MINDFULNESS: BOUNDARIES BETWEEN RELIGION AND SCIENCE

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Tardei, tardei, tardei

Mas cheguei, enfim

Pra cada adeus um nó

Cada conta

O fio do rosário que eu

Vim banhar, pra lhe dar

Rodrigo Amarante – "Tardei" – 2015

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Por fim, que este trabalho possa – de algum modo – inspirar diálogo, autocuidado e compaixão. Que a Psicologia possa permanecer viva, para além dos laboratórios, como um instrumento de benefício para todos. Assim desejo.

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RESUMO

Tese de caráter teórico com ilustração experimental, dividida em quatro capítulos, três sobre os fundamentos teóricos e conceituais de *mindfulness*, bem como seu desdobramento histórico entre os campos da ciência e da religião e um capítulo experimental sobre os efeitos de um breve treinamento neurocognitivo de *mindfulness* em universitários. O objetivo central deste trabalho é demonstrar que, apesar da franca expansão de pesquisas teóricas e práticas no campo de *mindfulness*, permanecem obscuros os limites epistemológicos que diferenciam e legitimam seu desenvolvimento nos domínios da ciência e da religião. Um segundo objetivo é desenvolver e testar a eficácia de uma Intervenção Baseada em *mindfulness* (MBI) capaz de superar esses limites através de uma perspectiva lúcida, prática, de cunho eminentemente neurocognitivo. Assim, o primeiro capítulo traça aspectos históricos da definição de *mindfulness* dentro dos campos da ciência e da religião, problematizando sua operacionalização contemporânea e propondo o desenho de mapa conceitual para facilitar a localização das diferentes perspectivas existentes. O capítulo um também aponta as incoerências e desacertos decorrentes da passagem de uma epistemologia espiritual para uma de caráter científico. O segundo capítulo aprofunda este tema, explorando a relação entre o *mindfulness* religioso e sua inserção no campo das racionalidades médicas, levantando novamente o problema da operacionalização das práticas de *mindfulness* para além do universo filosófico-espiritual. Utilizando uma perspectiva social das ciências médicas, delimita-se a epistemologia de cada um dos universos de *mindfulness* – o religioso e o médico. O terceiro capítulo se ocupa da apresentação teórico-conceitual de um protocolo neurocientífico de *mindfulness*, como um possível framework de trabalho totalmente secular, capaz de transpor as dificuldades apresentadas nos capítulos anteriores e presentes nos protocolos de intervenção mais tradicionais. No quarto capítulo, que marca a seção empírica, verificamos, utilizando um design misto (qualitativo e quantitativo) os efeitos do protocolo apresentado no capítulo três para melhorar a capacidade de regulação emocional e senso de auto-eficácia geral em estudantes universitários. Os resultados indicam que a intervenção é capaz de aumentar os níveis de *mindfulness* ($p \leq 0,06$) e melhorar a capacidade de regulação emocional ($p \leq 0,05$), mas não o senso de auto-eficácia geral. Assim, o desenvolvimento de uma intervenção secular, não contendo os tradicionais elementos *quasi*-religiosos presentes nos programas tradicionais de 8 semanas, é uma alternativa viável que, além de evitar a falta de clareza epistemólogica, é capaz de promover saúde em populações saudáveis. Além disso, a coleta de dados de primeira pessoa, em conjunto com o desenvolvimento de tabela de significância clínica, mostraram que a inclusão de uma perspectiva qualitativa pode enriquecer os achados quantitativos, em particular quando se trabalha com amostras pequenas.

Palavras-chave: mindfulness; ciência; religião; budismo; neurocognição;

