (acceptance) to be most important rather than a five-factor model. This raises concerns whether FFMQ (five-factor) model is ideal for use with meditators belonging to non-MBI context from India. This concern has wider applicability as even in the West, there has not been a lot of consensus whether FFMQ is an accurate measure for all practices, cultures, and geographies (Baer, 2014, 2015; Christopher et al., 2014; Grossman & Van Dam, 2011).

A possible alternative based on the results found in the Phase 3 of this thesis (Chapter 6) could be the two-factor model theorized as monitoring and acceptance theory (MAT, Lindsay & Creswell, 2017) which is more indicative/suitable for meditators belonging to

India. The MAT is based on the definition given by Bishop et al. (2004) consisting of two main components, i.e., “awareness/attention in the present moment, and openness/acceptance towards own experiences” (p.232). Attention/awareness and acceptance are two commonly named facets in the mindfulness definitions (Bishop et al., 2004; Quaglia et al., 2014). These two facets/components are usual processes in MBI (Chambers et al., 2009). In the MBI programs, the participants are taught to monitor or attend to the present-moment experiences, labeling the distractions but quickly returning the attention to the focus object (Lindsay & Creswell, 2017). They are also taught not to push away the unpleasantness or get entangled in the pleasant experiences but to notice the experiences without the need to change or alter them. Thus, the acceptance component/facet involves Nonreact, and nonevaluative stance.

In the Indian context, as explained above, witnessing or having heightened awareness of the deep inner self, introspective awareness is considered to be more important practice. Although the monitoring component explained in MAT involves attending to present-moment experience, the meditation practices, spiritual practices in India focuses on transcendence beyond the outer/external components and connection with the *Supreme* or *Divine*. Thus, there is focused and sustained attention and awareness of the presence of the Divine and connection with it, and to let go of any transient thought, feeling, emotion, behavior, and external or internal stimuli. Because of this inherent practice of the meditators, the results found in Phase three of this research thesis do not seem to be especially surprising. Recent studies testing the MAT model has reported inconclusive results (Simione et al., 2021), making it difficult to ascertain in entirety whether it will be the suitable model for explaining results of the experienced meditators in this research. There is potential for further research studies to explore and test the validity of the MAT in the Indian context.

In summary, the Observe, Describe, and Nonjudge facet/dimensions seem to be unimportant for meditators in the Indian context because most of the focus is internal and not external whereas items of FFMQ in the Observe facet asks participants to mark responses on items focusing on noticing aromas, sounds, and sensations. Along the similar lines, the item wording of Nonjudge facet asks participants to categorize thoughts/feelings/emotions as good or bad whereas the advanced meditation practice does not involve maintaining an evaluative stance, but a nonevaluative, nonreactive stance. The Describe facet was found to be unimportant due to cultural reasons. Indian culture is a collectivist society, wherein introversion, harmony, respect, and regard in relationships are celebrated. Therefore, limiting the need to express the self in words always. The study conducted with experienced meditators in this thesis support the Bishop et al. (2004) definition as the participants found items on Act with Awareness (the awareness/attention dimension according to the definition), and Nonreact (acceptance) as more important than the other items belonging to other facets.

7.2. Limitations and future directions

This research thesis is catalyst for future work related to cultural generalizability of mindfulness assessment tools in India as well as for other countries interested in cross-cultural work in relation to mindfulness assessment tools. There are certain limitations to be acknowledged. This study cannot be considered as definitive due to recruitment of limited sample from such a large and diverse population of India. This thesis recruited participants majorly from urban metro cities/states such as New Delhi and Tamil Nadu for Phase 1 and Phase 2 (Chapter 4 and 5) and a few from other cities, such as Bengaluru (Karnataka), Chennai and Coimbatore (Tamil Nadu), Mumbai (Maharashtra), and Lucknow (Uttar

Pradesh) for Phase 3 (Chapter 6). Thus, there is scope to recruit more participants representative of each geographical location if the findings need to be generalized to entire India.

As noted earlier in Chapter 4 of the thesis that although English is considered to be subsidiary official language in India and there is some resistance to the use of Hindi in certain cities and states in India, this research thesis validated the FFMQ-English language version. It also translated and validated the FFMQ-English language version to Tamil language version. There is a need for more good quality translations to improve comprehensibility of the items in the questionnaire that can cater to different populations within India, such as Telugu, Marathi, and Malayalam language versions. By using good quality translated versions, the rural population in India, approximately 68.8% according to the Census of India (2011) can also be included in the study.

Further to geographical diversity, each city and state of India inhabits people practicing different religions and meditative practices as the Constitution of India clearly indicates freedom to practice any religion. All the prevalent religious and meditative practitioners could not be recruited in Phase 3 (Chapter 6) of the thesis. But the results derived from Phase 3 study indicate the need for more future work utilizing perceived importance questions and cognitive interviewing to gain in-depth understanding about the relevance of each item in the questionnaire and adapt the questionnaire more culturally or context specific. The importance questions are important to be included in future work because there are chances of potential ceiling or flooring effects (evident in Phase 3 study). It means that the participants might score higher in the actual questionnaire but in their daily practice they

might find the items of the questionnaire redundant. It is important to note that none of the samples recruited in this research thesis included clinical sample. As mentioned earlier, mindfulness assessment tools are widely utilized to understand the mechanism of action of the MBIs. Thus, a diverse sample inclusive of students, clinical sample, meditators, and religious practitioners should be recruited to draw definitive conclusions about the relevance and appropriateness of a questionnaire in a specific setting.

The findings from Phase 3 also indicates need for studies in the future using the Philadelphia Mindfulness Scale (PHLMS) based on the two-dimensional monitoring and acceptance theory with a meditators sample. PHLMS is a 20-item questionnaire, with two main factors (awareness and acceptance), with items marked on a 5-point Likert scale. As the Phase 3 study indicated that in the journey of meditation, certain facets of the questionnaire become unimportant, the future research should explore and validate different assessment tools based on the levels of meditation practices, such as novice meditators, mid-level meditators, and experienced meditators. This would inform the decision of other researchers and academicians to select appropriate and relevant tool for assessment of mindfulness in meditators.

References

- Abdel-Khalek, A. M. (2011). Islam and mental health: A few speculations. *Mental Health, Religion & Culture, 14*(2), 87–92. <https://doi.org/10.1080/13674676.2010.544867>
- Abdulkerim, N., & Li, C. (2022). How applicable are mindfulness-based interventions to Muslim clients in the U.S.? *Professional Psychology: Research and Practice, 53*(3), 253–265. <https://doi.org/10.1037/pro0000454>
- Abujaradeh, H., Colaianne, B. A., Roeser, R. W., Tsukayama, E., & Galla, B. M. (2020). Evaluating a short-form Five Facet Mindfulness Questionnaire in adolescents: Evidence for a four-factor structure and invariance by time, age, and gender. *International Journal of Behavioral Development, 44*(1), 20–30. <https://doi.org/10.1177/0165025419873039>
- Afshan, A., Askari, I., & Manickam, L. S. S. (2015). Shyness, self-construal, extraversion–introversion, neuroticism, and psychoticism: A cross-cultural comparison among college students. *SAGE Open, 5*(2). <https://doi.org/10.1177/2158244015587559>
- Afrouzi, O. A. (2021). Humanitarian behavior across high-/low-context cultures: A comparative analysis between Switzerland and Colombia. *Journal of International Humanitarian Action, 6*(2). <https://doi.org/10.1186/s41018-020-00088-y>
- Agarwal, K., Fortune, L., Heintzman, J. C., & Kelly, L. L. (2020). Spiritual experiences of long-term meditation practitioners diagnosed with breast cancer: An interpretative phenomenological analysis pilot study. *Journal of Religion and Health, 59*(5), 2364–2380. <https://doi.org/10.1007/s10943-020-00995-9>
- Aguado, J., Luciano, J. V., Cebolla, A., Serrano-Blanco, A., Soler, J., García-Campayo, J. (2015). Bifactor analysis and construct validity of the Five facet mindfulness questionnaire (FFMQ) in non-clinical Spanish samples. *Frontiers in Psychology, 6*, 404. <https://doi.org/10.3389/fpsyg.2015.00404>
- Al Ozairi, A., Alsaeed, D., Al-Ozairi, E., Irshad, M., Crane, R. S., & Almoula, A. (2023). Effectiveness of virtual mindfulness-based interventions on perceived anxiety and depression of physicians during the COVID-19 pandemic: A pre-post experimental study. *Frontiers in Psychiatry, 13*, 1089147. <https://doi.org/10.3389/fpsyg.2022.1089147>
- Allen, M., Dietz, M., Blair, K.S., Van Beek, M., Rees, G., Vestergaard-Poulsen, P., Lutz, A., & Roepstorff A. (2012). Cognitive-affective neural plasticity following active-

- controlled mindfulness intervention. *The Journal of Neuroscience*, 32(44), 15601-15610. <https://doi.org/10.1523/JNEUROSCI.2957-12.2012>
- Amaro, A. A. (2015). Holistic mindfulness. *Mindfulness*, 6(1), 63–73. <https://doi.org/10.1007/s12671-014-0382-3>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Association.
- An, S., Ji, L. J., Marks, M., & Zhang, Z. (2017). Two sides of emotion: Exploring positivity and negativity in six basic emotions across cultures. *Frontiers in Psychology*, 8, 610. <https://doi.org/10.3389/fpsyg.2017.00610>
- Anālayo, B. (2011). Brahmā’s invitation, the Ariyapariyesanā-sutta in the light of its Madhyama-āgama parallel. *Journal of the Oxford Centre for Buddhist Studies*, 1, 12–38.
- Anālayo, B. (2019). *The Buddha’s teaching on Anatta*. Buddhist Publication Society.
- Anālayo, B. (2021). The Buddha’s pre-awakening practices and their mindful transformation. *Mindfulness*, 12(8), 1892–1898. <https://doi.org/10.1007/s12671-021-01646-0>
- Anālayo, B. (2022). Situating mindfulness, Part 1: Early Buddhism and scientific research in psychology. *Mindfulness*, 13(3), 577-583. <https://doi.org/10.1007/s12671-021-01673-x>
- Anchorena, M., Ghiglione, F., & Nader, M. (2017). Psychometric properties of the Five Facet Mindfulness Questionnaire in an Argentine sample. *Archives of Assessment Psychology*, 7(1), 29-41.
- Anderson, C. (2018). *The life of the Buddha*. Routledge.
- Andrich, D., Sheridan, B., & Luo, G. (2009). *RUMM 2030*. RUMM Laboratory.
- Armstrong, K. (2004). *Buddha*. Penguin Books.
- Arvidsson, A. (2018). *Meditation, attention, and the brain: Function, structure and attentional performance* [Bachelor’s degree project]. University of Skövde.
- Aśvaghōṣa [edited by Cowell, E. B.] (1893). *The Sanskrit text of Buddha-Carita*. Supplementary material from Aśvaghōṣa ‘s The Buddhacarita: Or, acts of the Buddha by Johnston, E. H. (1935).

- Atwal, S. (2010). *Indian psychology: The connection between mind, body, and the universe*. [Doctoral thesis, Pepperdine University]. Digital Commons. <https://digitalcommons.pepperdine.edu/etd/64>
- Baer, R. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 10*(2), 125–143. <https://doi.org/10.1093/clipsy.bpg015>
- Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: the Kentucky inventory of mindfulness skills. *Assessment, 11*(3), 191–206. <https://doi.org/10.1177/1073191104268029>
- Baer, R., Smith, G., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*(1), 27–45. <https://doi.org/10.1177/1073191105283504>
- Baer, R., Smith, G., Lykins, E. L. B., Button, D., Krietemeyer, J., Sauer, S., Walsh, E., Duggan, D., & Williams, J. M. G. (2008). Construct validity of the Five Facet Mindfulness Questionnaire in meditating and non-meditating samples. *Assessment, 15*(3), 329–342. <https://doi.org/10.1177/1073191107313003>
- Baer, R. A., Carmody, J., & Hunsinger, M. (2012). Weekly change in mindfulness and perceived stress in a mindfulness-based stress reduction program. *Journal of Clinical Psychology, 68*(7), 755–765. <https://doi.org/10.1002/jclp.21865>
- Baer, R. A. (2019). Assessment of mindfulness by self-report. *Current Opinion in Psychology, 28*, 42–48. <https://doi.org/10.1016/j.copsyc.2018.10.015>
- Baer, R., Gu., J., & Strauss, C. (2022). Five Facet Mindfulness Questionnaire (FFMQ). In O. N. Medvedev, C. U. Krägeloh, R. J. Siegert, & N. N. Singh (Eds.), *Handbook of Assessment in Mindfulness Research*. Springer.
- Balalla, S. K., Medvedev, O. N., Siegert, R. J., & Krägeloh, C. U. (2019). Validation of the WHOQoL-BREF and shorter versions using Rasch analysis in traumatic brain injury and orthopaedic populations. *Archives of Physical Medicine and Rehabilitation, 100*(10), 1853-1862. <https://doi.org/10.1016/j.apmr.2019.05.029>
- Baminiwatta, A., & Solangaarachchi, I. (2021). Trends and developments in mindfulness research over 55 years: A bibliometric analysis of publications indexed in Web of Science. *Mindfulness, 12*(9), 2099-2116. <https://doi.org/10.1007/s12671-021-01681-x>

- Barcaccia, B., Baiocco, R., Pozza, A., Pallini, S., Mancini, F., & Salvati, M. (2019). The more you judge the worse you feel. A judgmental attitude towards one's inner experience predicts depression and anxiety. *Personality and Individual Differences*, 138, 33-39. <https://doi.org/10.1016/j.paid.2018.09.012>
- Bart, L. (2012). A new paradigm for understanding spirituality: The Buddhist concept of Dukka. *Archive for the Psychology of Religion*, 34(1), 43-58.
- Bass, C., Van Nevel, J., & Swart, J. (2014). A comparison between dialectical behavior therapy, mode deactivation therapy, and acceptance and commitment therapy in the treatment of adolescents. *International Journal of Behavioral Consultation and Therapy*, 9(2), 4–8. <https://doi.org/10.1037/h0100991>
- Beatty, P. C., & Willis, G. B. (2007). Research synthesis: The practice of cognitive interviewing. *Public Opinion Quarterly*, 71(2), 287–311. <https://doi.org/10.1093/poq/nfm006>
- Beloved, M. M. (2010). *Yoga Sūtras of Patañjali (Commentaries)*. “Author”.
- Belzer, F., Schmidt, S., Lucius-Hoene, G., Schneider, J. F., Orellana-Rios, C. L., & Sauer, S. (2013). Challenging the construct validity of mindfulness assessment- A cognitive interview study of the Freiburg mindfulness inventory. *Mindfulness*, 4(1), 33-44. <https://doi.org/10.1007/s12671-012-0165-7>
- Bergomi, C., Tschacher, W., & Kupper, Z. (2013). The assessment of mindfulness with self-report measures: Existing scales and open issues. *Mindfulness*, 4(3), 191-202. <https://doi.org/10.1007/s12671-012-0110-9>
- Bernay, R. (2012). *Mindfulness and the beginning teacher*. [Doctoral thesis, Auckland University of Technology]. Tuwhera. <http://hdl.handle.net/10292/4497>
- 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. <http://dx.doi.org/10.1177/1745691615594577>
- Bhattacharjee, G. (2021). A study on karmayoga in Bhagavad Gita, *Quest Journal of Research in Humanities and Social Science*, 9(3), 10-19.
- Bhattacharya, A. (2006). *Hindu dharma: Introduction to scriptures and theology*. iUniverse.
- Bhikkhu B, (2005). *In the Buddha's Words*. Wisdom Publications, p.10.