ABSTRACT

Theoretical dissertation with experimental illustration, divided into four chapters: first three chapters on the theoretical and conceptual foundations of mindfulness, as well as its historical split between the fields of science and religion and an experimental chapter on the effects of a brief neurocognitive training mindfulness in college students. The main purpose of this thesis is to demonstrate that despite the expansion of theoretical and practical research in mindfulness, the epistemological bounds that legitimize its development in the domains of science and religion remain obscure. A second objective is to develop and test the effectiveness of a mindfulness Based Intervention (MBI) through a lucid, practical and eminently neurocognitive perspective. The first chapter explores the historical and conceptual aspects of mindfulness definition within the science and religion fields, questioning its contemporary execution and proposing the design of a conceptual map to facilitate the location of different legitimate perspectives. Chapter one also points out the inconsistencies and errors resulting from the passage of a spiritual epistemology for a scientific one. The second chapter deepens the theme raised on chapter one, exploring the relationship between religious mindfulness and its role in medical rationalities, once again pointing out the issue of operationalizing mindfulness beyond the philosophical and spiritual universe. Using a social perspective of medical science, epistemology is delimited for each mindfulness perspective - the religious and the medical. The third chapter deals with the theoretical and conceptual presentation of a neuroscientific mindfulness protocol as a possible secular framework, capable of overcoming the difficulties presented in the previous chapters and present in more traditional intervention protocols. In the fourth chapter, which marks the empirical section, we employed a mixed-methods design (qualitative and quantitative) to test the effects of the protocol presented in chapter three to improve the ability of emotional regulation and general self-efficacy in college students. The results indicate that the intervention is able to increase the levels of mindfulness ($p = 0.05$) and improve the ability of emotional regulation ($p = 0.05$), but not the sense of general self-efficacy. Therefore, the development of a secular intervention without any traditional quasi-religious elements is a viable alternative that, besides avoiding the lack of epistemological clarity, is able to promote well-being in healthy populations. Furthermore, first-person data, together with the development of clinical significance table, showed that the inclusion of a qualitative approach can enrich the quantitative findings, particularly when working with small samples.

Keywords: mindfulness; science; religion; buddhism; neurocognition;

APRESENTAÇÃO

Esta tese é fruto de um longo esforço de cooperação interdisciplinar entre os campos da Psicologia científica e da Ciência da Religião (*Religionswissenschaften*). Esta última, diferente do campo estritamente teológico, estuda o comportamento religioso e a crença, distante de um ponto de vista religioso particular. A Ciência da Religião se baseia em várias disciplinas e suas metodologias, incluem desde a Antropologia, a Sociologia, a Psicologia e a Filosofia e História da religião até a Biologia e as Neurociências. Nos Estados Unidos, convencionou-se denominar este campo de estudo – originalmente europeu – como *Religion Studies*. Por lá, assumiu uma perspectiva mais experimental e menos teórica.

O objetivo central desta tese foi construído a partir do pressuposto de que o diálogo entre estes dois campos do conhecimento possa fomentar um maior amadurecimento do debate sobre o que vem sendo denominado, em Psicologia e Medicina, como "Campo de estudos sobre *mindfulness*" (*mindfulness research field*). Assim, pretende-se demonstrar que, apesar da franca expansão de pesquisas teóricas e práticas no campo de *mindfulness*, permanecem obscuros os limites epistemológicos que diferenciam e legitimam seu desenvolvimento nos domínios da ciência e da religião. Um segundo objetivo é desenvolver e testar a eficácia de uma Intervenção Baseada em *Mindfulness* (MBI) capaz de superar esses limites através de uma perspectiva prática eminentemente neurocognitiva, sem aporte filosófico-espiritual Budista.

É importante salientar que o projeto inicial desta tese envolvia, para além da construção do debate acerca das dimensões ontológicas e epistemológicas do *mindfulness*, uma investigação empírica da viabilidade de implementação do *mindfulness* na Atenção Primária do sistema público de saúde, no Brasil. Inicialmente, este trabalho recebeu suporte do setor de cardiologia do Hospital de Clínicas de Porto Alegre – HCPA. Junto a esta equipe foi desenvolvido um amplo e detalhado projeto de pesquisa, com 120 páginas (arquivo em anexo a esta tese) que, após submetido a todas instâncias de avalição dos comitês envolvidos, recebeu aprovação para seu início. No entanto, devido à falta de suporte da equipe médica, e de disponibilidade de estrutura física para execução da intervenção proposta, a execução do projeto não pôde ser levada adiante. Tal fato consumiu tempo em demasia, inviabilizando o desenho de um novo estudo empírico com semelhante robustez. Foi necessária uma mudança de estratégia na elaboração desta etapa da tese. Mesmo temporariamente inviabilizado, este projeto de pesquisa desenhando junto ao setor de Cardiologia vem sendo retomado através de outras

instâncias, posto sua ainda presente autorização de execução. Da aprovação deste projeto inicial, frustrado pelos motivos acima descritos, outros dois projetos tiveram inicio, porém no departamento de PPG em Psiquiatria e Ciências do Comportamento, PROTAN - Programa de Transtornos de Ansiedade. O autor deste trabalho segue, neste momento, como pesquisador colaborador destes projetos de modo que os desdobramentos empíricos desta tese já estão em avanço.

Por fim, os objetivos finais desta tese foram organizados em quatro artigos (capítulos), sendo três com ênfase teórica, debatendo questões relativas ao processo de modernização e secularização de *mindfulness* nos ambientes acadêmicos e médicos, e um com ênfase experimental, enfocando a aplicação de um protocolo neurocientífico de *mindfulness* para aumentar as capacidades de regulação emocional e senso de autoeficácia em estudantes universitários. Procurando adequar-se à realidade acadêmica, optou-se por produzir os artigos desta tese em sua forma original em língua inglesa. De modo resumido, os três primeiros capítulos compõem a seção teórica do documento e o último a seção experimental. Os temas que orientam a sequência dos capítulos abarcam *mindfulness* em suas dimensões "religiosa" e não-religiosa, ou seja, científica, bem como a verificação de implementação do modelo neurocognitivo (não-religioso) de *mindfulness* – desenvolvido no Reino Unido – para a realidade brasileira. Apesar de diretamente associados, a distinção entre as diferentes expressões de *mindfulness* (religiosa e não-religiosa) será progressivamente ilustrada, em particular, ao longo dos dois primeiros artigos teóricos.

De modo mais pormenorizado, os três primeiros capítulos tratam consecutivamente: (I) da elaboração de um mapeamento das manifestações – implícitas e explícitas – histórico-conceituais de *mindfulness* nos universos religioso e não-religioso; (II) da expansão deste mapeamento dentro de um modelo de racionalidade médica, sugerindo divergências e pontos de contato; (III) da apresentação teórica de um modelo neurocognitivo de *mindfulness*, sem necessária relação com a visão religiosa de *mindfulness*. A ordem dos estudos foi montada em termos de facilitação didática, mas não necessariamente de sequenciamento histórico, apesar da apresentação do modelo (III) ilustrar expressões mais contemporâneas de *mindfulness*. Por exemplo, as derivações diretas da filosofia grega e do pensamento oriental para a ciência moderna são tratadas no primeiro capítulo, mas não no segundo, onde toma-se o modelo de *mindfulness*, pouco problematizado filosoficamente, a partir da realidade médica atual. Em contrapartida, no terceiro capítulo, após a problematização histórico-conceitual, apresenta-se

um modelo de base neurocientífica como exemplo de possibilidade de implementação de um protocolo científico sem bases necessariamente *quasi*-religiosas. Podemos dizer que delimitamos uma composição argumentativa ao longo do tempo sobre aspectos históricos e conceituais que subjazem – ainda que nem sempre discutidos e expostos – às investigações empíricas contemporâneas.

A seção II passa a um estudo piloto, quasi-experimental para verificar os efeitos do protocolo neurocognitivo apresentado no capítulo três em variáveis de autoconsciência e saúde em estudantes universitários. Um total de 20 estudantes universitários foram alocados em dois diferentes grupos (Grupo experimental n= 10; Lista de espera n= 10), sendo que apenas o grupo experimental recebeu a intervenção de *mindfulness* ao longo de 5 semanas. Os resultados apresentados nessa seção demonstram que a participação na intervenção proposta é capaz de elevar os escores de *mindfulness* e a capacidade de regular as emoções para além da mera chance ($p<0,05$). Na seção os resultados estão expostos de maneira organizada e pormenorizada.

Por fim, a estrutura da tese foi pensada para que cada capítulo tivesse uma coesão e dinâmica própria, mesmo que dispostos em uma sequencia lógica. Utilizou-se, portanto, o modelo de tese em formato de artigos ou capítulos fechados, e por essa razão cada texto terá suas próprias seções de apresentação e referências. Ao final, considerações gerais sobre a tese constarão em parte separada dos capítulos.

SEÇÃO I: ESTUDOS TEÓRICOS

CAPÍTULO 1

Sugestão de Título para Artigo ou Capítulo – *Beyond mindfulness dispute: The development of a critical definition map*

BEYOND MINDFULNESS DISPUTE: THE DEVELOPMENT OF A CRITICAL DEFINITION MAP

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Mindfulness is commonly defined as a meditation practice rooted in Buddhist tradition (Kabat-Zinn, 1982). Despite inspired in Buddhism, Kabat-Zinn declare mindfulness as a "universal human capacity to foster clear thinking and openheartedness, requiring no religious belief" (Ludwig & Kabat-Zinn, 2008). The well-known definition of mindfulness also emerged from Kabat-Zinn (2003): "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment". Based on Kabat-Zinn´s conceptualization, mindfulness could be understood in a less religious and more secular way (Kabat-Zinn, 1982).