- Birtwell, K., Williams, K., Van Marwijk, H., Armitage, C. J., & Sheffield, D. (2019). An exploration of formal and informal mindfulness practice and associations with wellbeing. *Mindfulness*, *10*(1), 89–99. <https://doi.org/10.1007/s12671-018-0951-y>
- Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., Segal, Z. V., Abbey, S., Speca, M., Velting, D., & Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, *11*(3), 230–241. <https://doi.org/10.1093/clipsy.bph077>
- Böge, K., Schaeuffele, C., Jacobsen, P., Chadwick, P., Ergen, E., Hahne, I., Bergmann, N., Boettcher, J., Wingenfeld, K., Bajbouj, M., & Hahn, E. (2020). Validation of the German version of the Southampton mindfulness questionnaire (SMQ). *Mindfulness*, *11*(9), 2219–2234. <https://doi.org/10.1007/s12671-020-01447-x>
- Bobak, C., Barr, P., & O'Malley, A. (2018). Estimation of an inter-rater intra-class correlation coefficient that overcomes common assumption violations in the assessment of health measurement scales. *BMC Medical Research Methodology*, *18*, 93. <https://doi.org/10.1186/s12874-018-0550-6>
- Bodhi, B. (2011). What does mindfulness really mean? A canonical perspective. *Contemporary Buddhism*, *12*(1), 19-39. <https://doi.org/10.1080/14639947.2011.564813>
- Bohlmeijer, E., ten Klooster, P. M., Fledderus, M., Veehof, M., & Baer, R. (2011). Psychometric properties of the Five Facet Mindfulness Questionnaire in depressed adults and development of a short form. *Assessment*, *18*(3), 308–320. <https://doi.org/10.1177/1073191111408231>
- Boorstein, S. (1996). *Don't just do something, sit there*. HarperOne.
- Bourgeault, C. (2009). *Centering prayer and inner awakening*. Cowley Publications.
- Brandmeyer, T., Delorme, A., & Wahbeh, H. (2019). The neuroscience of meditation: Classification, phenomenology, correlates and mechanisms. *Progress in Brain Research*, *244*, 1-29. <https://doi.org/10.1016/bs.pbr.2018.10.020>
- Bricker, J. B., Bush, T., Zbikowski, S. M., Mercer, L. D., & Heffner, J. L. (2014). Randomized trial of telephone-delivered acceptance and commitment therapy versus cognitive behavioral therapy for smoking cessation: A pilot study. *Nicotine & Tobacco Research*, *16*(11), 1446–1454. <https://doi.org/10.1093/ntr/ntu102>

- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822–848. <https://doi.org/10.1037/0022-3514.84.4.822>
- Brown, M. F., & Selig, R. W. (2000). *The life of the Buddha: Ancient texts and modern interpretations*. University of California Press.
- Buchheld, N., Grossman, P., & Walach, H. (2001). Measuring mindfulness in insight meditation (vipassana) and meditation-based psychotherapy: The development of the Freiburg mindfulness inventory (FMI). *Journal for Meditation and Meditation Research*, 1, 11–34.
- Burzler, M., A., & Tran, U., S. (2022). Dispositional mindfulness and the process of mindfulness cultivation: A qualitative synthesis and critical assessment of the extant literature on the Five Facet Mindfulness Questionnaire (FFMQ). *Collabra: Psychology*, 8(1), 56176. <https://doi.org/10.1525/collabra.56176>
- Cameron, R. (2009). A sequential mixed model research design: Design, analytical and display issues. *International Journal of Multiple Research Approaches*, 3(2), 140–152. <https://doi.org/10.5172/mra.3.2.140>
- Cardaciotto, L. A., Herbert, J. D., Forman, E. M., Moitra, E., & Farrow, V. (2008). The assessment of present-moment awareness and acceptance: The Philadelphia Mindfulness Scale. *Assessment*, 15(2), 204–223. <https://doi.org/10.1177/1073191107311467>
- Carlson, L. E., & Brown, K. W. (2005). Validation of the Mindful attention awareness scale in a cancer population. *Journal of Psychosomatic Research*, 58(1), 29–33. <https://doi.org/10.1016/j.jpsychores.2004.04.366>
- Carlson, L. E., Speca, M., Farris, P., & Patel, K. D. (2007). One year pre-post intervention follow-up of psychological, immune, endocrine and blood pressure outcomes of mindfulness-based stress reduction (MBSR) in breast and prostate cancer outpatients. *Brain, Behavior, and Immunity*, 21(8), 1038–1049. <https://doi.org/10.1016/j.bbi.2007.04.002>
- Carpenter, J. K., Conroy, K., Gomez, A. F., Curren, L. C., & Hofman, S. G. (2019). The relationship between trait mindfulness and affective symptoms. A meta-analysis of the Five Facet Mindfulness Questionnaire (FFMQ). *Clinical Psychology Review*, 74, 101785. <https://doi.org/10.1016/j.cpr.2019.101785>

- Cebolla, A., García-Palacios, J., Soler, J., Guillen, V., Baños, R., & Botella, C. (2012). Psychometric properties of the Spanish validation of the Five Facets of Mindfulness Questionnaire (FFMQ). *European Journal of Psychiatry*, 26(2), 118-126. <https://doi.org/10.4321/S0213-61632012000200005>
- Census of India. (2011). *Primary Census Abstracts, Registrar General of India*. Ministry of Home Affairs, Government of India. Available at: <http://www.censusindia.gov.in>
- Census of India. (2011). *Rural urban distribution of population*. Registrar General and Census Commissioner, Ministry of Home Affairs, Government of India. Available at: <http://www.censusindia.gov.in>
- Chadwick, P., Hember, M., Symes, J., Peters, E., Kuipers, E., & Dagnan, D. (2008). Responding mindfully to unpleasant thoughts and images: Reliability and validity of the Southampton Mindfulness Questionnaire (SMQ). *The British Journal of Clinical Psychology*, 47(4), 451–455. <https://doi.org/10.1348/014466508X314891>
- Chambers, R., Gullone, E., & Allen, N. B. (2009). Mindful emotion regulation: An integrative review. *Clinical Psychology Review*, 29(6), 560–572. <https://doi.org/10.1016/j.cpr.2009.06.005>
- Chandra, R., & Ranjan, M. (2022). Artificial intelligence for topic modelling in Hindu philosophy: Mapping themes between the Upanishads and the Bhagavad Gita. *PLoS ONE*, 17(9), e0273476. <https://doi.org/10.1371/journal.pone.0273476>
- Chapman A. L. (2006). Dialectical behavior therapy: Current indications and unique elements. *Psychiatry*, 3(9), 62–68.
- Chen, K. K. (1966). *Buddhism in China: A historical survey*. Princeton University Press.
- Chen, W. H., Lenderking, W., Jin, Y., Wyrwich, K. W., Gelhorn, H., Revicki, D. A. (2014). Is Rasch model analysis applicable in small sample size pilot studies for assessing item characteristics? An example using PROMIS pain behavior item bank data. *Quality of Life Research*, 23(2), 485-493. <https://doi.org/10.1007/s11136-013-0487-5>
- Chiesa, A., Calati, R., & Serretti, A. (2011). Mindfulness based cognitive therapy for psychiatric disorders: A systematic review and meta-analysis. *Psychiatry Research*, 187(3), 441-453. <https://doi.org/10.1016/j.psychres.2010.08.011>

- Christopher, M. S., Christopher, V., & Charoensuk, S. (2009). Assessing “Western” mindfulness among Thai Theravāda Buddhist monks. *Mental Health, Religion & Culture, 12*(3), 303-314. <https://doi.org/10.1080/13674670802651487>
- Christopher, M. S., Neuser, N. J., Michael, P. G., & Baitmangalkar, A. (2012). Exploring the psychometric properties of the Five Facet Mindfulness Questionnaire. *Mindfulness, 3*(2), 124–131. <https://doi.org/10.1007/s12671-011-0086-x>
- Christopher, M. S., Woodrich, L. E., & Tiernan, K. A. (2014). Using cognitive interviews to assess the cultural validity of state and trait measures of mindfulness among Zen Buddhists. *Mindfulness, 5*(2), 145–160. <https://doi.org/10.1007/s12671-012-0160-z>
- Chowdhury, A. (2009). Buddha’s teachings and the social conditions of his time. *Indian Journal of Social Work, 70*(1), 87-99.
- Coomaraswamy, A. K. (2011). *Hinduism and Buddhism*. Golden Elixir Press.
- Crane, R., 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. <https://doi.org/10.1017/S0033291716003317>
- Creswell, J. D., & Lindsay, E. K. (2014). How does mindfulness training affect health? A mindfulness stress buffering account. *Current Directions in Psychological Science, 23*(6), 401-407. <https://doi.org/10.1177/0963721414547415>
- Csikszentmihalyi, M. & Csikszentmihalyi, I. S. (1992). *Optimal experience: Psychological studies of flow in consciousness*. Cambridge University Press.
- Cullen, M. (2011). Mindfulness-based interventions: An emerging phenomenon. *Mindfulness, 2*(3), 186–193. <https://doi.org/10.1007/s12671-011-0058-1>
- Daniel, R. (2011). *Exploring the Yogasūtra: Philosophy and Translations*. Continuum Press.
- Das, B. D. (2013). *Introduction to the Constitution of India* (21 ed.). LexisNexis.
- Davidson, R. J. (2010). Empirical explorations of mindfulness: Conceptual and methodological conundrums. *Emotion, 10*(1), 8–11. <https://doi.org/10.1037/a0018480>

- De Barros, V. V., Kozasa, E. H., de Souza, I. C. W., & Ronzani, T. M. (2014). Validity evidence of the Brazilian Version of the Five Facet Mindfulness Questionnaire (FFMQ). *Psicologia: Teoria e Pesquisa*, *30*(3), 317-327.
- De Bruin, E. I., Topper, M., Muskens, J. G. A. M., Bögels, S. M., & Kamphuis, J. H. (2012). Psychometric properties of the Five Facets Mindfulness Questionnaire (FFMQ) in a meditating and a non-meditating sample. *Assessment*, *19*(2), 187–197. <https://doi.org/10.1177/1073191112446654>
- Demarzo, M., Montero-Marin, J., Puebla-Guedea, M., Navarro-Gil, M., Herrera-Mercadal, P., Moreno-González, S., Calvo-Carrión, S., Bafaluy-Franch, L., & Garcia-Campayo, J. (2017). Efficacy of 8- and 4-session mindfulness-based interventions in a non-clinical population: A controlled study. *Frontiers in Psychology*, *8*, 1343. <https://doi.org/10.3389/fpsyg.2017.01343>
- Deng, Y. Q., Liu, X. H., Rodriguez, M. A., & Xia, C. Y. (2011). The Five Facet Mindfulness Questionnaire: Psychometric properties of the Chinese version. *Mindfulness*, *2*(2), 123-128. <https://doi.org/10.1007/s12671-011-0050-9>
- Dhammacakkappavattana Sutta: Setting the Wheel of Dhamma in Motion. *Access to insight*. Translated by Bhikkhu, Thanissaro. 1993.
- Didonna, F. (2009). *Clinical handbook of mindfulness*. Springer.
- Dindo, L., Van Liew, J. R., & Arch, J. J. (2017). Acceptance and commitment therapy: A transdiagnostic behavioral intervention for mental health and medical conditions. *Neurotherapeutics*, *14*(3), 546–553. <https://doi.org/10.1007/s13311-017-0521-3>
- Ditrich, T. (2016). Buddhism between Asia and Europe: The concept of mindfulness through a historical lens. *Asian Studies*, *4*(1), 197-213. <https://doi.org/10.4312/as.2016.4.1.197-213>
- Dreyfus G., & Thompson E. (2008). *Attention and the regulation of ethically relevant mental states: An Abhidharmic view*. Paper presented at the Presentation at Mind and Life Summer Research Institute, New York.
- Donald, J. N., Sahdra, B. K., Van Zanden, B., Duineveld, J. J., Atkins, P. W. B., Marshall, S. L., & Ciarrochi, J. (2019). Does your mindfulness benefit others? A systematic review and meta-analysis of the link between mindfulness and prosocial behavior. *British Journal of Psychology*, *110*(1), 101-125. <https://doi.org/10.1111/bjop.12338>

- Easwaran, E. (2007). *The Upanishads (2nd ed)*. Nilgiri Press.
- Easwaran, E. (2011). *Essence of the Bhagavad Gita: A contemporary guide to yoga, meditation, and Indian philosophy*. Nilgiri Press.
- Eeles, J., & Walker, D. M. (2022). Mindfulness as taught in dialectical behaviour therapy: A scoping review. *Clinical Psychology & Psychotherapy*, 29(6), 1843-1853. <https://doi.org/10.1002/cpp.2764>
- Eid, M., & Diener, E. (2001). Norms for experiencing emotions in different cultures: Inter- and intranational differences. *Journal of Personality and Social Psychology*, 81(5), 869–885. <https://doi.org/10.1037/0022-3514.81.5.869>
- Eknath, E. (2017). The effect of meditation on internal and external world. *Indian Journal of Positive Psychology*, 8(3), 355-358.
- Eliade, M. (2009). *Yoga: Immortality and Freedom*. Princeton University Press.
- Elices, M., Pérez-Sola, V., Pérez-Aranda, A., Colom, F., Polo, M., Miguel, L., López, M. & Gárriz, M. (2022). The effectiveness of mindfulness-based cognitive therapy in primary care and the role of depression severity and treatment attendance. *Mindfulness*, 13(2), 362–372. <https://doi.org/10.1007/s12671-021-01794-3>
- Eltaiba, N., & Harries, P. (2015). Mindfulness in Islamic psychology. *Journal of Spirituality in Mental Health*, 17(4), 250-264.
- Falotico, R., & Quatto, P. (2015). Fleiss' kappa statistic without paradoxes. *Quality and Quantity*, 49(2), 463–470. <https://doi.org/10.1007/s11135-014-0003-1>
- Feldman, G. C., Hayes, A., Kumar, S., Greeson, J., & Laurenceau, J. P. (2007). Mindfulness and emotion regulation: The development and initial validation of the Cognitive and affective mindfulness scale-revised (CAMS-R). *Journal of Psychopathology & Behavioral Assessment*, 29(3), 177-190. <https://doi.org/10.1007/s10862-006-9035-8>
- Felver, J. C., Celis-de Hoyos, C. E., Tezanos, K., & Singh, N. N. (2016). A systematic review of mindfulness-based interventions for youth in school settings. *Mindfulness*, 7(1), 34-45. <https://doi.org/10.1007/s12671-015-0389-4>
- Feng, J., Krägeloh, C., Billington, R., & Hsu, P. (2011). Selection of national items for the New Zealand World Health Organization Quality of life questionnaire: Preliminary analyses [working paper]. In R. Scherman & C. Krägeloh (Eds.), *Walking the talk:*

The 2011 collection of oral presentations from the AUT School of Public Health and Psychosocial Studies (pp. 87-95). Auckland, New Zealand: Auckland University of Technology.

- Feng, X. J. (2017). *Differences and similarities between Buddhism and psychology in the conceptualization of mindfulness* [Doctoral dissertation, Auckland University of Technology]. Tuwhera. <http://hdl.handle.net/10292/10777>
- Feng, X. J., Krägeloh, C. U., Billington, R., Siegert, R. J. (2018). To what extent is mindfulness as presented in commonly used mindfulness questionnaires different from how is it conceptualized by senior ordained Buddhists? *Mindfulness*, 9(2), 441-460. <https://doi.org/10.1007/s12671-017-0788-9>
- Ferreira, G.F., & Demarzo, M. (2023). Trends of research on mindfulness: A bibliometric study of an emerging field. *Trends in Psychology*. <https://doi.org/10.1007/s43076-023-00286-8>
- Feuerstein, G. (2011). *The path of yoga: An essential guide to its principles and practices*. Shambhala.
- Fischer, R., Yusoff, I., Zahari, H. S., & Hitam, M. (2010). Islamic mindfulness: The moderating effects of personality traits. *Journal of Religion and Health*, 49(4), 529-543.
- Fischer, R., Bortolini, T., Karl, J. A., Zilberberg, M., Robinson, K., Rabelo, A., Gemal, L., Wegerhoff, D., Nguyễn, T. B. T., Irving, B., Chrystal, M., & Mattos, P. (2020). Rapid review and meta-analysis of self-guided interventions to address anxiety, depression, and stress during covid-19 social distancing. *Frontiers in Psychology*, 11, 563876. <https://doi.org/10.3389/fpsyg.2020.563876>
- Fisher, R. A. (1921). On the “probable error” of a coefficient of correlation deduced from a small sample. *Metron*, 1, 3–32. <https://hdl.handle.net/2440/15169>
- Fleiss, J. L. (1971). Measuring nominal scale agreement among many raters. *Psychological Bulletin*, 76(5), 378–382. <https://doi.org/10.1037/h0031619>
- Fleiss, J. L. (1973). *Statistical methods for rates and proportions*. John Wiley & Sons.
- Fleiss, J. L. (1981). *Statistical methods for rates and proportions* (2nd ed). John Wiley & Sons.
- Fletcher, G. J. O. Realism versus relativism in psychology. *The American Journal of Psychology*, 109(3), 409-421. <https://doi.org/10.2307/1423014>

- Flood, G. D. (1996). *An introduction to Hinduism*. Cambridge University Press.
- Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2015). Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based kindness curriculum. *Developmental Psychology*, 51(1), 44–51. <https://doi.org/10.1037/a0038256>
- Flora, D. B., & Curran, P. J. (2004). An empirical evaluation of alternative methods of estimation for confirmatory factor analysis with ordinal data. *Psychological Methods*, 9(4), 466–491. <https://doi.org/10.1037/1082-989X.9.4.466>
- Franquesa, A., Cebolla, A., García-Campayo, J., Demarzo, M., Elices, M., Pascual, J. C., & Soler, J. (2017). Meditation practice is associated with a values-oriented life: The mediating role of decentering and mindfulness. *Mindfulness*, 8(5), 1259-1268. <https://doi.org/10.1007/s12671-017-0702-5>
- Frawley, D. *The art of discernment: Wisdom from the classics*. Lotus Press.
- Gambhirananda, S. (1983). *Chandogya Upanisad: With commentary of Sankaracarya*. Advaita Ashrama.
- Garland, E. L., Fredrickson, B., Kring, A. M., Johnson, D. P., Meyer, P. S., & Penn, D. L. (2010). Upward spirals of positive emotions counter downward spirals of negativity: Insights from the broaden-and-build theory and affective neuroscience on the treatment of emotion dysfunctions and deficits in psychopathology. *Clinical Psychology Review*, 30(7), 849–864. <https://doi.org/10.1016/j.cpr.2010.03.002>
- Gellner, David N. 2001. *The Anthropology of Buddhism and Hinduism: Weberian Themes*. Oxford University Press.
- Gethin, R. M. L. (1998). *Foundations of Buddhism*. Oxford University Press.
- Gieger, W. (1916). *Pāli literatur und sprache*. Strassburg: Verlag Karl.J.Trübner. English Translation in Geiger, W. 1943 (2004). *Pāli literature and language translated by Batakrishna Ghosh*. Munshiram Manoharlal Publishers.
- Gilbert, P. (2009). Introducing compassion-focused therapy. *Advances in Psychiatric Treatment*, 15(3), 199-208. <https://doi.org/10.1192/apt.bp.107.005264>
- Gillespie, B., Davey, M. P. & Flemke, K. (2015). Intimate partner’s perspectives on the relational effects of mindfulness-based stress reduction training: A qualitative research study, *Contemporary Family Therapy*, 37(4), 396-407. <https://doi.org/10.1007/s10591-015-9350-x>