Since the beginning of the scientific research in the 80s, reasonable research evidence has shown that individuals trained to foster mindfulness through participating in Mindfulness-Based Interventions (MBIs) can improve their brain networks (Chambers, Lo, & Allen, 2008), live more consciously, reducing autopilot behaviours (Kuyken et al., 2010), boosting general cognitive functioning (Zeidan, Johnson, Diamond, David, & Goolkasian, 2010), the immune system (Black & Slavich, 2016) and finally becoming more compassionate with themselves and others (Germer, 2009).

In recent decades, hype around mindfulness has increased both in science and popular culture (Brown, Creswell, & Ryan, 2016; Davidson & Dahl, 2018; Shonin, Van Gordon, & Griffiths, 2014; Van Dam et al., 2017; Wilson, 2014). Psychologists, Physicians, teachers, entrepreneurs, coaches, judges, sportsmen and military are employing "mindfulness techniques" for improving well-being. In popular media hundreds of books, internet videos and apps demonstrate how to quickly develop this "skill" (Burdick, 2013). Schools around the globe are including mindfulness in the basic curricula and big corporations are developing their own "mindful culture" (Aviles & Dent, 2015; Chaskalson, 2011). In the health care setting – where it emerged four decades ago as a health intervention – mindfulness has been employed for a variety of clinical conditions ranging from chronic stress to severe depression, chronic pain, cancer and

even HIV (Chiesa & Serretti, 2009; Grossman, Niemann, Schmidt, & Walach, 2004; Zenner, Herrnleben-Kurz, & Walach, 2014; Zoogman, Goldberg, Hoyt, & Miller, 2015).

The risk for a "mindfulness-for-everything" scenario emerged in the last years raising concerns about a *quasi*-panacea ideology (Van Dam et al., 2017) and an industry of courses, training, retreats and workshops (Bazzano, 2015; Bergmark, 2010; Dobkin & Hassed, 2016; Farias & Wikholm, 2015; Rosch, 2007; Wilson, 2014; Wright, 2013). Farias and Wikholm (2015) enquired whether mindfulness is being hyped as a "Buddha Pill" for free-from-suffering lifestyle. Barker (2014) cautions against a "Do-it-yourself medicalization of every moment", Hyland (2016) forewarns of the "marketization of the Present Moment". Not only the scientific realm, but the very ethical dimension of mindfulness is under heavy debate (Van Gordon, Shonin, & Griffiths, 2016). A Buddhist expert stated his concerns about the mindfulness movement: "we need to strike a balance between caution and appreciation" (Bodhi, 2011).

Despite the increased number of papers suggesting the wide range of benefits from developing mindfulness skills, most of the available research includes studies with several methodological designs (Davidson & Dahl, 2018; Davidson & Kaszniak, 2015; Farias & Wikholm, 2015; Van Dam et al., 2017). Reported benefits from RCTs showing benefits from mindfulness could be exaggerated due to inadequacies in statistical analysis (Coronado-Montoya et al., 2016). Several studies including well designed active control groups demonstrate that health interventions using mindfulness (MBIs) are not superior to well-established treatments (Davidson & Dahl, 2018; Goyal et al., 2014; Virgili, 2015). There is evidence of small benefits for anxiety, depression and pain, but not for general well-being (Goyal et al., 2014). At least one recent review demonstrated evidence that these MBIs are as efficacious as other first-line, evidence-based therapies, such as cognitive behavioral therapy and antidepressant medications (Goldberg et al., 2018).

Another limitation of mindfulness field is how to determine the underlying active mechanisms of MBIs that contribute to the related improvements in research outcomes (Alsubaie et al., 2017). There is also insufficient research about the adverse effects associated with the practice of mindfulness (Davidson & Dahl, 2018). Furthermore, it's astonishing that, since the beginning of the mindfulness movement in the early 80´s, there´s still efforts to define what mindfulness really is, including its origins and key elements (Baer, 2011; Bishop et al., 2004; Brown & Ryan, 2006; Greenslade, 2015; Rosch, 2007).