- Gilpin, R. (2008). The use of Theravāda Buddhist practices in mindfulness-based cognitive therapy. *Contemporary Buddhism: An Interdisciplinary*, 9(2), 227-251.
<https://doi.org/10.1080/14639940802556560>
- Giovannini, C., Giromini, L., Bonalume, L., Tagini, A., Lang, M., & Amadei, G. (2014). The Italian Five Facet Mindfulness Questionnaire: A contribution to its validity and reliability. *Journal of Psychopathology and Behavioral Assessment*, 36, 415–423.
<https://doi.org/10.1007/s10862-013-9403-0>
- Gokhale, P. P. *The yogasūtra of Patañjali*. Routledge.
- Goldberg, S. B., Tucker, R. P., Greene, P. A., Davidson, R. J., Kearney, D. J., & Simpson, T. L. (2019). Mindfulness-based cognitive therapy for the treatment of current depressive symptoms: A meta-analysis. *Cognitive Behavior Therapy*, 48(6), 445–462. <https://doi.org/10.1080/16506073.2018.1556330>
- Goldberg, S. B., Riordan, K. M., Sun, S., & Davidson, R. J. (2022). The empirical status of mindfulness-based interventions: A systematic review of 44 meta-analyses of randomized controlled trials. *Perspectives on Psychological Science: A Journal of the Association for Psychological Science*, 17(1), 108–130.
<https://doi.org/10.1177/1745691620968771>
- Goldsmith, E. S., Koffel, E., Ackland, P. E., Hill, J., Landsteiner, A., Miller, W., Stroebel, B., Ullman, K., Wilt, T. J., & Duan-Porter, W. (2023). Evaluation of implementation strategies for cognitive behavioral therapy (CBT), acceptance and commitment therapy (ACT), and mindfulness-based stress reduction (MBSR): A systematic review. *Journal of General Internal Medicine*.
<https://doi.org/10.1007/s11606-023-08140-4>
- Goldstein, J. (1987). *The experience of insight: A simple and direct guide to Buddhist meditation*. Shambhala.
- Gombrich, R. F. (2006). *Theravāda Buddhism: A social history from ancient Benares to modern Colombo*. Routledge.
- Gonda, J. (1963). The Indian mantra. *Oriens*, 16(1), 244-297.
<https://doi.org/10.2307/1580265>
- Gopal, M. (1990). *India through the ages*. Publication division, Ministry of Information and Broadcasting, Government of India. Gautam, K.S. (editor), p.176.

- Gordon, D. J. (2009). *A critical history of mindfulness-based psychology* [Bachelor's thesis, Wesleyan University]. <https://doi.org/10.14418/wes01.1.366>
- Gordon, I. K. (2018). Factor structure and external validity of the Five-Facet Mindfulness Questionnaire in pregnancy. *Mindfulness*, 9(1), 243-257. <https://doi.org/10.1007/s12671-017-0768-0>
- Gowans, C. W. (2003). *Philosophy of the Buddha: An introduction*. Routledge.
- Grabovac, A. D., Lau, M. A., & Willett, B. R. (2011). Mechanisms of mindfulness: A Buddhist psychological model. *Mindfulness*, 2(3), 154–166. <https://doi.org/10.1007/s12671-011-0054-5>
- Greenberg, M. T., & Mitra, J. L. (2015). From mindfulness to right mindfulness: The intersection of awareness and ethics. *Mindfulness*, 6(1), 74–78. <https://doi.org/10.1007/s12671-014-0384-1>
- Grossman, P., & Van Dam, T. N. (2011). Mindfulness, by any other name...: Trials and tribulations of Sati in western psychology and science. *Contemporary Buddhism*, 12(1), 219-239. <https://doi.org/10.1080/14639947.2011.564841>
- Gruber, J., Mauss, I. B., & Tamir, M. (2011). A dark side of happiness? How, when, and why happiness is not always good. *Perspectives on Psychological Science*, 6(3), 222–233. <https://doi.org/10.1177/1745691611406927>
- Gu, J., Strauss, C., Crane, C., Barnhofer, T., Karl, A., Cavanagh, K., & Kuyken, W. (2016). Examining the factor structure of the 39-item and 15-item versions of the Five Facet Mindfulness Questionnaire before and after mindfulness-based cognitive therapy for people with recurrent depression. *Psychological Assessment*, 28(7), 791–802. <https://doi.org/10.1037/pas0000263>
- Gunaratana, H. (2002). *Mindfulness in Plain English*. Wisdom.
- Haas, B. W., & Akamatsu, Y. (2019). Psychometric investigation of the Five Facets of mindfulness and well-being measures in the Kingdom of Bhutan and the USA. *Mindfulness*, 10(7), 1339-1351. <https://doi.org/10.1007/s12671-018-1089-7>
- Hacker, P., & Davis Jr., D. R. (2006). Dharma in Hinduism. *Journal of Indian Philosophy*, 34(5), 474-496. <https://doi.org/10.1007/s10781-006-9002-4>
- Hall, E. T. (1976). *Beyond culture*. Doubleday.
- Hamilton, S. (2000). *Early Buddhism: A New Approach: The I of the Beholder*. Routledge

- Harris, R. (2006). Embracing your demons: An overview of acceptance and commitment therapy. *Psychotherapy in Australia*, 12(4), 2-8.
- Harris, R. (2009). *ACT made simple: An easy-to-read primer on acceptance and commitment therapy*. New Harbinger Publications.
- Harvey, P. (2015). *An introduction to Buddhism: Teachings, history, and practices*. Cambridge University Press.
- Hatcher, B. A. (2007). Bourgeois Vedanta: The colonial roots of middle-class Hinduism. *Journal of the American Academy of Religion*, 75(2), 298-323.
<https://doi.org/10.1093/jaarel/lfm005>
- Hawley, L. L., Rogojanski, J., Vorstenbosch, V., Quilty, L. C., Laposa, J. M., & Rector, N. A. (2017). The structure, correlates, and treatment related changes of mindfulness facets across the anxiety disorders and obsessive-compulsive disorder. *Journal of Anxiety Disorders*, 49, 65-75. <https://doi.org/10.1016/j.janxdis.2017.03.003>
- Hayes, S. C., Strostahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: an experiential approach to behaviour change*. The Guilford Press.
- Hayes, S. C., Follette, V. M., & Linehan, M. M. (Eds.). (2004). *Mindfulness and acceptance: expanding cognitive behavioral tradition*. The Guilford Press.
- Hayes, S. C., Strostahl, K. D., Wilson, K. G. (2011). *Acceptance and commitment therapy: The process and practice of mindful change* (2nd edition). The Guilford Press.
- Heeren, A., Douilliez, C., Peschard, V., Debrauwere, L., & Philippot, P. (2011). Cross cultural validity of the Five Facets Mindfulness Questionnaire: Adaptation and validation in a French-speaking sample. *European Review of Applied Psychology*, 61(3), 147–151. <https://doi.org/10.1016/j.erap.2011.02.001>
- Hermann, B. P. (1993). Developing a model of quality of life in epilepsy: The contribution of neuropsychology. *Epilepsia*, 34(s4), 14-21. <https://doi.org/10.1111/j.1528-1157.1993.tb05911.x>
- Hermida, R. (2015). The problem of allowing correlated errors in structural equation modeling: concerns and considerations. *Computational Methods in Social Sciences*, 3(1), 5-17.
- Hewage, B. S. (2022). *Placing the origins of the Buddha: An island, its people, and orientalist odyssey*. Cambridge Scholars Publishing.

- Hicks, G. (1936). The birth of Indian psychology and its development in Buddhism. *Nature*, 137(3478), 1052–1053. <https://doi.org/10.1038/1371052a0>
- Hill, P. C., Pargament, K. I., Hood Jr., R. W., McCullough, M. E., Swyers, J. P., Larson, D. B., & Zinnbauer, B. J. (2021). Conceptualizing religion and spirituality: Points of commonality, points of departure. *Journal for the Theory of Social Behavior*, 30(1), 51-77. <https://doi.org/10.1111/1468-5914.00119>
- Hinüber, O. V. (2006). Hoary past and hazy memory: On the history of early Buddhist texts. *Journal of the International Association of Buddhist studies*, 29(2), 193-210.
- Hirayama, M. S., Daniela, M., Rodrigues, R. C. M., de Barros, N. F., Alexandre, C., & Maria, N. (2014). The perception of behavior related to mindfulness and the Brazilian version of the Freiburg mindfulness inventory. *Ciência & Saúde Coletiva*, 19(9), 3899-3914. <https://doi.org/10.1590/1413-81232014199.12272013>
- Hobart, J., & Cano, S. (2009). Improving the evaluation of therapeutic interventions in multiple sclerosis: The role of new psychometric methods. *Health Technology Assessment*, 13(12), iii–177. <https://doi.org/10.3310/hta13120>
- Hodgins, H. S., & Adair, K. C. (2010). Attentional processes and meditation. *Consciousness and Cognition*, 19(4), 872–878. <https://doi.org/10.1016/j.concog.2010.04.002>
- 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: A Journal of the Association for Psychological Science*, 6(6), 537–559. <https://doi.org/10.1177/1745691611419671>
- Howard, I. (2012). *A history of the Sanskrit language*. Routledge.
- Hussain, D., & Bhushan, B. (2010). Psychology of meditation and health: Present status and future directions. *International Journal of Psychology and Psychotherapy*, 10(3), 439-451.
- Hyland, T. (2015). On the contemporary applications of mindfulness: Some implications for education. *Journal of Philosophy of Education*, 49(2), 170–186. <https://doi.org/10.1111/1467-9752.12135>

- Iqbal, F., Iqbal, F., & Humayun, G. K. (2023). Factor structure of the Five Facets Mindfulness Questionnaire (FFMQ) (15 items) in a collectivist society-Pakistan. *Psychology in the Schools*, 1-18. <https://doi.org/10.1002/pits.22875>
- Jain, P. (2019). *An introduction to Jain philosophy*. DK Printworld.
- Jain, S., Shapiro, S. L., Roesch, S. C., Mills, P. J., Bell, I., & Schwartz, G. E. R. (2007). A randomized controlled trial of mindfulness meditation versus relaxation training: Effects on distress, positive states of mind, rumination, and distraction. *Annals of Behavioral Medicine*, 33(1), 11-21. https://doi.org/10.1207/s15324796abm3301_2
- Jo, H. G., Hinterberger, T., Wittmann, M., & Schmidt, S. (2015). Do meditators have higher awareness of their intentions to act? *Cortex*, 65, 149-158. <https://doi.org/10.1016/j.cortex.2014.12.015>
- Jöreskog, K. G., & Sörbom, D. (1993). LISREL 8: *Structural equation modelling with the SIMPLIS command language*. Hillsdale: Erlbaum Associates.
- Joshi, S. K. (2020). *The linguistic landscape of India*. Heritage: India Perspectives, Ministry of External Affairs, Government of India. Issue 4.
- Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: theoretical considerations and preliminary results. *General Hospital Psychiatry*, 4(1), 33-47. [https://doi.org/10.1016/0163-8343\(82\)90026-3](https://doi.org/10.1016/0163-8343(82)90026-3)
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. Dell Publishing.
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*. Hyperion Books.
- Kabat-Zinn, J., Wheeler, E., Light, T., Skillings, A., Scharf, M. J., Cropley, T. G., Hosmer, D., & Bernhard, J. D. (1998). Influence of a mindfulness meditation-based stress reduction intervention on rates of skin clearing in patients with moderate to severe psoriasis undergoing phototherapy (UVB) and photochemotherapy (PUVA). *Psychosomatic Medicine*, 60(5), 625–632. <https://doi.org/10.1097/00006842-199809000-00020>
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10(2), 144–156. <https://doi.org/10.1093/clipsy.bpg016>

- Kabat-Zinn, J. (2005). Bringing mindfulness to medicine: an interview with Jon Kabat-Zinn, PhD. Interview by Karolyn Gazella. *Advances in Mind Body Medicine*, 21(2), 22-27.
- Kabat-Zinn, J. (2011). Some reflections on the origins of MBSR, skillful means, and the trouble with maps. *Contemporary Buddhism*, 12(01), 281-306.
<https://doi.org/10.1080/14639947.2011.564844>
- Kabat-Zinn, J. (2013). *Full catastrophe living, revised edition: how to cope with stress, pain and illness using mindfulness meditation*. Bantam Books.
- Kachru, B. B. (1983). *The Indianization of English: The English language in India*. Oxford.
- Kakoschke, N., Hased, C., Chambers, R., & Lee, K. (2021). The importance of formal versus informal mindfulness practice for enhancing psychological wellbeing and study engagement in a medical student cohort with a 5-week mindfulness-based lifestyle program. *PloS one*, 16(10), e0258999.
<https://doi.org/10.1371/journal.pone.0258999>
- Kannan, S. (2014). Indian education development and school administration with special reference to Tamil Nadu- A historical perspective. *African Journal of History and Culture*, 6(3), 39-44. <https://doi.org/10.5897/AJHC2013.0178>
- Karl, J. A., Fischer, R. (2020). Revisiting the five-facet structure of mindfulness. *Measurement Instruments for the Social Sciences*, 2(1), 7.
<https://doi.org/10.1186/s42409-020-00014-3>
- Kauser, S., Mantzios, M., Keyte, R., & Egan, H. (2023). Understanding the experiences of how mindfulness is used by people with cystic fibrosis: Barriers and enablers. *Mindfulness*, 14(2), 460–472. <https://doi.org/10.1007/s12671-022-02065-5>
- Keown, D. & Prebish, C. S. (2013). *Encyclopedia of Buddhism*. Routledge.
- Khan, S. A., Vijayshri, & Farooqi, F. S. (2014). A study of religiosity in relation to spirituality and anxiety. *International Journal of Advancements in Research and Technology*, 3(4), 269-284.
- Khoury, B., Lecomte, T., Fortin, G., Masse, M., Therien, P., Bouchard, V., Chapleau, M. A., Paquin, K., & Hofmann, S. G. (2013). Mindfulness-based therapy: A comprehensive meta-analysis. *Clinical Psychology Review*, 33(6), 763–771.
<https://doi.org/10.1016/j.cpr.2013.05.005>

- Kiken, L. G., Garland, E. L., Bluth, K., Palsson, O. S., & Gaylord, S. A. (2015). From a state to a trait: Trajectories of state mindfulness in meditation during intervention predict changes in trait mindfulness. *Personality and Individual Differences, 81*, 41–46. <https://doi.org/10.1016/j.paid.2014.12.044>
- Kim, E., Krägeloh, C. U., Medvedev, O. N., Duncan, L. G., & Singh, N. N. (2019). Interpersonal mindfulness in parenting scale: Testing the psychometric properties of a Korean version. *Mindfulness, 10*(3), 516–528. <https://doi.org/10.1007/s12671-018-0993-1>
- Koenig, H. G., Al Zaben, F., Khalifa, D. A., & Al Shohaib, S. (2015). Conceptualizing spirituality and religion for healthcare. *Global Journal of Health Science, 7*(2), 116–127. <https://doi/10.5402/2012/278730>
- Kolhi, S. S. (1992). *The Sikh philosophy*. Sikh Brothers.
- Koo, T. K., & Li, M. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine, 15*(2), 155–163. <https://doi.org/10.1016/j.jcm.2016.02.012>
- Krägeloh, C. (2013). Is mindfulness conceptualized differently in Western mindfulness-based interventions than in Buddhism? *Won-Buddhist Thought & Religious Culture, 55*(3), 447–479.
- Krägeloh, C. U., Billington, D. R., Hsu, P. H. C., Feng, X. J., Medvedev, O. N., Kersten, P., et al. (2016). Ordinal-to-interval scale conversion tables and national items for the New Zealand version of the WHOQOL-BREF. *PLoS ONE, 11*(11), e0166065. <https://doi.org/10.1371/journal.pone.0166065>
- Krägeloh, C. U., Bergomi, C., Siegert, R. S., & Medvedev, O. (2018a). Response shift after a mindfulness-based intervention: Measurement invariance testing of the comprehensive inventory of mindfulness experiences. *Mindfulness, 9*(1), 212–220. <https://doi.org/10.1007/s12671-017-0764-4>
- Krägeloh, C. (2018b). Mindfulness, heedfulness, and ethics. In Stanley, S., Purser, R. E., & Singh, N. N. (Eds.). *Handbook of Ethical Foundations of Mindfulness* (pp. 85–100). Springer. https://doi.org/10.1007/978-3-319-76538-9_5
- Krägeloh, C. U., Henning, M. A., Medvedev, O. N., Feng, X. J., Moir, F., Billington, R., & Siegert, R. J. (2019). *Mindfulness-based intervention research: Characteristics, approaches, and developments*. Routledge.