According to Lutz, Jha, Dunne, and Saron (2015) "consensus definition of mindfulness is lacking, and the myriad definitions in the literature can be seen as generating more confusion than

clarity". Despite this, there are several self-report instruments to measure mindfulness (Davidson & Kaszniak, 2015; Desbordes et al., 2015). Some of these instruments were developed under differing conceptual bases and factorial solutions (Medvedev et al., 2016). Also, just few studies describe exactly the adoption of mindfulness as a trait, state or practice (Brown, Ryan and Creswell, 2007). Thus, we still do not know exactly what mindfulness is, but we continue to measure and develop new instruments to quantify it (Bergomi, Tschacher, & Kupper, 2013; Grossman & Van Dam, 2011).

Although mindfulness is usually defined in a secular way, it is almost entirely presented as a derivation and adaptation of Buddhist teachings and practices (Davidson et al., 2003; Ludwig & Kabat-Zinn, 2008; Segal, Williams, & Teasdale, 2002; Wallace & Shapiro, 2006; Williams & Kabat-Zinn, 2011). Nevertheless, meditation became the most recognized practice for increasing mindfulness, research outcomes recognises that activities such as dancing tango, practicing sports or the use of mental metaphors and creative visualization could lead to the same results (Kreplin, Farias, & Brazil, 2018; Pinniger, Brown, Thorsteinsson, & McKinley, 2012). Even washing dishes or morning walks could be practiced as meditative, mindful exercises. Any activity performed with attention and openness could be described as "mindful." For instance, there are studies investigating mindful eating (Kristeller & Wolever, 2011), mindful sporting (Gardner & Moore, 2012), mindful parenting (Bögels, Lehtonen, & Restifo, 2010), mindful schooling (Zenner et al., 2014), and mindful sex (McCarthy & Wald, 2013).

The main objective of this paper is to present a map (figure1) to move safely around the many origins and scopes of mindfulness, inside and outside religious/spiritual contexts. Furthermore, we intend to explore and draw the boundaries between three developed categories: religious mindfulness; *quasi*-religious mindfulness, and fully secular mindfulness (psychological, social cognitive, neurocognitive, etc.). Our intention is not to deny or promote any specific point of view but delineate the roots, correlations and goals behind different approaches. Having a deeper understanding and clarity may promote progression in the development of mindfulness definitions, treatment protocols and research designs.