- Krishnamurti, B. (2003). *The Dravidian languages*. Cambridge University Press.
- Krishnan, H. A. (2021). Mindfulness as a strategy for sustainable competitive advantage, *Business Horizons*, 64(5), 697-709. <https://doi.org/10.1016/j.bushor.2021.02.023>
- Krisanaprakornkit, T., Krisanaprakornkit, W., Piyavhatkul, N., & Laopaiboon, M. (2004). Meditation therapy for anxiety disorders. *Cochrane Database Systematic Reviews*, 1, CD004998. <https://doi.org/10.1002/14651858.CD004998.pub2>
- Kulmatycki, L. (2012). Relaxation techniques and states- Application to physical therapy. In Bettany-Saltikov, J., & Paz-Lourido, B. *Physical Therapy Perspectives in the 21st Century-Challenges and Possibilities* (pp.263-280). InTech. <https://doi.org/10.5772/35319>
- Kuyken, W., Hayes, R., Barrett, B., Byng, R., Dalgleish, T., Kessler, D., Lewis, G., Watkins, E., Brejcha, C., Cardy, J., Causley, A., Cowderoy, S., Evans, A., Gradinger, F., Kaur, S., Lanham, P., Morant, N., Richards, J., Shah, P., ... Byford, S. (2015). Effectiveness and cost-effectiveness of mindfulness-based cognitive therapy compared with maintenance antidepressant treatment in the prevention of depressive relapse or recurrence (PREVENT): A randomized controlled trial. *Lancet*, 386(9988), 63–73. [https://doi.org/10.1016/S0140-6736\(14\)62222-4](https://doi.org/10.1016/S0140-6736(14)62222-4)
- Lamotte, É. (1988). *History of Indian Buddhism: From the origins to the Śaka Era*, translated from the French by Sara Webb-Boin. Louvain-la-Neuve: Université Catholique de Louvain Institut Orientaliste.
- Lara, R. M. M., Herrero, M., Blanco-Donoso, L. M., Jiménez, B. M., & and Chávez, A. P. (2015). Psychometric properties of the "Five Facet Mindfulness Questionnaire" (FFMQ-M) in Mexico. *Behavioural Psychology/Psychic C wave*, 23(3), 467-487.
- Lau, M. A., Bishop, S. R., Segal, Z. V., Buis, T., Anderson, N. D., Carlson, L., Shapiro, S., Carmody, J., Abbey, S., & Devins, G. (2006). The Toronto Mindfulness Scale: Development and validation. *Journal of Clinical Psychology*, 62(12), 1445-1467. <https://doi.org/10.1002/jclp.20326>
- Laurie, K., Hyde, M. K., Lepore, S. J., & Chambers, S. K. (2018). Validation of the factor structure of the Five Facets of Mindfulness Questionnaire in men diagnosed with advanced prostate cancer. *Psycho-Oncology*, 27(3), 1061-1064. <https://doi.org/10.1002/pon.4474>

- Lebret, T., Daigle, M. S., & McSherry, E. (2021). The nature and role of prayer in counseling and psychotherapy: A scoping review. *Spirituality in Clinical Practice*, 8(2), 115-130.
- Lecuona, O., García-Rubio, C., de Rivas, S., Moreno-Jiménez, J. E., Meda-Lara, R. M., & Rodríguez-Carvajal, R. (2021). A network analysis of the Five Facets Mindfulness Questionnaire (FFMQ). *Mindfulness*, 12(9), 2281–2294.
<https://doi.org/10.1007/s12671-021-01704-7>
- Leung, Y. Y., Png, M. E., Conaghan, P., & Tennant, A. (2014). A systematic literature review on the application of Rasch analysis in musculoskeletal disease- a special interest group report of OMERACT 11. *Journal of Rheumatology*, 41(1), 159-164.
<https://doi.org/10.3899/jrheum.130814>
- Levman, B. G. (2013). Cultural remnants of the indigenous peoples in the Buddhist scriptures. *Buddhist Studies Review*, 30(2), 145-180.
<https://doi.org/10.1558/bsrv.v30i2.145>
- Levman, B. G. (2014). *Linguistic ambiguities: The transmissional process, and the earliest recoverable language of Buddhism* [Doctoral dissertation, University of Toronto].
<https://hdl.handle.net/1807/68342>
- Levman, B. (2016). The language of early Buddhism. *Journal of South Asian languages and Linguistics*, 3(1), 1-41. <https://doi.org/10.1515/jsall-2016-0001>
- Levman, B. (2019). The language the Buddha spoke. *Journal of Oxford Centre for Buddhist Studies*, 17, 63-105.
- Levman, B. (2020). Pali and the languages of early Buddhism. In *Oxford Research Encyclopedia of Religion*. Oxford University Press.
- Lewis, R. D. (2005). *Finland, cultural lone wolf*. Intercultural Press.
- Li, S. Y. H., & Bressington, D. (2019). The effects of mindfulness-based stress reduction on depression, anxiety, and stress in older adults: A systematic review and meta-analysis. *International Journal of Mental Health Nursing*, 28(3), 635-656.
<https://doi.org/10.1111/inm.12568>
- Lilja, J. L., Falkenström, F., Zellerroth, C., Jacobson, E., Risberg, S., Nissling, L., & Weinland, S. (2020). Psychometric properties and validation of the Swedish Five Facet Mindfulness Questionnaire in a clinical and non-clinical sample among

- meditators and non-meditators. *Scandinavian Journal of Psychology*, 61(3), 369–379. <https://doi.org/10.1111/sjop.12602>
- Linacre, J. M. (1994). Sample size and item calibration stability. *Rasch Measurements and Transactions*, 7(4), 328.
- Lindsay, E. K., & Creswell, J. D. (2017). Mechanisms of mindfulness training: Monitor and acceptance theory (MAT). *Clinical Psychology Review*, 51, 48–59. <https://doi.org/10.1016/j.cpr.2016.10.011>
- Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. Guilford Press.
- Liu, Q., Zhu, J., & Zhang, W. (2022). The efficacy of mindfulness-based stress reduction intervention for post-traumatic stress disorder (PTSD) symptoms in patients with PTSD: A meta-analysis of four randomized controlled trials. *Stress & Health*, 38(4), 626-636. <https://doi.org/10.1002/smi.3138>
- Liu, Y. C., Li, I. L., & Hsiao, F. H. (2021). Effectiveness of mindfulness-based intervention on psychotic symptoms for patients with schizophrenia: A meta-analysis of randomized controlled trials. *Journal of Advanced Nursing*, 77(6), 2565-2580. <https://doi.org/10.1111/jan.14750>
- Lozano, A. (2012). Buddhism and the West: Challenges and opportunities. *Contemporary Buddhism*, 13(1), 115-128.
- Lundgren-Nilsson, Å., Jonsdottir, I. H., Ahlborg, G., & Tennant, A. (2013). Construct validity of the psychological general well-being index (PGWBI) in a sample of patients undergoing treatment for stress-related exhaustion: A Rasch analysis. *Health and Quality of Life Outcomes*, 11(2), 1-9. <https://doi.org/10.1186/1477-7525-11-2>
- Lusnig, L., Radach, R., Mueller, C. J., & Hofmann, M. J. (2020). Zen meditation neutralizes emotional evaluation, but not implicit affective processing of words. *PloS ONE*, 15(2), e0229310. <https://doi.org/10.1371/journal.pone.0229310>
- Lutz, A., Slagter, H. A., Dunne, J. D., & Davidson, R. J. (2008). Attention regulation and monitoring in meditation. *Trends in Cognitive Sciences*, 12(4), 163–169. <https://doi.org/10.1016/j.tics.2008.01.005>
- MacDonell, A. A. (2004). *A practical Sanskrit dictionary*. Motilal Banarsidass.

Mahabodhi Temple Complex at Bodh Gaya. UNESCO World Heritage Centre.

<https://whc.unesco.org/en/list/1056/>

Mahāthera, N. (1998). *The Buddha and His teachings*. Buddha Dharma Education Association Inc.

Malakoutikhah, A., Zakeri, M. A., & Dehghan, M. (2022). A comparison between the relaxation/meditation/mindfulness tracker inventory and the Freiburg Mindfulness Inventory for predicting general health, anxiety, and anger in adult general population. *Frontiers in Psychology, 13*, 810383.

<https://doi.org/10.3389/fpsyg.2022.810383>

Malinowski, P. (2008). Mindfulness as psychological dimension: Concepts and applications. *The Irish Journal of Psychology, 29*(1-2), 155-166.

<https://doi.org/10.1080/03033910.2008.10446281>

Mandair, A. (2012). *Sikhism: A guide for the perplexed*. Bloomsbury Publishing.

Mandal, S. P., Arya, Y. K., & Pandey, R. (2016). Validation of the factor structure of the Five Facet Mindfulness Questionnaire. *Indian Journal of Health and Wellbeing, 7*(1), 61-66.

Manocha, R. (2000). Why meditation. *Australian Family Physician, 29*(12), 1135-1138.

Marchand, W. R. (2014). Neural mechanisms of mindfulness and meditation: Evidence from neuroimaging studies. *World Journal of Radiology, 6*(7), 471–479.

<https://doi.org/10.4329/wjr.v6.i7.471>

Marino, F., Failla, C., Carrozza, C., Ciminata, M., Chilà, P., Minutoli, R., Genovese, S., Puglisi, A., Arnao, A. A., Tartarisco, G., Corpina, F., Gangemi, S., Ruta, L., Cerasa, A., Vagni, D., & Pioggia, G. (2021). Mindfulness-based interventions for physical and psychological wellbeing in cardiovascular diseases: A systematic review and meta-analysis. *Brain Sciences, 11*(6),

727. <https://doi.org/10.3390/brainsci11060727>

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*(2), 224–253.

<https://doi.org/10.1037/0033-295X.98.2.224>

Markus, H. R., & Kitayama, S. (1998). The cultural psychology of personality. *Journal of Cross-Cultural Psychology, 29*(1), 63–87.

<https://doi.org/10.1177/0022022198291004>

- Marlatt, G. A., & Kristeller, J. L. (1999). Mindfulness and meditation. In W.R. Miller (Eds.), *Integrating spirituality into treatment* (p. 67-84). American Psychological Association. <https://doi.org/10.1037/10327-004>
- Marsh, H. W., Balla, J. R., & McDonald, R. P. (1988). Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size. *Psychological Bulletin*, *103*(3), 391–410. <https://doi.org/10.1037/0033-2909.103.3.391>
- Martins, M.J., Xavier, A., Marques, C.C., Palmeira, L., Guiomar, R., & Castilho, P. (2021). Southampton Mindfulness Questionnaire: Confirmatory factor analysis and psychometric properties across Portuguese clinical and non-clinical samples. *Mindfulness* *12*(10), 2535–2543. <https://doi.org/10.1007/s12671-021-01724-3>
- Maskeen, S. S. (1993). *Guru Chintan* [Reflecting on the Guru]. Singh Brothers.
- McCartney, M., Nevitt, S., Lloyd, A., Hill, R., White, R., & Duarte, R. (2021). Mindfulness-based cognitive therapy for prevention and time to depressive relapse: Systematic review and network meta-analysis. *Acta psychiatrica Scandinavica*, *143*(1), 6–21. <https://doi.org/10.1111/acps.13242>
- McDonald, R. P., & Ho, M.-H. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods*, *7*(1), 64–82. <https://doi.org/10.1037/1082-989x.7.1.64>
- McGraw, K. O., & Wong, S. P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological Methods*, *1*(1), 30–46. <https://doi.org/10.1037/1082-989X.1.1.30>
- Meda, R., Herrero, M., Blanco-Donoso, L., Moreno-Jimenez, B., & Palomera, A. (2015). Psychometric properties of the Five Facets Mindfulness Questionnaire (FFMQ-M) in Mexico. *Behavioral Psychology*, *23*(3), 467-487.
- Medvedev, O. N., Siegert, R. J., Feng, X. J., Billington, R. B., Jang, J. Y., & Krägeloh, C. U. (2016). Measuring trait mindfulness: How to improve the precision of the Mindful attention awareness scale using a Rasch model. *Mindfulness*, *7*(2), 384-395. <https://doi.org/10.1007/s12671-015-0454-z>
- Medvedev, O. N., Siegert, R. J., Kersten, P., & Krägeloh, C. U. (2016). Rasch analysis of the Kentucky Inventory of Mindfulness Skills. *Mindfulness*, *7*(2), 466-478. <https://doi.org/10.1007/s12671-015-0475-7>

- Medvedev, O. N., Krägeloh, C. U., Narayanan, A., & Siegert, R. J. (2017). Measuring mindfulness: Applying generalizability theory to distinguish between state and trait. *Mindfulness*, 8(4), 1036-1046. <https://doi.org/10.1007/s12671-017-0679-0>
- Medvedev, O. N., Siegert, R. J., Kersten, P., & Krägeloh, C. U. (2017). Improving the precision of the Five Facet Mindfulness Questionnaire using a Rasch approach. *Mindfulness*, 8(4), 995-1008. <https://doi.org/10.1007/s12671-016-0676-8>
- Medvedev, O. N., Norden, P. A., Krägeloh, C. U., & Siegert, R. S. (2018). Investigating unique contributions of dispositional mindfulness facets to depression, anxiety, and stress in general and student populations. *Mindfulness* 9(6), 1757–1767. <https://doi.org/10.1007/s12671-018-0917-0>
- Medvedev, O. N., Titkova, E. A., Siegert, R. J., Hwang, Y.-S., & Krägeloh, C. U. (2018). Evaluating short versions of the Five Facet Mindfulness Questionnaire using Rasch analysis. *Mindfulness*, 9(5), 1411-1422. <https://doi.org/10.1007/s12671-017-0881-0>
- Medvedev, O. N., Bergomi, C., Röthlin, P., & Krägeloh, C. U. (2019). Assessing the psychometric properties of the Comprehensive Inventory of Mindfulness Experiences (CHIME) using Rasch analysis. *European Journal of Psychological Assessment*, 35(5), 650-657. <https://doi.org/10.1027/1015-5759/a000453>
- Medvedev, O.N., Krägeloh, C.U., Siegert, R.J., Singh, N.N. (2022). An Introduction to Assessment in Mindfulness Research. In: Medvedev, O.N., Krägeloh, C.U., Siegert, R.J., Singh, N.N. (eds) *Handbook of Assessment in Mindfulness Research*. Springer.
- Medvedev, O. N., Krägeloh, C. U. (2022). Rasch Measurement Model. In O. N. Medvedev, C.U. Krägeloh, R. J. Siegert, & N. N. Singh (Eds.), *Handbook of Assessment in Mindfulness Research*. Springer. https://doi.org/10.1007/978-3-030-77644-2_4-1
- Mehrotra, R. (2003). A British response to some English uses. *English Today*, 19(3), 19-25. <https://doi.org/10.1017/S0266078403003043>
- Mehta, N., & Talwar, G. (2022). Recognizing roots and not just leaves: The use of integrative mindfulness in education, research, and practice. *Psychology from the Margins*, 4(1), 6. <https://ideaexchange.uakron.edu/psychologyfromthemargins/vol4/iss1/6>
- Mesthrie, R. (2008). South Asian languages in the second diaspora. In B.B. Kachru, Y. Kachru, & S.N. Sridhar (Eds.), *Language in South Asia* (pp. 497-514). Cambridge University Press.

- Michelle, S. (2011). *Contemporary English-language Indian children's literature: Representation of nation, culture and the new Indian girl*. Routledge.
- Mihita, B. (2019). *Night of the Buddha's enlightenment*. Published under Creative Commons License.
- Mikulas, W. L. (2011). Mindfulness: Significant common confusions. *Mindfulness*, 2(1), 1–7. <https://doi.org/10.1007/s12671-010-0036-z>
- Mitchell, D. W. (2008). *Buddhism: Introducing the Buddhist experience*. Oxford University Press.
- Monroe, N., & Jankowski, P. J. (2016). The effectiveness of a prayer intervention in promoting change in perceived attachment to God, positive affect, and psychological distress. *Spirituality in Clinical Practice*, 3(4), 237–249. <https://doi.org/10.1037/scp0000117>
- Montaut, A. & Inalco. (2010). *English in India and the role of the elite in the national project*. Published in *Problematizing Language Studies, Cultural, Theoretical and Applied Perspectives, Essays in Honor of Rama Kant Agnihotri*. Akbar Books, 83-116 (eds. Hasnain, S.I. & Chaudhary, S.).
- Monteiro, L. M., Musten, R. F., & Compton, J. (2015). Traditional and contemporary mindfulness: Finding the middle path in the tangle of concerns. *Mindfulness*, 6(1), 1–13. <https://doi.org/10.1007/s12671-014-0301-7>
- Moore, A. & Malinowski, P. (2009). Meditation, mindfulness and cognitive flexibility. *Consciousness and Cognition*, 18(1), 176-86. <https://doi.org/10.1016/j.concog.2008.12.008>
- Myrvold, K. (2016). Nāam Simran in the Sikh Religion', in Halvor Eifring (ed.), *Asian Traditions of Meditation*.
- Nandan, G. B., & Jangubhai, N. A. M. (2013). The comparative study between Hinduism and Buddhism. *International Journal of Humanities and Social Science Invention*, 2(5), 27-31.
- Narayanan, A. (2007). *What empirical evidence is available for the impact of a yoga practice on different aspects of the Self? Can Brahman be operationalized?* [Doctoral dissertation, Stanford University].