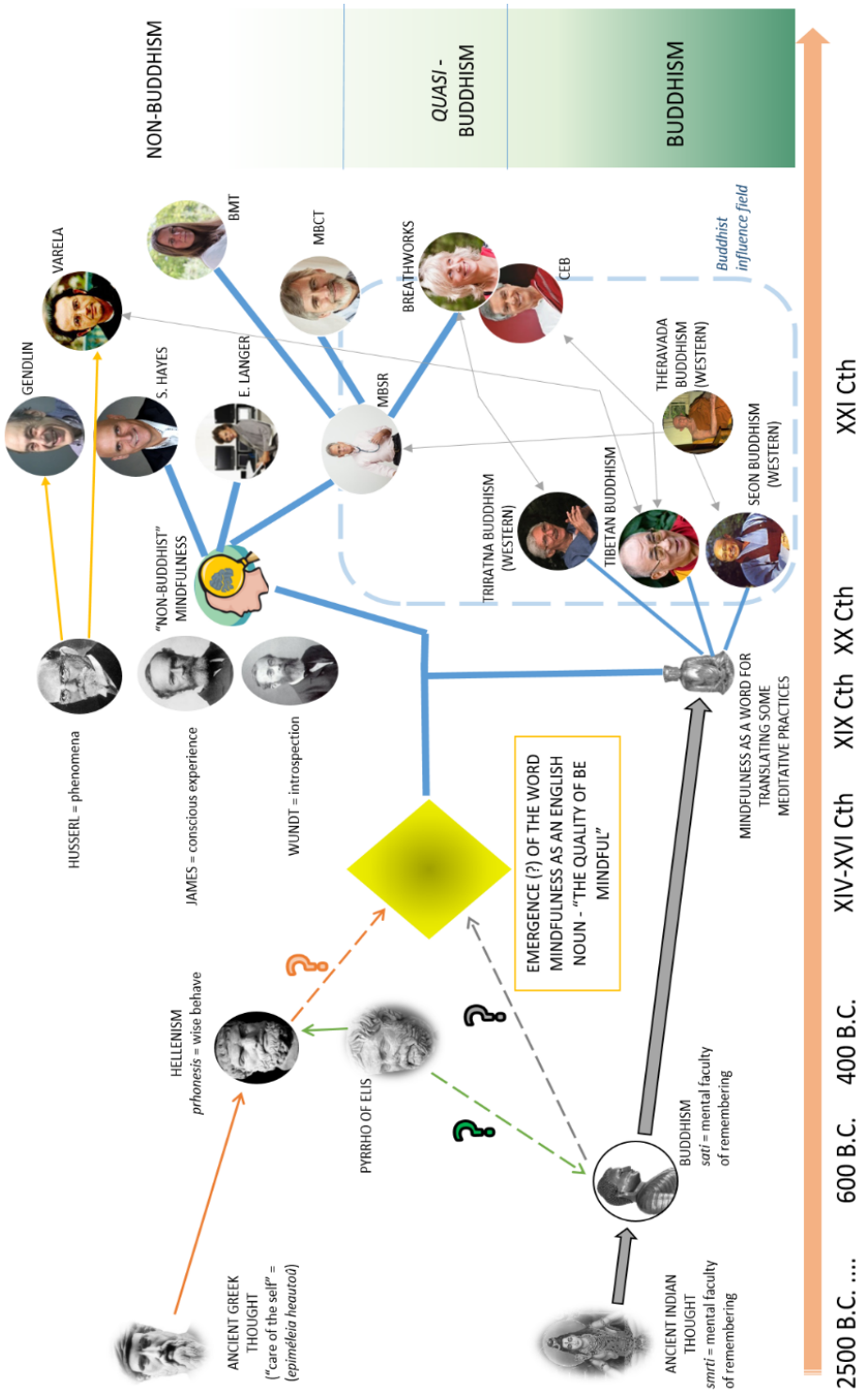

Figure 1. Mindfulness navigation map. At the center of the picture, the yellow diamond posits the emergence of the word mindfulness at the 16th Century. The horizontal line at the bottom is a timeline from 2500 B.C. to XXI Century. It shows mindfulness unfold from Indians and Greeks until contemporary times. The green vertical rectangle at the right corner of the picture is a "thermometer" that classifies the different mindfulness manifestations as Non-Buddhist, Quasi-Buddhist and Buddhist (religion field). Dot-lines signals mutual indirect influence. The blue dot-line at the bottom right side of the picture represents the Buddhist Influence Field. The thick blue line emerging from the yellow diamond represents the direct – but different - influence and expansion of mindfulness both in science (upside) and religion fields (downside).

The Old Question: Is Mindfulness Buddhist?

Mindfulness emerged in western culture both as a pure Buddhist concept and practice (Thera, 1972), an secular adaptation of these religious practices for health purposes (Kabat-Zinn, 1982), and as a concept and cognitive practice in Psychology (Hayes & Shenk, 2004, Langer & Imber, 1980). The works of Ellen Langer and Steven C. Hayes are notable efforts outside Buddhism

(pure or secular adapted) for presenting mindfulness from an exclusive scientific language (Hayes, Strosahl, & Wilson, 1999). Even the work of early psychologists, as Wundt, Williams James, and more recently, Eugene Gendlin, without explicitly using the word "mindfulness", bring conceptual elements of mindfulness – as an attentional process – derived from Phenomenology and Psychology, and not Buddhism (Gendlin, 2007). Regardless the efforts of these authors developing their own mindfulness conceptualization, the vast majority of studies present mindfulness – as a general scientific field – arising uniquely from Buddhism (Bishop et al., 2004; Kabat-Zinn, 2003; Williams, Russell, & Russell, 2008).

Concerns around Buddhist or non-Buddhist mindfulness raise the question around how "spiritual *vs.* secular" mindfulness (1) definitions, (2) concepts and (3) implementation should be (Gethin, 2011; Grabovac, 2008; Purser & Milillo, 2015; Sharf, 2015). Within the realm of Buddhism, definitions of mindfulness suggest a plethora of abstract philosophical/religious concepts, ethical principles and soteriological purposes (Grabovac, Lau, & Willett, 2011; Wilson, 2014; Thera, 1972). If mindfulness is inspired by Buddhism how much of its religious principles should be adapted or abandoned for modern/secular health purposes? (Purser & Milillo, 2015). Is philosophical Buddhism a suitable grounding for the so-called secular mindfulness offered in hospitals, psychology clinics, schools and corporations? Are Mindfulness-Based Interventions (MBIs) and some Mindfulness-Based Therapies "spiritual but not religious" interventions? Recently, Kabat-Zinn, the founder of Mindfulness-Based Stress Reduction (MBSR), affirmed that MBSR is a new lineage of Buddhist Dharma (Bazzano, 2015). Should it, therefore, be considered a spiritual branch of traditional Buddhism? Or is it secular as suggested early by Kabat-Zinn (2003)?