- Neff, K. D., & Germer, C. K. (2013). A pilot study and randomized controlled trial of the mindful self-compassion program. *Journal of Clinical Psychology*, 69(1), 28–44. <https://doi.org/10.1002/jclp.21923>
- Nehru, J. (1989). *The Discovery of India*. Oxford University Press.
- Nien, J. T., Wu, C. H., Yang, K. T., Cho, Y. M., Chu, C. H., Chang, Y. K., & Zhou, C. (2020). Mindfulness training enhances endurance performance and executive Functions in athletes: An event-related potential study. *Neural Plasticity*, 8213710. <https://doi.org/10.1155/2020/8213710>
- Nirban, G. (2018). Mindfulness as an ethical ideal in the Bhagavadgīta. *Mindfulness*, 9(1), 151-160. <https://doi.org/10.1007/s12671-017-0755-5>
- Nirmala, T., Priya, J., & Mary, A. S. N. (2020). Significance of yoga in ancient India. *International Journal of Research Culture Society*, 4(5), 262-264.
- Nishimura, S., Nevgi, A., & Tella, S. (2008). Communication style and cultural features in high / low context communication cultures: A case study of Finland, Japan and India. In A. Kallioniemi (Ed.), *Renovating and developing subject didactics. Proceedings of a subject-didactic symposium in Helsinki, University of Helsinki, Department of Applied Sciences of Education*, 2, 783–796.
- Nita, M. (2019). 'Spirituality' in health studies: Competing spiritualities and the elevated status of mindfulness. *Journal of Religion and Health*, 58(5), 1605–1618. <https://doi.org/10.1007/s10943-019-00773-2>
- Norman, K. R. (1980). *The dialects in which the Buddha preached*. Reprinted in *Collected Papers 2*, Oxford: Pali Text Society, 128-147.
- Norman, K. R. (1983). *Pāli literature*. Wiesbaden: Otto Harrassowitz,
- Norquist, J. M., Fitzpatrick, R., Dawson, J., & Jenkinson, C. (2004). Comparing alternative Rasch-based methods vs raw scores in measuring change in health. *Medical Care*, 42(1), I25-I36. <https://doi.org/10.1097/01.mlr.0000103530.13056.88>
- Nyanaponika, T. (1968). *The power of mindfulness: An inquiry into the scope of bare attention and the principal sources of its strength*. Buddhist Publication Society.
- Nyklíček, I., Mommersteeg, P. M., Van Beugen, S., Ramakers, C., & Van Boxtel, G. J. (2013). Mindfulness-based stress reduction and physiological activity during acute stress: A randomized controlled trial. *Health Psychology*, 32(10), 1110–1113. <https://doi.org/10.1037/a0032200>

- Obeyesekere, R. (2009). *Yasodharā, the wife of the Bōdhisattva*. State University of New York Press.
- Oliva, F., Malandrone, F., di Girolamo, G., Mirabella, S., Colombi, N., Carletto, S., & Ostacoli, L. (2021). The efficacy of mindfulness-based interventions in attention-deficit/hyperactivity disorder beyond core symptoms: A systematic review, meta-analysis, and meta-regression. *Journal of Affective Disorders*, 292, 475–486. <https://doi.org/10.1016/j.jad.2021.05.068>
- Oman, D., & Singh, N. N. (2018). Combining Indian and western spiritual psychology: Applications to health and social renewal. *Psychological Studies*, 63(2), 172-180. <https://doi.org/10.1007/s12646-016-0362-x>
- Oman, D., Bormann, J. E., & Kane, J. J. (2022). Mantram repetition as a portable mindfulness practice: Applications during the covid-19 pandemic. *Mindfulness*, 13(6), 1418–1429. <https://doi.org/10.1007/s12671-020-01545-w>
- Oman, D. (2023). Mindfulness for global public health: Critical analysis and agenda. *Mindfulness*. <https://doi.org/10.1007/s12671-023-02089-5>
- Oza, P. (2022). Modernism in Buddhist thoughts—various facets of religion, rituals, and reincarnation. *International Journal of Interreligious and Intercultural Studies*, 5(2), 47-60. Available at <https://ejournal.unhi.ac.id/index.php/ijiis/article/view/3494>
- Pande, G. C. (1995). *Studies in the Origins of Buddhism: Fourth revised edition*. Motilal Banarsidass.
- Pandya, S. P. (2019). Meditation for meaning in life and happiness of older adults: A multi-city experiment of the Brahma Kumaris' Raja yoga practice. *Journal of Religion, Spirituality & Aging*, 31(3), 282–304. <https://doi.org/10.1080/15528030.2018.1483858>
- Panesar, D. D. (2017). Meditation (Sikhism). In: Mandair, AP.S. (eds) *Sikhism. Encyclopedia of Indian Religions*. Springer
- Pang, D., & Ruch, W. (2019). The mutual support model of mindfulness and character strengths. *Mindfulness*, 10(8), 1545–1559. <https://doi.org/10.1007/s12671-019-01103-z>
- Pang, D., Ruch, W. (2019). Scrutinizing the components of mindfulness: Insights from current, past, and non-meditators. *Mindfulness*, 10(3), 492-505. <https://doi.org/10.1007/s12671-018-0990-4>

- Patel, Z., and Saha, P. K. (2018). Examining the relationship between occupational stress, mindfulness, compassion satisfaction, compassion fatigue and coping strategies among police personnel. [Unpublished Master's dissertation, National Forensic Sciences University].
- Peckham, S. B., Ionson, E., Nassim, Ojha, K., Palaniyappan, L., Gati, J., Thebérge, J., Lazosky, A., Speechley, M., Barušs, I, Rej, S, & Vasudev, A. (2019). Sahaj samadhi meditation vs a health enhancement program in improving late-life depression severity and executive function: Study protocol for a two-site, randomized controlled trial. *Trials*, 20(1), 605. <https://doi.org/10.1186/s13063-019-3682-z>
- Pei, J. H., Ma, T., Nan, R. L., Chen, H. X., Zhang, Y. B., Gou, L., & Dou, X. M. (2021). Mindfulness-based cognitive therapy for treating chronic pain: A systematic review and meta-analysis. *Psychology, Health & Medicine*, 26(3), 333–346. <https://doi.org/10.1080/13548506.2020.1849746>
- Pelham, W. E., Gonzalez, O., Metcalf, S. A., Whicker, C. L., Witkiewitz, K., Marsch, L. A., & Mackinnon, D. P. (2019). Evaluating the factor structure of each facet of the Five Facet Mindfulness Questionnaire. *Mindfulness*, 10(12), 2629-2646. <https://doi.org/10.1007/s12671-019-01235-2>
- Perumpallikunnel, K. (2013). Discernment: The message of the Bhagavad-Gita. *African Journals Online*, 33(17). <https://hdl.handle.net/10520/EJC138916>
- Phillips, S. (2009). *Yoga, karma, and rebirth: A brief history and philosophy*. Columbia University Press.
- Prebish, C. S. (2008). Cooking the Buddhist books: The implications of the new dating of the Buddha for the history of early Indian Buddhism. *Journal of Buddhist Ethics*, 15, 1–21.
- Plumb, J. C., Stewart, I., Dahl, J., & Lundgren, T. (2009). In search of meaning: values in modern clinical behavior analysis. *The Behavior Analyst*, 32(1), 85–103. <https://doi.org/10.1007/BF03392177>
- Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health*, 30(4), 459–67. <https://doi.org/10.1002/nur.20199>

- Population Enumeration Data (Final Population). (2011). Census of India. Available from <https://censusindia.gov.in>
- Posner, M. I., & Rothbart, M. K. (2007). Research on attention networks as a model for the integration of psychological science. *Annual Review Psychology*, 58, 1–23. <https://doi.org/10.1146/annurev.psych.58.110405.085516>
- Prudenzi, A., Graham, C. D., Flaxman, P. E., Wilding, S., Day, F., & O'Connor, D. B. (2022). A workplace acceptance and commitment therapy (ACT) intervention for improving healthcare staff psychological distress: A randomized controlled trial. *PloS One*, 17(4), e0266357. <https://doi.org/10.1371/journal.pone.0266357>
- Purser, R. E. (2015). Clearing the muddled path of traditional and contemporary mindfulness: A response to Monteiro, Musten, and Compson. *Mindfulness*, 6(1), 23–45. <https://doi.org/10.1007/s12671-014-0373-4>
- Quaglia, J. T., Brown, K. W., Lindsay, E. K., Creswell, J. D., & Goodman, R. J. (2014). From conceptualization to operationalization of mindfulness. In: Brown, K. W., Creswell, J. D., & Ryan, R. M (Eds.). *Handbook of mindfulness: Theory, research, and practice*. Guilford.
- Rahula, W. (1974). *What the Buddha taught*. Grove Press.
- Radon, S. (2014). Validation of the Polish adaptation of the Five Facet Mindfulness Questionnaire. *Annals of Psychology*, 17(4), 737-760.
- Radon, S. (2017). Polish adaptation and validation of the Freiburg Mindfulness Inventory. *Studia Psychologica*, 17(1), 85-100.
- Raj, A. (2022). Resurgence of Buddhism in Indian and Chinese diplomacy. *The Creative Launcher*, 7(2), 20-30. <https://doi.org/10.53032/tcl.2022.7.2.03>
- Raju, P. T. (1954). The concept of the spiritual in Indian thought. *Philosophy East and West*, 4(3), 195-213. <https://doi.org/10.2307/1397554>
- Raju, P. T. (1992). *The Philosophical Traditions of India*. Motilal Banarsidass.
- Raman, K., Dey, B., & Saha, P. K. (2015). Effect of Rajayoga meditation on executive functions: Comparative analysis between meditators and non-meditators. *Gorakhpur Journal of Social Sciences*, 6(1), 22-29.
- Raman, K., Siegert, R., J., Saha, P., K., & Krägeloh, C., U. (2021). Validation of the English language version of the Five Facet Mindfulness Questionnaire in India: A

- Rasch analysis. *Mindfulness*, 12(12), 2955-2965. <https://doi.org/10.1007/s12671-021-01757-8>
- Raman, K., Siegert, R. J., Bharatharaj, J., & Krägeloh, C., U. (2023). A Tamil version of the Five Facet Mindfulness Questionnaire: Translation and validation using Rasch analysis [Accepted for Publication]. *Indian Journal of Psychological Medicine*.
- Ramos, A., Rosado, A., Serpa, S., Cangas, A., Gallego, J, and Ramos, L. (2018). Validity evidence of the Portuguese version of the Five Facet Mindfulness Questionnaire. *Journal of Sport Psychology*, 27(2), 87-98.
- Rehman, M. A. U., Waseem, R., Habiba, U., Fahad Wasim, M., Alam Rehmani, S., Alam Rehmani, M., Abdullah, M., Khabir, Y., Rehan Hashmi, M., Almas, T., Shahan Ali, S., Huzaiifa Shah, S. M., & Fatima, K. (2022). Efficacy of mindfulness-based intervention for the treatment of chronic headaches: A systematic review and meta-analysis. *Annals of Medicine and Surgery*, 78, 103862. <https://doi.org/10.1016/j.amsu.2022.103862>
- Rhys Davids, T.W. & William, S. (Eds). (1921). *The Pali Text Society's Pali-English Dictionary*. Pali Text Society.
- Rhys Davids, T. W. (2004). *Buddhism: Its history and literature*. Asian Educational Services.
- Roth, G. (1980). Some remarks on the location of the Buddha's birthplace. *Indo-Iranian Journal*, 22(3-4), 193-200.
- Ruano, A., García-Torres, F., Gálvez-Lara, M., & Moriana, J. A. (2022). Psychological and non-pharmacologic treatments for pain in cancer patients: A systematic review and meta-analysis. *Journal of Pain and Symptom Management*, 63(5), 505-520. <https://doi.org/10.1016/j.jpainsymman.2021.12.021>
- Rudkin, E., Medvedev, O. N., & Siegert, R. J. (2018). The Five-Facet Mindfulness Questionnaire: Why the observing subscale does not predict psychological symptoms. *Mindfulness*, 9(1), 230–242. <https://doi.org/10.1007/s12671-017-0766-2>
- Sadhasivam, S., Alankar, S., Maturi, R., Williams, A., Vishnubhotla, R. V., Hariri, S., Mudigonda, M., Pawale, D., Dubbireddi, S., Packiasabapathy, S., Castelluccio, P., Ram, C., Renschler, J., Chang, T., & Subramaniam, B. (2021). Isha yoga practices and participation in Samyama program are associated with reduced HbA1C and systemic inflammation, improved lipid profile, and short-term and sustained

- improvement in mental health: A prospective observational study of meditators. *Frontiers in Psychology*, 12, 659667. <https://doi.org/10.3389/fpsyg.2021.659667>
- Safran, J. D., & Segal, Z. V. (1990). *Interpersonal process in cognitive therapy*. Basic Books.
- Sakki, S.E., Penttinen, H.M., Hilgert, O.M., Volanen, S. A., Saarto, T., & Anu, R. (2022). Mindfulness is associated with improved psychological well-being but no change in stress biomarkers in breast cancer survivors with depression: A single group clinical pilot study. *BMC Women's Health*, 22(1), 518. <https://doi.org/10.1186/s12905-022-02116-y>
- Salzberg, S. & Kabat-Zinn, J. (1997). Healing emotions: Conversations with Dalai Lama on mindfulness, emotions, and health. In D. Goleman (Eds.), *Mindfulness as Medicine* (107-144). Shambhala.
- Salzberg, S., & Goldstein, J. (2001). *Insight meditation*. Sounds True.
- Sandage, S. J., & Shults, F. L. (2007). Relational spirituality and transformation: A relational integration model. *Journal of Psychology and Christianity*, 26(3), 261–269.
- Sandhu, J. S. (2004). The Sikh model of the person, suffering, and healing: Implications for counselors. *International Journal for the Advancement of Counselling*, 26(1), 33-46.
- Santorelli, S. F. (2014). *Mindfulness-based stress reduction (MBSR): Standards of practice*. University of Massachusetts Medical School.
- Sathiyaseelan, A., Balasundaram, S., and Zirkler, M. (2022). *Indian Perspectives on Mindful Leadership* [Conference paper], International Research Conference on Mindfulness, Indian Institute of Management, Bodh Gaya.
- Schulman, D. (2016). *Tamil: A biography*. The Belknap Press of Harvard University Press.
- Schumann, H. W. (2003). *The historical Buddha: The times, life, and teachings of the founder of Buddhism*. Motilal Banarsidass.
- Segal, Z. V., Williams, J. M., & Teasdale, J. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. Guilford Press.
- Segal, Z. V., Williams, J. M., & Teasdale, J. (2013). *Mindfulness-based cognitive therapy for depression (2nd ed.)*. Guilford Press.
- Seshadri, A., Scott, S., Adaji, A., Singh, B., Clark, M. A., Frye, M. A., McGillivray, J., & Tyszkiewicz, M. F. (2021). Mindfulness-based cognitive therapy, acceptance and

- commitment therapy, and positive psychotherapy for major depression. *American Journal of Psychotherapy*, 74(1), 4-12.
<https://doi.org/10.1176/appi.psychotherapy.20200006>
- Shafi, S. T. (2005). Islam and mindfulness: The case of Pakistan. *Journal of Religion and Health*, 44(3), 357-370.
- Shafi, M. (2005). *Maariful Quran*. (M. H. Askari, Trans., Vol. 1). Idaratul Ma'arif.
- Shallcross, A., Lu, N. Y., & Hays, R. D. (2020). Evaluation of the psychometric properties of the Five Facet of Mindfulness Questionnaire. *Journal of Psychopathology and Behavioral Assessment*, 42(2), 271-280. <https://doi.org/10.1007/s10862-019-09776-5>
- Shapiro, S. L., Schwartz, G. E., & Bonner, G. (1998). Effects of mindfulness-based stress reduction on medical and premedical students. *Journal of Behavioral Medicine*, 21(6), 581–599. <https://doi.org/10.1023/a:1018700829825>
- Shapiro, S. L., Oman, D., Thoresen, C. E., Plante, T. G., & Flinders, T. (2008). Cultivating mindfulness: Effects on well-being. *Journal of Clinical Psychology*, 64(7), 840-862. <https://doi.org/10.1002/jclp.20491>
- Shapiro, S. L., Brown, K. W., Thoresen, C., & Plante, T. G. (2011). The moderation of mindfulness-based stress reduction effects by trait mindfulness: Results from a randomized controlled trial. *Journal of Clinical Psychology*, 67(3), 267–277. <https://doi.org/10.1002/jclp.20761>
- Sharkey, A. (2015). The mindfulness phenomenon: A brief history. *Irish Journal of Counselling and Psychotherapy*, 15(2), 9-13.
- Sharma, H. (2015). Meditation: Process and effects. *Journal of Ayurveda and Integrative Medicine*, 36(3), 233-237. <https://doi.org/10.4103/0974-8520.182756>
- Shoham, A., Goldstein, P., Oren, R., Spivak, D., & Bernstein, A. (2017). Decentering in the process of cultivating mindfulness: An experience-sampling study in time and context. *Journal of Consulting and Clinical Psychology*, 85(2), 123-134. <http://dx.doi.org/10.1037/ccp0000154>
- Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, 86(2), 420–428. <https://doi.org/10.1037/0033-2909.86.2.420>