Despite the striking presence of Buddhist elements in "allegedly secular" mindfulness movement, such as the participation in Zen Retreats in Dialectical Behavioral Therapy (DBT), few studies seem to investigate the correlation between mindfulness and spirituality variables. Anyway, a study from Carmody, Reed, Kristeller, and Merriam (2008) shows that participating in an MBI can improve spirituality levels. These levels are highly correlated with trait mindfulness. Additionally, changes in spirituality scores among those who participate in mindfulness programs can directly affect health related outcomes (Greeson et al., 2011; Labelle, Lawlor-Savage, Campbell, Faris, & Carlson, 2015).

For mindfulness science to reach its maturity, it is essential to outline the debate around the complexity of these issues. Buddhist monks, non-Buddhist academics and "scientist-monks," as B.

Alan Wallace who developed his own “non-buddhist” wellbeing protocol (Cultivation Emotional Balance – CEB), are training people from different cultures and religious backgrounds, including non-religious professionals, for work in different settings (health, business, politics, justice, education, sports). Most of these professionals are being trained to deliver mindfulness for both healthy and non-healthy populations. It is reasonable to ask: are they teaching the same mindfulness? Buddhist mindfulness? Secular mindfulness? Perhaps, hybridisms of Buddhist and Scientific approaches? Are they measuring mindfulness with coherent and peer-reviewed methodologies?

Mindfulness by Itself? Getting Back to the Etymological Origins

The Oxford dictionary refers to mindfulness as “the quality or state of being conscious or aware of something.” According to The Online Etymology Dictionary, the word mindfulness derives from the Old English adjective *myndful* (mindful), used since the 14th century and meaning "of good memory.” Following dictionary definitions, mindfulness could be understood as “quality or state of being (of/with good memory).” Despite mindfulness emerging as a recent trend, the Merriam-Webster dictionary cites that the word mindfulness has been used since the 16th century. Below is a table presenting dictionaries definitions of mindfulness

Table 1.

Mindfulness Dictionary Definitions

Dictionary	Meaning	Origin
Merriam-Webster	the quality or state of being mindful.	Mid-16c
Oxford	the quality or state of being conscious or aware of something.	
Dictionary.com	the state or quality of being mindful or aware of something.	
Collins Dictionary	the state or quality of being mindful	
Wiktionary	inclination to be mindful or aware	
Online Etymology Dictionary	Adj. mindful – "of good memory"	Mid-14c
MEMIDEX	the trait of staying aware of (paying close attention to) your responsibilities	

Note. Mindfulness definition from online dictionaries.

Popularization of the word mindfulness happened only in the late 19th Century, in a specific context – western Buddhist scholars and practitioners. Initially, Buddhist scholars applied the terms mindfulness (noun) and mindful (adjective) as a translation for specific meditative practices relying on attentional process and memorization (Gethin, 2011). Specific practices, from different Buddhist traditions, such as *Shamata*, *Vipassana* or even *Zazen* began to be translated, concurrently, as "mindfulness." Although some of these practices emphasize an initial stage of body and mind relaxation, attentional focus is a key component for developing and deepening the meditative process of mindfulness (Anālayo, 2014; Bodhi, 2011).

Contemporary religious scholars and academics insist that the early roots of contemporary mindfulness rely on these Eastern roots (Bodhi, 2011; Purser & Milillo, 2015; Williams & Kabat-Zinn, 2011). Even so, the word mindfulness has been used in the West for at least four centuries (throughout the 1300's and 1400's), much before of the advent of western Buddhism in the 19th century, (Bodhi, 2011; Brown & Ryan, 2006; Gethin, 2011; Grabovac, 2008; Hanh, 1987; Williams & Kabat-Zinn, 2011). Thus, mindfulness has a narrative outside eastern contemplative tradition, not only in linguistics, but in History and Philosophy (Greenslade, 2015; Hayes & Shenk, 2004;

Langer, 1992). This western story of mindfulness has received little attention, compared to the "Buddhist version" (Greenslade, 2015).