- Siebert, R. J., Tennant, A., & Turner-Stokes, L. (2010). Rasch analysis of the Beck Depression Inventory-II in a neurological rehabilitation sample. *Disability and Rehabilitation*, 32(1), 8–17. <https://doi.org/10.3109/09638280902971398>
- Siegling, A. B., & Petrides, K. V. (2016). Zeroing in on mindfulness facets: Similarities, validity, and dimensionality across three independent measures. *PLoS ONE*, 11(4), e0153073. <https://doi.org/10.1371/journal.pone.0153073>
- Simione, L., Raffone, A. & Mirolli, M. (2021). Acceptance, and not its interaction with attention monitoring, increases psychological well-being: Testing the monitor and acceptance theory of mindfulness. *Mindfulness*, 12(6), 1398–1411. <https://doi.org/10.1007/s12671-021-01607-7>
- Simione, L., De Berardinis, C., Calabrese, L., & Raffone, A. (2022). Validation of the Italian translation of the Philadelphia Mindfulness Scale. *Mindfulness*, 13(9), 2186–2201. <https://doi.org/10.1007/s12671-022-01947-y>
- Singh, A. (2022a). Vedic meditation techniques: A review of research on benefits and mechanisms. *Journal of Religion and Health*, 61(2), 609–628.
- Singh, S. P. (2022b). Sakshi and Dhyana: The origin of mindfulness-based therapies. *British Journal of Psychology Bulletin*, 47,94-97. <https://doi.org/10.1192/bjb.2022.39>
- Sivananda, S. (1936). *Brahma Sutras: Text, word-to-word meaning, translation, and commentary*. Sivananda Publication League.
- Sivananda, S. (2010). *All about Hinduism: The four yogas*. Divine Life society.
- Smith, E. V., Jr. (2002). Detecting and evaluation the impact of multidimensionality using item fit statistics and principal component analysis of residuals. *Journal of Applied Measurement*, 3(2), 205–231.
- Smout, M. F., Longo, M., Harrison, S., Minniti, R., Wickes, W., & White, J. M. (2010). Psychosocial treatment for methamphetamine use disorders: A preliminary randomized controlled trial of cognitive behavior therapy and acceptance and commitment therapy. *Substance Abuse*, 31(2), 98–107. <https://doi.org/10.1080/08897071003641578>
- Soler, J., Cebolla, A., Feliu-Soler, A., Demarzo, M. M. P., Pascual, J. C., Baños, R., & Garcia-Campayo, J. (2014). Relationship between meditative practice and self-

- reported mindfulness: The MINDSENS composite index. *PLoS ONE*, 9(1), e86622.
<https://doi.org/10.1371/journal.pone.0086622>
- Specia, M., Carlson, L. E., Goodey, E., & Angen, M. (2000). A randomized, wait-list controlled clinical trial: The effect of a mindfulness meditation-based stress reduction program on mood and symptoms of stress in cancer outpatients. *Psychosomatic Medicine*, 62(5), 613–622. <https://doi.org/10.1097/00006842-200009000-00004>
- Srinivasan, D. (2013a). Diversity in India: A historical and contemporary perspective. *International Journal of Humanities and Social Science Invention*, 2(6), 38-45.
- Srinivasan, T.M. (2013b). From meditation to dhyana. *International Journal of Yoga*, 6(1).
- Sri Ramakrishna Math. (2010). *Paths of meditation: A collection of essays on different techniques of meditation according to different faiths*. Sri Ramakrishna Math Printing Press.
- Stahl, B., & Goldstein, E. (2010). *A mindfulness-based stress reduction workbook*. New Harbinger Publications.
- Stanton, M., & Dunkley, C. (2019). *Teaching mindfulness skills in DBT*. In M. A. Swales (Ed.), *The Oxford Handbook of Dialectical Behavior Therapy*. Oxford University Press.
- Strong, J. S. (2007). *Relics of the Buddha*. Princeton University Press.
- Sugiura, Y., Sato, A., Ito, Y., & Murakami, H. (2012). Development and validation of the Japanese version of the Five Facet Mindfulness Questionnaire. *Mindfulness*, 3(2), 85–94. <https://doi.org/10.1007/s12671-011-0082-1>
- Suh, H. W., Jeong, H. Y., Hong, S., Kim, J. W., Yoon, S. W., Lee, J. Y., & Chung, S. Y. (2021). The mindfulness-based stress reduction program for improving sleep quality in cancer survivors: A systematic review and meta-analysis. *Complementary Therapies in Medicine*, 57, 102667. <https://doi.org/10.1016/j.ctim.2021.102667>
- Sujato, B. (2011). *A History of Mindfulness: How insight worsted tranquility in the Satipaṭṭhāna Sutta*. Santipada.
- Tanay, G., & Bernstein, A. (2013). State Mindfulness Scale (SMS): Development and initial validation. *Psychological Assessment*, 25(4), 1286-1299.
<https://doi.org/10.1037/a0034044>

- Tang Y. Y., Hölzel B. K., Posner M. I. (2015). The neuroscience of mindfulness meditation. *Nature Reviews Neuroscience*, *16*(4), 213–225.
<https://doi.org/10.1038/nrn3916>
- Taylor, N. Z., & Millier, P. M. R. (2016). Validity of the Five Facet Mindfulness Questionnaire in an Australian, meditating, demographically diverse sample. *Personality and Individual Differences*, *90*, 73-77.
<https://doi.org/10.1016/j.paid.2015.10.041>
- Teasdale, J. D., Segal, Z. V., Williams, J., M., Ridgeway, V., A., Soulsby, J., M., & Lau, M., A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology*, *68*(4), 615-23. <https://doi.org/10.1037//0022-006x.68.4.615>
- Teasdale, J. D., Moore, R. G., Hayhurst, H., Pope, M., Williams, S., & Segal, Z. V. (2002). Meta-cognitive awareness and prevention of relapse in depression: Empirical evidence. *Journal of Counselling and Clinical Psychology*, *70*(2), 275-287.
<https://doi.org/10.1037/0022-006X.70.2.275>
- Teixeira, R. J., Ferreira, G., & Pereira, M. G. (2017). Portuguese validation of the Cognitive and Affective Mindfulness Scale-Revised and the Philadelphia Mindfulness Scale. *Mindfulness & Compassion*, *2*(1), 3–8.
<http://dx.doi.org/10.1016/j.mincom.2017.03.001>
- Tejedor, R., Feliu-Soler, A., Pascual, J. C., Cebolla, A., Portella, M. J., Trujols, J., Soriano, J., Pérez, V., & Soler, J. (2014). Psychometric properties of the Spanish version of the Philadelphia Mindfulness Scale. *Revista de Psiquiatria Y Salud Mental*, *7*(4), 157–165. <https://doi.org/10.1016/j.rpsm.2014.04.001>
- Tennant, A., & Conaghan, P. G. (2007). The Rasch measurement model in rheumatology: What is it and why use it? When should it be applied, and what should one look for in a Rasch paper? *Arthritis & Rheumatism*, *57*(8), 1358–1362.
<https://doi.org/10.1002/art.23108>
- Teixeira, R. J., & Pereira, M. G. (2015). Examining mindfulness and its relation to self-differentiation and alexithymia. *Mindfulness*, *6*(1), 79–87.
<https://doi.org/10.1007/s12671-013-0233-7>
- Thanissaro, B. (1993). *Dhammacakkappavattana Sutta: Setting the wheel of Dhamma in motion (SN 56.11)*. Translated from the Pali.

- Thera, N. (1995). *The Buddha and His teachings*. Buddhist Publication Society.
- Trainor, K. (2010). "Kapilavastu". In Keown, D. & Prebish, C. S. (eds.). *Encyclopedia of Buddhism* (pp. 436–437). Routledge.
- Tran, U. S., Glück, T. M., & Nader, I. W. (2013). Investigating the Five Facet Mindfulness Questionnaire (FFMQ): Construction of a short form and evidence of a two-factor higher order structure of mindfulness. *Journal of Clinical Psychology, 69*(9), 951-965. <https://doi.org/10.1002/jclp.21996>
- Travis, F., & Shear, J. (2010). Focused attention, open monitoring and automatic self-transcending: Categories to organize meditations from Vedic, Buddhist and Chinese traditions. *Consciousness and Cognition, 19*(4), 1110–1118. <https://doi.org/10.1016/j.concog.2010.01.007>
- Trindade, I. A., Guiomar, R., Carvalho, S. A., Duarte, J., Lapa, T., Menezes, P., Nogueira, M. R., Patrão, B., Pinto-Gouveia, J., & Castilho, P. (2021). Efficacy of online-based acceptance and commitment therapy for chronic pain: A systematic review and meta-analysis. *The Journal of Pain, 22*(11), 1328-1342. <https://doi.org/10.1016/j.jpain.2021.04.003>
- Tripurāri, S. B. V. (2010). *Bhagavad Gita: Its feeling and philosophy*. Mandala Publishing.
- Trousselard, M., Steiler, D., Raphel, C., Cian, C., Duymedjian, R., Claverie, D., & Canini, F. (2010). Validation of a French version of the Freiburg Mindfulness Inventory-short version: Relationships between mindfulness and stress in an adult population. *BioPsychoSocial Medicine, 4*(8). <https://doi.org/10.1186/1751-0759-4-8>
- Truijens, S. E. M., Nyklíček, I., Son, J. V., & Pop, V. J. M. (2016). Validation of a short form Three Facet Mindfulness Questionnaire (TFMQ-SF) in pregnant women. *Personality and Individual Differences, 93*, 118-124. <https://doi.org/10.1016/j.paid.2015.06.037>
- Tsai, J., Louie, J., Chen, E., & Uchida, Y. (2007). Learning what feelings to desire: Socialization of ideal affect through children's storybooks. *Personality & Social Psychology Bulletin, 33*(1), 17-30. <https://doi.org/10.1177/0146167206292749>
- Tseng, H. W., Chou, F. H., Chen, C. H., & Chang, Y. P. (2023). Effects of mindfulness-based cognitive therapy on major depressive disorder with multiple episodes: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health, 20*(2), 1555. <https://doi.org/10.3390/ijerph20021555>

- Toniolo–Barrios, M., Brasil, A. & Pitt, L. F. (2020). Nine prolific years: An analysis of publications in mindfulness. *Mindfulness*, *11*(5), 1077–1089.
<https://doi.org/10.1007/s12671-020-01321-w>
- Upadhyay, K. N. (1971). *Early Buddhism and the Bhagavadgītā*. Motilal Banarsidass.
- Vago, D. R., & Silbersweig, D. A. (2012). Self-awareness, self-regulation, and self-transcendence (S-ART): A framework for understanding the neurobiological mechanisms of mindfulness. *Frontiers in Human Neuroscience*, *6*, 296.
<https://doi.org/10.3389/fnhum.2012.00296>
- Van Dam, N. T., Van Vugt, M. K., Vago, D. R., Schmalzl, L., Saron, C. D., Olendzki, A., Meissner, T., Lazar, S. W., Kerr, C. E., Gorchov, J., Fox, K. C. R., Field, B. A., Britton, W. B., Brefczynski-Lewis, J. A., & Meyer, D. E. (2018). Mind the hype: A critical evaluation and prescriptive agenda for research on mindfulness and meditation. *Perspectives on Psychological Science*, *13*(1), 36–61.
<https://doi.org/10.1177/1745691617709589>
- Van Gordon, W., Shonin, E., Griffiths, M. D., & Singh, N. N. (2015). There is only one mindfulness: Why science and Buddhism need to work together. *Mindfulness*, *6*(1), 49–56. <https://doi.org/10.1007/s12671-014-0379-y>
- Van Leeuwen, S., Singer, W., & Melloni, L. (2012). Meditation increases the depth of information processing and improves the allocation of attention in space. *Frontiers in Human Neuroscience*, *6*, 133. <https://doi.org/10.3389/fnhum.2012.00133>
- Venugopal, S. N. (2012). *The gaze of the West and framings of the East (Frontiers of Globalization)*. Palgrave Macmillan.
- Viera, A. J., & Garrett, J. M. (2005). Understanding interobserver agreement: The kappa statistic. *Family Medicine*, *37*(5), 360–363.
- Vivekananda, S. (2009). *Complete book of Yoga: Karma yoga, bhakti yoga, raja yoga, jnana yoga*. Vijay Goel publishers.
- Von Hinüber, O. (2006). *A handbook of Pāli literature*. Walter de Gruyter.
- Walach, T., Buchheld, N., Buttenmuller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness: The Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences*, *40*(8), 1543–1555.
<https://doi.org/10.1016/j.paid.2005.11.025>

- Watson-Singleton, N. N., Walker, J. H., LoParo, D., Mack, S. A., & Kaslow, N. J. (2018). Psychometric evaluation of the Five Facets Mindfulness Questionnaire in a clinical sample of African Americans. *Mindfulness*, 9(1), 312-324. <https://doi.org/10.1007/s12671-017-0776-0>
- Waszczuk, M. A., Zavos, H., Antonova, E., Haworth, C. M., Plomin, R., & Eley, T. C. (2015). A multivariate twin study of trait mindfulness, depressive symptoms, and anxiety sensitivity. *Depression and Anxiety*, 32(4), 254–261. <https://doi.org/10.1002/da.22326>
- Weise, K. (2013). *The sacred garden of Lumbini: Perceptions of Buddha's birthplace*. UNESCO.
- Welbon, G. (2004). *The Buddhist Nirvana and Its Western Interpreters*. University of Chicago Press.
- Williams, M. S., Jerome, A., White, K., & Fisher, A. (2006). Making sense of suffering: A preliminary study of changes in religious women adjusting to severe adversity. *Counseling and Values*, 50(2), 84–98. <https://doi.org/10.1002/j.2161-007X.2006.tb00045.x>
- Williams, M. J., Dalgleish, T., Karl, A., Kuyken, W. (2014). Examining the factor structures of the Five Facet Mindfulness Questionnaire and the Self-Compassion Scale. *Psychological Assessment*, 26(2), 407–18. <https://doi.org/10.1037/a0035566>
- Willis, G. B., Miller, K., Willis, G. B., & Miller, K. (2011). Cross-cultural cognitive interviewing: Seeking comparability and enhancing understanding. *Field Methods*, 23(4), 331–341. <https://doi.org/10.1177/1525822X11416092>
- Wilkinson, S., Ribeiro, L., Krägeloh, C. U., Bergomi, C., Parsons, M., Siegling, A., Tschacher, W., Kupper, Z., & Medvedev, O. N. (2023). Validation of the Comprehensive Inventory of Mindfulness Experiences (CHIME) in English using Rasch methodology. *Mindfulness* [in press]. <https://doi.org/10.1007/s12671-023-02099-3>
- Williams, J. M. G. (2008). Mindfulness, depression and modes of mind. *Cognitive Therapy and Research*, 32(6), 721–733. <https://doi.org/10.1007/s10608-008-9204-z>
- Wu, H., Li, F., & Zhang, F. (2022). The efficacy of mindfulness-based stress reduction vs. standard or usual care in patients with breast cancer: A systematic

- review and meta-analysis of randomized controlled trials. *Translational Cancer Research*, 11(11), 4148–4158. <https://doi.org/10.21037/tcr-22-2530>
- Wynne, A. (2007). *The Origin of Buddhist Meditation*. Routledge.
- Xuan, R., Li, X., Qiao, Y., Guo, Q., Liu, X., Deng, W., Hu, Q., Wang, K., & Zhang, L. (2020). Mindfulness-based cognitive therapy for bipolar disorder: A systematic review and meta-analysis. *Psychiatry Research*, 290, 113-116. <https://doi.org/10.1016/j.psychres.2020.113116>
- Yousaf, A. (2021). Exploring the relationship between meditation and self-awareness: A qualitative study. *Journal of Mental Health Counseling*, 43(1), 56-67.
- Yusoff, M. S. B. (2019). ABC of content validation and content validity index calculation. *Education in Medicine Journal*, 11(2), 49-54. <https://doi.org/10.21315/eimj2019.11.2.6>
- Zeng, X., Li, M., Zhang, B., & Liu, X. (2015). Revision of the Philadelphia Mindfulness Scale for measuring awareness and equanimity in Goenka's vipassana meditation with Chinese Buddhists. *Journal of Religion and Health*, 54(2), 623–637. <https://doi.org/10.1007/s10943-014-9870-y>
- Zhang, B., Fu, W., Guo, Y., Chen, Y., Jiang, C., Li, X., & He, K. (2022). Effectiveness of mindfulness-based cognitive therapy against suicidal ideation in patients with depression: A systematic review and meta-analysis. *Journal of Affective Disorders*, 319, 655-662. <https://doi.org/10.1016/j.jad.2022.09.091>
- Zhou, X., Guo, J., Lu, G., Chen, C., Xie, Z., Liu, J., & Zhang, C. (2020). Effects of mindfulness-based stress reduction on anxiety symptoms in young people: A systematic review and meta-analysis. *Psychiatry Research*, 289. <https://doi.org/10.1016/j.psychres.2020.113002>

Appendix A: IRB Approval from NFSU (Chapter 4)

Institute of Behavioral Science

GFSU NAAC ACCREDITED 'A' GRADE

Gujarat Forensic Sciences University
Knowledge | Wisdom | Fulfillment

Date: 09.12.2019

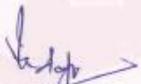
To Whomsoever It May Concern

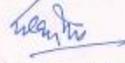
1. It is certified that Ms. Kalpana Raman was registered for a Ph.D. Programme in the Faculty of Behavioural Science at this Institute on 16.11.2018. She left the Programme on 11.06.2019. The topic of her research was 'Effect of Rajyoga Meditation and Mindfulness Training on Mild Cognitive Impaired Older Adults: A Clinical and Psychophysiological Investigation' under the Institute of Behavioural Science, Gujarat Forensic Sciences University, Gandhinagar.

2. During this period, she collected her data on 901 participants. The study was monitored by the Research Progress Committee. However, it is certified that: (a) Her study was deemed to be of low risk, (b) Her guide Dr. Proshanto Saha reviewed and approved the procedure of data collection, (c) Participants were treated in accordance with the principles and under the law of data protection act (d) Confidentiality was maintained and best practices were followed.

3. Therefore, the Institutional Review Board is requested to accord an 'Ex post facto' approval.


(Dr. Proshanto Saha)
Asst. Professor, IBS


(C.D. Jadeja)
Registrar, GFSU


(KK Tripathi)
Brig - Retd
Director, IBS

The IRB has examined the above request and has no objection in according an 'Ex post facto' approval to the above study.




Member Secretary,
IRB, IBS

Gujarat Forensic Sciences University
Sector 9, Gandhinagar - 382007, Gujarat, India

Tel: +91-79-2397 7162 / 177 | Fax: +91-79-2324 7465
Email: dir_bs@gfsu.edu.in | Website: www.gfsu.edu.in

Appendix B: Ethics Approval from BIHER (Chapter 5)

 Bharath INSTITUTE OF HIGHER EDUCATION AND RESEARCH (Declared as Deemed-to-be University under section 3 of UGC Act, 1956) (Vide Notification No. F.9-5/2000 - U.3, Ministry of Human Resource Development, Govt. of India, dated 4 th July 2002)	 Accredited by NAAC NATIONAL ASSOCIATION OF AMBA ACCREDITED INSTITUTIONS
Phone : 044-22290742 / 22290125 . Telefax : 044-22293886 Website : www.bharathuniv.ac.in	173, Agaram Road, Selaiyur, Tambaram, Chennai - 600 073. Tamil Nadu.

Ref: 144/BIHER/ROB-RES/2021 DATE: 18th June 2021

FROM

Office of the Human Resource Ethics committee
Centre for Robotics and Artificial Intelligence
173, Agharam road, Selaiyur, Chennai- 600073,
Tamil Nadu, India.

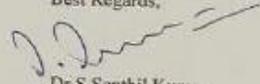
To

Mr. Jaishankar Bharathraj,
Auckland University of Technology, New Zealand.

Dear Jaishankar,

The Human Resource Ethics Committee of the Centre for Robotics and Artificial Intelligence has reviewed your application to conduct research in cross-cultural generalisability of five facet mindfulness questionnaires in the Indian context. We are glad that our committee has recommended approving the research activity within India. The approval is valid till 17th December 2021. The committee also approves the involvement of Smt. Kalpana Raman, doctoral student from Auckland University of Technology, New Zealand who is working at Bharath Institute of Higher and Research as a visiting research fellow. On behalf of the committee, we wish you all the best!

Approval Reference Number	144/BIHER/ROB-RES/2021.
Research Title	Cross- Cultural Generalisability of Five Facet Mindfulness Questionnaire in the Indian context.
Date of Approval	18 th June 2021
Committee	Approved

Best Regards,

Dr. S. Senthil Kumar
Director
BIST Human Ethics Committee
Director_robotics@bharathuniv.ac.in

Copy:

1. Research Dean, Bharath Institute of Higher Education and Research
2. Human Resource Ethics committee, Bharath Institute of Higher Education and Research
3. Associate Professor Chris Krageloh, PAIR LAB, Auckland University of Technology, New Zealand

Appendix C: AUTECH Ethics Approval (Chapter 5)



Auckland University of Technology Ethics Committee (AUTECH)

Auckland University of Technology
D-88, Private Bag 92008, Auckland 1142, NZ
T: +64 9 921 9000 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

AUT

TE WĀNANGA ARONUI
O TĀMAKI MAKĀU RAU

13 October 2021

Chris Krageloh
Faculty of Health and Environmental Sciences

Dear Chris

Re Ethics Application: **21/297 Cross-Cultural Generalisability of the Five Facet Mindfulness Questionnaire in the Indian context.**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTECH).

Your ethics application has been approved for three years until 13 October 2024.

Non-Standard Conditions of Approval

1. Please send through the English pdf version on the survey for our file.

Non-standard conditions must be completed before commencing your study. Non-standard conditions do not need to be reviewed by AUTECH before commencing your study.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the [Auckland University of Technology Code of Conduct for Research](#) and as approved by AUTECH in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTECH prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTECH Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTECH Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.
8. AUTECH grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

Please quote the application number and title on all future correspondence related to this project.

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through <http://www.aut.ac.nz/research/researchethics>

(This is a computer-generated letter for which no signature is required)

The AUTECH Secretariat
Auckland University of Technology Ethics Committee

Cc: kalpana.raman@aut.ac.nz; kalpana.raman@aut.ac.nz; kalpana.ppsychol@ic@gmail.com; Richard Siebert; jahankar.bharatharaj@aut.ac.nz

Appendix D: AUTECH Ethics Approval (Chapter 6)



TE WĀHANGA ARONGA
O TĀMĀKI MĀKAU IRU

Auckland University of Technology Ethics Committee (AUTECH)

Auckland University of Technology
D-88, Private Bag 92026, Auckland 1142, NZ
T: +64 9 021 9099 ext. 8310
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

13 December 2021

Chris ~~Kaplan~~
Faculty of Health and Environmental Sciences

Dear Chris

Re Ethics Application: **21/297 Cross-Cultural Generalisability of the Five Facet Mindfulness Questionnaire in the Indian context.**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTECH).

Your ethics application has been approved for three years until 13 December 2024.

Non-Standard Conditions of Approval

Non-standard conditions must be completed before commencing your study. Non-standard conditions do not need to be submitted to or reviewed by AUTECH before commencing your study.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the [Auckland University of Technology Code of Conduct for Research](#) and as approved by AUTECH in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTECH prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTECH Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTECH Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.
8. AUTECH grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

Please quote the application number and title on all future correspondence related to this project.

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through <http://www.aut.ac.nz/research/researchethics>

(This is a computer-generated letter for which no signature is required)

The AUTECH Secretariat
Auckland University of Technology Ethics Committee

Co-_____ kalpana.raman@aut.ac.nz; kalpana.raman@aut.ac.nz; kalpana.psychology@gmail.com; Richard 
jahnkanan.bhanatharan@aut.ac.nz

இந்திய சூழலில் ஐந்து அம்ச மனப்பாங்கு கேள்வித்தாளின் குறுக்கு-கலாச்சார பொதுத்தன்மை.

தகவல் தாள

வணக்கம் / நமஸ்தே

நான் தற்போது நியூசிலாந்தின் ஆக்லாந்து தொழில்நுட்ப பல்கலைக்கழகத்தில் சேர்ந்த ஒரு முனைவர் மாணவர் (பிஎச்டி) ஆரம்பத்தில் இந்தியாவின் பல்வேறு பகுதிகளிலிருந்து பங்கேற்பாளர்களுடன் அமெரிக்காவளர்ந்த நினைவாற்றலை சோதித்துப் பார்ப்பதன் மூலம் இந்தியாவில் நினைவாற்றல் மதிப்பீட்டின் குறுக்கு-கலாச்சார பொதுமயமாக்கலை ஆராய்வதை ஆராய்ச்சி நோக்கமாகக் கொண்டுள்ளது. இது இணை பேராசிரியர் Chris Krágeloh (முதன்மை மேற்பார்வையாளர்), பேராசிரியர் Richard J. Siegert (இரண்டாம் மேற்பார்வையாளர்), மற்றும் பல்கலைக்கழக ஒத்துழைப்பு Dr.JaishankarBharatharaj (பாரத் உயர் கல்வி மற்றும் ஆராய்ச்சி நிறுவனம், தமிழ்நாடு, இந்தியா) மேற்பார்வையில் நடத்தப்படுகிறது.

இந்த ஆராய்ச்சியில் ஈடுபடுவது முற்றிலும் தன்னார்வமானது என்பதை நான் உறுதிப்படுத்த விரும்புகிறேன், எனது ஆய்வில் பங்கேற்க நீங்கள் எடுத்த முடிவு தொடர்பான ஒப்புதல் அளிக்க அல்லது எனது விசாரணைகளை நிராகரிக்க உங்களுக்கு உரிமை உண்டு. உங்கள் பங்கேற்பு முழுமையான இரகசியத்தன்மையுடன் நடத்தப்படும், மேலும் நீங்கள் வழங்கும் எந்தவொரு தகவலும் தரவு பாதுகாப்புச் சட்டத்துடன் (1984) ஒத்துப்போகும். கேள்வித்தாளை நிறைவு செய்வது சம்மதத்தைக் குறிக்கிறது. உங்கள் பதில்களைச் சமர்ப்பித்தவுடன், உங்கள் பதில்கள் அநாமதேயமாக இருப்பதால், நீங்கள் இனி திரும்பப் பெற முடியாது. இந்த ஆய்வில் எந்த குறிப்பிட்ட சமூக, மத அல்லது கலாச்சார நலனும் இல்லை. தகவலுக்கான அணுகல் கையொப்பமிடப்படாத மற்றும் கடவுச்சொல் பாதுகாக்கப்பட்ட கோப்பில் பாதுகாப்பாக சேமிக்கப்படும். அவர்கள் தேவைப்பட்டால் அது ஒரு பத்திரிக்கைக்கு அனுப்பப்படலாம். இருப்பினும், தனிப்பட்ட பங்கேற்பாளர் யாரும் பத்திரிகையில் அடையாளம் காணப்பட மாட்டார்.

ஆய்வில், பெயர், வயது, பாலினம், தியானம் செய்த ஆண்டுகள் (பயிற்சி செய்தால்) போன்ற உங்கள் விவரங்களை நீங்கள் பூர்த்தி செய்ய வேண்டும், பின்னர் உங்கள் பதில்களை ஐந்து புள்ளிகள் அளவில் நினைவூட்டல் கேள்வித்தாளில் கோடிட்டுக் குறிக்கவும். பதில்களைக் குறிக்க 30 நிமிடங்களுக்கும், நேர்காணலுக்கு ஆட்சேர்ப்பு செய்யப்பட்டால் 60-90 நிமிடங்களுக்கும் மேலாக ஆய்வு எடுக்காது. எல்லா தரவும் ஆராய்ச்சியாளர் மற்றும் முதன்மை மேற்பார்வையாளருடன் கடவுச்சொல் பாதுகாக்கப்பட்ட ஆவணமாக ரகசியமாக சேமிக்கப்படும். இந்த ஆய்வு ஒரு உள்நாட்டு கண்ணோட்டத்தில் இந்தியாவைப் புரிந்துகொள்வதை அடிப்படையாகக் கொண்ட நினைவாற்றல் மதிப்பீடுகளின் குறுக்கு கலாச்சார பொதுமயமாக்கல் தொடர்பான எதிர்கால ஆய்வுகளுக்கான பாதையைத் தொடங்கும் என்று எதிர்பார்க்கப்படுகிறது. கையொப்பம் பரிசீலனைக்கல்

<https://docs.google.com/forms/d/1rUJmZnDBk-8s-ph-kidwE5hAaTUsp9WkUQg/edit>

1/17

முகவரியில் பங்கேற்பாளர்களைக் கோருவதற்கு ஒரு சுருக்கம் வழங்கப்படும்.

தற்போதைய ஆவணம் குறித்து தேவையான அனைத்து விவரங்களையும் இந்த ஆவணம் வழங்குகிறது என்று நான் உண்மையிலேயே நம்புகிறேன். இருப்பினும், ஆய்வு தொடர்பான மேலதிக தகவல்களை நீங்கள் விரும்பினால் தயவுசெய்து என்னை தொடர்பு கொள்ளவும்.

அன்புடன்
Kalpana Raman
kalpana.raman@uoi.ac.in

• Download

Appendix F: Participant Information Sheet in English (Chapter 6)



Participant Information Sheet

Date Information sheet produced:

Project Title

Cross-Cultural Generalisability of the Five Facet Mindfulness Questionnaire in the Indian context.

An Invitation

My name is Kalpana Raman, currently pursuing Doctoral programme in Psychology (PhD) at Auckland University of Technology, New Zealand. This study is part of my PhD thesis. It aims to investigate the cross-cultural generalizability of the mindfulness assessment in India by exploring any potential differences in the conceptual and practical understanding of the mindfulness assessment in-depth and devise Indian culture specific items, if required. This study is being conducted under the supervision of Associate Professor Chris Krägeloh (primary supervisor), and Professor Richard J. Siegert (secondary supervisor). Due to dearth of research literature and studies in this regard specific to the Indian context, this study will open the pathway for the future studies pertaining to the cross-cultural generalisability of mindfulness assessments based on the understanding of India.

What is the purpose of this research?

This study attempts to answer the research question *“Is there a need for creation of novel culture/country-specific items in the assessment of mindfulness?”*

India, specifically, provides an interesting context for mindfulness, not only due to its historical links to mindfulness, but also due to its cultural diversity. The roots of the mindfulness concept and practice have been linked to the Buddhist tradition which initially originated from the Indian subcontinent. Dearth of evidence remains related to the understanding of the mindfulness concept specific to India, exploring the validity of common mindfulness instrument in the Indian population and creating country-specific local items, if

required, deriving from the understanding. The findings of this study may be used for academic publications and presentations. The likely output of this research will be part of the doctoral thesis, a research paper, a journal article and as a conference paper for presentation.

How was I identified and why am I being invited to participate in this research?

For the purpose of this study, we are recruiting participants who are religious leaders of the major religions in India as well as the long term meditation practitioners of various organizations. Proficient in reading and answering of interview questions in English. You were contacted using the primary researcher's networks and word of mouth because you are above 18 years of age, religious leader of one of the predominant religions in India based on the Census Data or a long-term meditation practitioner and you are proficient in English. Potential participants with any significant psychiatric illness, neurological trauma or brain disease, intellectual disability and current or past history of substance abuse will not be able to take part in this study. We request the potential participants to self-identify accordingly as we will not be conducting any tests to screen participants for it.

How do I agree to participate in this research?

You will have a week to confirm your participation. A consent form is provided along with the information sheet to be duly completed and returned to the undersigned researcher. You can choose to fill and sign the attached consent form or give oral consent when the video call is arranged. Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed and allowing it to continue to be used. However, once the findings have been produced, removal of your data may not be possible. Also, once you have submitted your responses, you can no longer withdraw, as your responses will be anonymous.

What will happen in this research?

The study will be conducted and completed using Google Forms that is accessible via the link provided to you as well as a suitable time will be coordinated between you and the undersigned researcher to conduct the interview. This study involves marking/rating of responses on this questionnaire as well as a video interview which will be recorded for transcription and analysis purposes. You can choose to duly fill and sign the consent form attached with this sheet or to provide oral consent during the videoconference. You can also

choose whether you would like to mark your responses to the questionnaire before the interview or during the interview. On the Google forms link, you will have to complete your details such as age, gender, years of practicing meditation etc and then mark your responses on a five-point scale in the Google forms link. The study would not take more than 90 minutes for marking the responses and interview. The data collected will be analysed for descriptive indicators and to test the psychometric properties of the assessment utilising statistical software package. Thematic analysis would be conducted for the interview answers.

What are the discomforts and risks?

The design of the study does not involve any harm or deceit, discomfort and risk to the participants or research study.

What are the benefits?

By participating in this study, you as potential participant would provide resources for the research community to undertake assessments for their own purposes in the future. Since mindfulness has been shown to be associated with many psychological health benefits, this would assist mental health research in India. This will further assist in broadening the scope of research for more cross-cultural studies on the understanding, development and validation of mindfulness instruments in the Indian subcontinent.

How will my privacy be protected?

We would like to ensure you that the involvement in this research is entirely voluntary and you have the right to give consent or reject my enquiries regarding your decision to participate in my study. The study does not involve any specific community, social, religious or cultural benefit. Your participation will be treated with complete confidentiality and that any information you provide will be treated in concordance with the Data Protection Act (1984). A consent form for recording of interviews has been provided along with this information sheet. The access to the information will be with the undersigned and stored safely in a password protected file. It might be potentially sent to a journal if they require it. However, no individual participant will be identified in the journal. The data will be stored and protected as per the Auckland University of Technology norms and regulations.

What are the costs of participating in this research?

The study would not take more than 90 minutes for marking the responses and interview.

What opportunity do I have to consider this invitation?

The participants will have a month to consider this invite to participate starting from the issue date mentioned at the top of this page.

Will I receive feedback on the results of this research?

Lay summary will be sent to all the participants via email which would be collected during initial contact and confirmation of consent to participate in this study.

Live results/analytics can be viewed using this link https://docs.google.com/forms/d/1Vqlc-2G35euUnk2QcUk2IiXym2nnTPCEab5dL_KtQf8/viewanalytics

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Associate Professor Chris Krägeloh, chris.krageloh@aut.ac.nz, (+649) 921 9999 ext 7103.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEK, ethics@aut.ac.nz, (+649) 921 9999 ext 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:

Kalpana Raman

Auckland University of Technology
Email: kalpana.raman@aut.ac.nz

Project Supervisor Contact Details:

Associate Prof. Chris Krägeloh
Auckland University of Technology
Email: chris.krageloh@aut.ac.nz

Prof. Richard Siegert

Auckland University of Technology
Email: richard.siegert@aut.ac.nz

Approved by the Auckland University of Technology Ethics Committee on 13th December 2021, AUTEK Reference number 21/297.

Appendix G: Oral Consent Form for Audio Recordings (Chapter 6)



Oral Consent Protocol

Project title: Cross-Cultural Generalisability of the Five Facet Mindfulness Questionnaire in the Indian context.

Project Supervisor: Chris Krägeloh, Richard Siegert

Researcher: Kalpana Raman

The participant joins the videoconference

Do you agree to my recording your consent to participate?

If they agree, then the record function will be activated and they will be asked the following:

- Have you read and understood the information provided about this research project in the Information Sheet dated dd mmmm yyyy?
- Do you have any questions about the research?
- Do you understand that notes will be taken during the interviews and that the interview will also be audio-recorded and transcribed?
- Do you understand that taking part in this study is voluntary (your choice) and that you may withdraw from the study at any time without being disadvantaged in any way?
- Do you understand that if you withdraw from the study then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used? However, once the findings have been produced, removal of your data may not be possible.
- Do you understand that the overall final dataset might be potentially sent to a journal if they require it. However, no individual participant will be identifiable in this dataset.
- Do you agree to take part in this research?
- Do you wish to receive a summary of the research findings? (Please tick one): Yes
No
- Do you want me to send you a copy of the audio recording for this consent? Yes
No
- Please confirm you name and contact details

Participant's name:

Participant's Contact Details (if appropriate):

.....

I will now turn off the recording of the Consent and then will start a separate recording for the interview.

Approved by the Auckland University of Technology Ethics Committee on type the date on which the final approval was granted AUTEK Reference number type the AUTEK reference number

Note: The Participant should retain a copy of this form.

Appendix H: FFMQ- English language version (Chapter 4)

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1	2	3	4	5
never or very rarely true	rarely true	sometimes true	Often True	very often or always true

- _____ 1. When I'm walking, I deliberately notice the sensations of my body moving.
- _____ 2. I'm good at finding words to describe my feelings.
- _____ 3. I criticize myself for having irrational or inappropriate emotions.
- _____ 4. I perceive my feelings and emotions without having to react to them.
- _____ 5. When I do things, my mind wanders off and I'm easily distracted.
- _____ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.
- _____ 7. I can easily put my beliefs, opinions, and expectations into words.
- _____ 8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.
- _____ 9. I watch my feelings without getting lost in them.
- _____ 10. I tell myself I shouldn't be feeling the way I'm feeling.
- _____ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
- _____ 12. It's hard for me to find the words to describe what I'm thinking.
- _____ 13. I am easily distracted.
- _____ 14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.
- _____ 15. I pay attention to sensations, such as the wind in my hair or sun on my face.
- _____ 16. I have trouble thinking of the right words to express how I feel about things
- _____ 17. I make judgments about whether my thoughts are good or bad.
- _____ 18. I find it difficult to stay focused on what's happening in the present.

- _____ 19. When I have distressing thoughts or images, I “step back” and am aware of the thought or image without getting taken over by it.
- _____ 20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
- _____ 21. In difficult situations, I can pause without immediately reacting.
- _____ 22. When I have a sensation in my body, it’s difficult for me to describe it because I can’t find the right words.
- _____ 23. It seems I am “running on automatic” without much awareness of what I’m doing.
- _____ 24. When I have distressing thoughts or images, I feel calm soon after.
- _____ 25. I tell myself that I shouldn’t be thinking the way I’m thinking.
- _____ 26. I notice the smells and aromas of things.
- _____ 27. Even when I’m feeling terribly upset, I can find a way to put it into words.
- _____ 28. I rush through activities without being really attentive to them.
- _____ 29. When I have distressing thoughts or images I am able just to notice them without reacting.
- _____ 30. I think some of my emotions are bad or inappropriate and I shouldn’t feel them.
- _____ 31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
- _____ 32. My natural tendency is to put my experiences into words.
- _____ 33. When I have distressing thoughts or images, I just notice them and let them go.
- _____ 34. I do jobs or tasks automatically without being aware of what I’m doing.
- _____ 35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.
- _____ 36. I pay attention to how my emotions affect my thoughts and behavior.
- _____ 37. I can usually describe how I feel at the moment in considerable detail.
- _____ 38. I find myself doing things without paying attention.
- _____ 39. I disapprove of myself when I have irrational ideas.

Appendix I: FFMQ- Tamil language version (Chapter 5)

வழங்கப்பட்ட அளவைப் பயன்படுத்தி பின்வரும் ஒவ்வொரு அறிக்கையையும் மதிப்பிடுங்கள்.
உங்களுக்கு பொதுவாக எது உண்மை என்பதை சிறப்பாக விவரிக்கும் எண்ணை காலியாக எழுதுங்கள்.

1	2	3	4	5
ஒருபோதும் அல்லது மிக அரிதாக உண்மை	அரிதாக உண்மை	சில நேரங்களில் உண்மை	பெரும்பாலும் உண்மை	மிக அடிக்கடி அல்லது எப்போதும் உண்மை

1. நான் நடக்கும்போது எனது உடலின் அசைவுகளை வேண்டுமென்றே கவனிக்கிறேன்.
2. சரியானவார்த்தைகளால் எனது உணர்வுகளை என்னால் விவரிக்க முடியும்.
3. பகுத்தறிவுற்ற அல்லது பொருத்தமற்ற உணர்ச்சிகளைக் கொண்டிருப்பதாக நான் என்னை விமர்சிக்கிறேன்.
4. எனது எண்ணங்களுக்கும் உணர்ச்சிகளுக்கும் எதிர்வினையாற்றாமல் என்னால் உணர் முடிகிறது.
5. நான் காரியங்களைச் செய்யும்போது, என் மனம் அலைந்து திரிகிறது, நான் எளிதில் திசைதிருப்பப்படுகிறேன்.
6. நான் குளிக்கும்போது என் உடலில் உள்ள நீரின் உணர்வுகள் குறித்து நான் எச்சரிக்கையாக இருக்கிறேன்.
7. எனது நம்பிக்கைகள், கருத்துகள் மற்றும் எதிர்பார்ப்புகளை சுலபமாக வார்த்தைகளால் வரிக்க முடியும்.
8. பகல்கனவு, கவலைப்படுதல், மற்றும் கவனச்சிதறல் காரணமாக நான் செய்யும் காரியங்களில் கவனம் செலுத்துவதில்லை.
9. என் உணர்வுகளை அவற்றில் இழக்காமல் என்னால் கவனிக்க முடியும்.
10. நான் எப்படி உணருகிறேனோ அப்படி உணரக்கூடாது என்று எனக்கு நானே சொல்லிக்கொள்கிறேன்.
11. எனது உணவுபழக்கம் எவ்வாறு எனது எண்ணம், மற்றும் உடல் உணர்வுகளை பாதிக்கின்றன என்பதை உணர்கிறேன்.
12. எனது எண்ணங்களை தெரிவிக்க சரியான வார்த்தைகளை என்னால் கண்டுபிடிக்க முடியவில்லை.
13. நான் எளிதில் திசைதிருப்பப்படுகிறேன்.
14. எனது சில எண்ணங்கள் சரியானவை இல்லை. நான் அவ்வாறு எண்ணுவது தவறு.
15. என் தலை முடியில் காற்று வீசுவது அல்லது முகத்தில் சூரிய வெளிச்சம்படுவது போன்ற உணர்வுகளில் நான் கவனம் செலுத்துகிறேன்.
16. நான் எப்படி சில விஷயங்களை உணர்கிறேன் என்று தெரிவிக்கும் சரியான வார்த்தைகளை என்னால் சுலபமாக பயன்படுத்த முடியவில்லை.
17. எனது எண்ணங்கள் நல்லதா கெட்டதா என்பது குறித்து நானே தீர்மானிக்கின்றேன்.
18. தற்போது என்ன நடக்கிறது என்பதில் கவனம் செலுத்துவது எனக்கு கடினம்.
19. எனக்கு மன உளைச்சல் தரும் எண்ணங்கள் தோன்றும் போது அவற்றால் நான் ஆட்கொள்ளப்படாமல் இருக்க நான் அது போன்ற என்னிங்களில் இருந்து பின் வாங்குவேன்.
20. கடிகார முள் சுத்துதல் பறவைகளின் ஒலிகள் மற்றும் மகிழுந்து (கார்) செல்லும் ஒலி போன்ற வற்றில் நான் கவனம் செலுத்துகிறேன்.
21. கடினமான சந்தர்ப்பங்களில் என்னால் உடனடியாக எதிர்வினையாற்றாமல் பொறுமை காக்க முடியும்.

22. எனது உடலில் சில உணர்வுகள் ஏற்படும்போது என்னால் சரியானவார்த்தை உபயோகப்படுத்த முடியாதலால் என்னால் அதனை விவரிக்க முடியவில்லை.
23. நான் என்ன செய்கிறேன் என்று உணராமல் ஒரு இயந்திரம் போல் இயங்குவதாய் நினைக்கிறேன்
24. எனக்கு மன உளைச்சல் தரும் எண்ணங்கள் தோன்றிய சிறிது நேரத்திற்கு பின்னர் நான் அமைதியை உணர்கிறேன்.
25. நான் எண்ணக்கூடிய விதத்தில் எனது எண்ணம் இருக்கக் கூடாது என்று எனக்கு நானே சொல்லிக்கொள்கிறேன்.
26. பொருட்களின் வாசனையையும் நறுமணத்தையும் நான் கவனிக்கிறேன்.
27. நான்மிகவும்வருத்தமாகஉணரும்தருணத்தில்கூட, அதைவார்த்தைகளால் விவரிக்கமுடியும்.
28. நான் வேலைகளை விரைவாக முடிப்பதில் கவனம் கொள்கிறேனே தவிர அவற்றை கவனமுடன் செய்வதில்லை.
29. எனக்கு மன உளைச்சல் தரும் எண்ணங்கள் அல்லது உருவங்கள் தோன்றும் போது எதிர்வினையாற்றாமல் அவற்றை என்னால் கவனிக்கமுடிகிறது.
30. எனது சில உணர்ச்சிகள் தவறானவை என்றும் பொருத்தமற்றவை என்றும் நான் அவ்வாறு என்ன கூடாது என்றும் நினைக்கிறேன்.
31. நான் ஓவியம் மற்றும் இயற்கை காட்சியில் இருக்கும் வண்ணங்கள் வடிவங்கள் ஒளி அமைப்பு மற்றும் அவற்றின் பிம்பங்கள் போன்ற காட்சி கூறுகளை உற்று நோக்குகிறேன்.
32. எனது அனுபவங்களை வார்த்தைகளாக வைப்பதே எனது இயல்பான போக்கு.
33. எனக்கு துன்பகரமான எண்ணங்கள் அல்லது உருவங்கள் இருக்கும்போது, நான் அவற்றை கவனித்து விடுவிப்பேன்.
34. நான் செய்யும் வேலைகளை என்ன என்று தெரியாமல் தானாகவே செய்கிறேன்.
35. நான் துன்பப்படும் வேலையில் எனக்கு தோன்றும் எண்ணங்கள் அல்லது உருவங்களை வைத்து நான் நல்லவரா கெட்டவரா என்பதை நானே தீர்மானிக்கிறேன்.
36. எனது உணர்வுகள் எனது எண்ணங்களையும் நடத்தையையும் எவ்வாறு பாதிக்கின்றன என்பதில் நான் கவனம் செலுத்துகிறேன்.
37. இந்த நேரத்தில் நான் எப்படி உணர்கிறேன் என்பதை நான் கணிசமாக விவரிக்கமுடியும்.
38. நான் கவனம் செலுத்தாமல் விஷயங்களை செய்கிறேன்.
39. எனக்கு பகுத்தறிவற்ற கருத்துக்கள் தோன்றும் போது நானே எனது கருத்துக்களை மறுக்கிறேன்.

Appendix J: FFMQ Actual vs Importance Questions (Chapter 6)

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1	2	3	4	5
never or very rarely true	Rarely True	sometimes true	Often True	very often or always true

- _____ 1. When I'm walking, I deliberately notice the sensations of my body moving.
_____ 1a. It is important to me to notice the sensations of my body moving.
- _____ 2. I'm good at finding words to describe my feelings.
_____ 2a. It is important to me to describe my feelings in words.
- _____ 3. I criticize myself for having irrational or inappropriate emotions.
_____ 3a. It is important to me to criticize myself for having irrational or inappropriate emotions.
- _____ 4. I perceive my feelings and emotions without having to react to them.
_____ 4a. It is important to me to not to react to my feelings and emotions.
- _____ 5. When I do things, my mind wanders off and I'm easily distracted.
_____ 5a. It is important to me to not to get distracted or let my mind wander off while doing things.
- _____ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.
_____ 6a. It is important to me to stay alert to the sensations of water on my body while taking shower or bath.
- _____ 7. I can easily put my beliefs, opinions, and expectations into words.
_____ 7a. It is important to me to put my beliefs, opinions and expectations into words.
- _____ 8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.
_____ 8a. It is important to me to pay attention to what I am doing and not become distracted by daydreaming and worrying.
- _____ 9. I watch my feelings without getting lost in them.
_____ 9a. It is important to me to watch my feelings without getting lost in them.
- _____ 10. I tell myself I shouldn't be feeling the way I'm feeling.
_____ 10a. It is important to me to tell myself that I shouldn't be feeling the way I am feeling.

- _____ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
- _____ 11a. It is important to me to notice how foods and drinks affect my thoughts, bodily sensations and emotions.
- _____ 12. It's hard for me to find the words to describe what I'm thinking.
- _____ 12a. It is important to me to find the words to describe what I'm thinking.
- _____ 13. I am easily distracted.
- _____ 13a. It is important to me to remain focused and not be easily distracted.
- _____ 14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.
- _____ 14a. It is important to me to believe that some of my thoughts are abnormal or bad and that I shouldn't think this way.
- _____ 15. I pay attention to sensations, such as the wind in my hair or sun on my face.
- _____ 15a. It is important to me to pay attention to sensations, such as wind in my hair or sun on my face.
- _____ 16. I have trouble thinking of the right words to express how I feel about things
- _____ 16a. It is important to me to think of the right words to express how I feel about things.
- _____ 17. I make judgments about whether my thoughts are good or bad.
- _____ 17a. It is important to me to not to make judgments about whether my thoughts are good or bad?
- _____ 18. I find it difficult to stay focused on what's happening in the present.
- _____ 18a. It is important to me to stay focused on what's happening in the present.
- _____ 19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.
- _____ 19a. It is important to me to "step back" whenever I have distressing thoughts and be aware of the thought or image without getting taken over by it.
- _____ 20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
- _____ 20a. It is important to me to pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
- _____ 21. In difficult situations, I can pause without immediately reacting.
- _____ 21a. It is important to me to pause in difficult situations without immediately reacting.

_____ 22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.

_____ 22a. It is important to me to find the right words to describe when I have a sensation in my body.

_____ 23. It seems I am "running on automatic" without much awareness of what I'm doing.

_____ 23a. It is important to me to be aware of what I am doing without seeming as I am "running on automatic."

_____ 24. When I have distressing thoughts or images, I feel calm soon after.

_____ 24a. It is important to me to feel calm soon after I have a distressing thought or image.

_____ 25. I tell myself that I shouldn't be thinking the way I'm thinking.

_____ 25a. It is important to me to tell to myself that I shouldn't be thinking the way I am thinking

_____ 26. I notice the smells and aromas of things.

_____ 26a. It is important to me to notice the smells and aromas of things.

_____ 27. Even when I'm feeling terribly upset, I can find a way to put it into words.

_____ 27a. It is important to me to put my feelings into words even when I am feeling terribly upset.

_____ 28. I rush through activities without being really attentive to them.

_____ 28a. It is important to me to be attentive to activities when I rush through them.

_____ 29. When I have distressing thoughts or images, I am able just to notice them without reacting.

_____ 29a. It is important to me to notice the distressing thoughts or images without reacting to them.

_____ 30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.

_____ 30a. It is important to me to know that some of my emotions are bad or inappropriate and that I should not feel them?

_____ 31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.

_____ 31a. It is important to me to notice the visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.

_____ 32. My natural tendency is to put my experiences into words.

_____ 32a. It is important to me to put my experiences into words as my natural tendency.

- _____ 33. When I have distressing thoughts or images, I just notice them and let them go.
- _____ 33a. It is important to me to notice the distressing thoughts or images and let them go.
- _____ 34. I do jobs or tasks automatically without being aware of what I'm doing.
- _____ 34a. It is important to me to be aware of the jobs and tasks that I am doing.
- _____ 35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.
- _____ 35a. It is important to me to not to judge myself depending what the distressing thought/image is about whether I am good or bad.
- _____ 36. I pay attention to how my emotions affect my thoughts and behavior.
- _____ 36a. It is important to me to pay attention to how my emotions affect my thought and behavior.
- _____ 37. I can usually describe how I feel at the moment in considerable detail.
- _____ 37a. It is important to me to describe how I feel at the moment in considerable detail.
- _____ 38. I find myself doing things without paying attention.
- _____ 38a. It is important to me to pay attention while doing things.
- _____ 39. I disapprove of myself when I have irrational ideas.
- _____ 39a. It is important to me to not to be harsh to myself when I have irrational idea.

Appendix K: Cognitive Interviewing Questions (Chapter 6)

INSTRUCTIONS:

“As mentioned in the Participant Information Sheet, please complete the questionnaire provided to you on mindfulness. We are more interested to hear your comments about the questionnaire rather than your ratings. However, please still try to rate it as much as you can for the extent to which each question applies to you.”

GENERAL:

- What is your general view and feeling about this questionnaire?
- According to your view, which of the items are highly important?
- According to your view, which of the items are less/least important?
- Which items does not seem to convey the idea it is intending to convey?
- Which item wordings fit well to the concept and practice of mindfulness? And Why?
- Overall, any difficulty encountered while marking the responses in this questionnaire?

SPECIFIC: *(Based on the answers on general questions and marking of responses as either high or low on the FFMQ actual vs. importance questions, the following specific indicative questions will be asked)*

- Why do you think/feel that this/these items are highly important?
- What are they suggestive/indicative of?
- Why do you think/feel that this/these items are least/less important?
- What are they suggestive/indicative of? OR What are they unable to indicate or reflect about mindfulness?
- Is there any item comprehension difficulty encountered in these items marked as highly or least important?