Even popular commentaries reviewing the historical roots of mindfulness seem to highlight the Buddhist sources, neglecting a deeper investigation of its possible western roots. Popular studies in the mindfulness field point to Eastern spirituality as the primary origin of mindfulness (Bishop et al., 2004; Davidson & Kaszniak, 2015; Gethin, 2011; Williams & Kabat-Zinn, 2011). An oft-cited paper quickly states that "The term mindfulness derives from the *Pali* language word *sati* meaning "to remember" (Brown, Ryan, & Creswell, 2007). However, no historical evidence shows that the English word mindfulness is a direct derivation of the *Pali* language. Why is it not derived from Latin, Greek or even Old German? As we understand the complexity of the Proto-Indo-European languages, it is almost impossible to categorically affirm the ultimate origin of the term "mindfulness" in the West.

Western Philosophical Roots of Mindfulness

It is curious to note that a book titled "Mindfulness workbook for Dummies" presents a lucid and coherent definition, opting not to pinpoint a definitive story of mindfulness origins: "Mindfulness isn't inherently Eastern, just as electricity isn't inherently Western. Mindfulness is a quality of presence that's innate in all human beings" (Alidina & Marshall, 2013).

It is hard to know how much of the dictionary definitions are derived from an ancient and original linguistic root or were later affected by the usual 20th century translation of mindfulness as "meditation." Based on what is probably a medieval origin of contemporary words, it would not be appropriate to affirm that the term mindfulness "derives from" ancient Buddhism. It is crucial to be aware of it since – as we previously stated – popular scientific articles of prominent authors, as Williams and Kabat-Zinn (2011), Bishop et al. (2004) and Davidson (2010), repeatedly emphasize the "Buddhist roots of mindfulness."

According to Cardeña and Winkelman (2011), the experience of "being in the present moment" emerged as a natural consequence of human evolution. Thus, deliberately changing conscious experience through specific practices/exercises is not only a Buddhist experience, but a universal human feature. The "moment-by-moment" investigation of the mind is present in Classical Antiquity (Greenslade, 2015; Mahon, 2008), known since the time of Pythagoras, who encouraged a "recollection" of events at the end of the day as a daily exercise (Foucault & Pearson,

2001). The exercise of "caring the self" (*epiméleia heautoû*) is central to Western Philosophy, particularly after the emergence of Socratic Philosophy (Hadot & Davidson, 1995). "Care of oneself" depends not only on the ability and willingness to investigate reality and the meaning of life, but to understand one's own intentions and motivations in the world, asking perhaps, "what moves you?" (Foucault & Pearson, 2001).

More than a way of acquiring knowledge about reality, Philosophy, as a general practice, is a "way of living" (Hadot & Davidson, 1995; Iftode, 2013). A relationship with oneself is the basic premise for an individual to acquire knowledge about the present relation of their inner world and objective reality (Hadot & Davidson, 1995). The Socratic dialogue, for instance, as a method and an exercise, is not only the development of a careful listening to others, but depends on a concurrent, always present, careful listening of oneself: mindfulness (Foucault & Pearson, 2001).

Stoics called *prosoché* the ability of a present-moment attention (Greenslade, 2015). Development of *prosoché* was part of daily *askésis* (exercises) for learning truth about the world and oneself (an opposite was *mathésis*, a theoretical way of acquiring knowledge). According to Foucault and Pearson (2001), *askésis* were not ordinary "examinations of conscience," but complex practices developed to examine in-depth "aspects of the mind, feelings and behavior". On Seneca´s "*De tranquillitate animi",* the individual is taught how to achieve a "state where the mind is independent of any kind of external event, and is free as well from any internal excitation or agitation that could induce an involuntary movement…". On consulting Seneca, his friend Serenus says "…when I made an examination of myself…", proving that self-examination was part of *askésis*. Seneca encourage his friend to keep exploring "the nature of the stability of mind" (Foucault & Pearson, 2001). Another *askésis* example comes from Epictetus "Control of Representations" exercise. In this exercise, the task is to distinguish mental representations which are voluntary and involuntary, and how these representations evoke involuntary emotions, feelings and behaviors (Foucault & Pearson, 2001). The school of Epicureanism developed exercises for helping an individual observe the effects of *kenodoxia* (mental proliferation) on daily behavior, avoiding unnecessary perturbation (McEvilley, 2002).

Throughout the entire Greek Philosophy, developing skills such as *prosoché* and *kenodoxia* may lead to *Phronesis*, "wise behavior," ground of *arethé* (truth) and *ethos* (ethics). Later, with the emergence and progressive consolidation of Christianity, these practices, and the concept of

askésis, were absorbed, modified, or even abandoned, depending on how they could be useful to the Christian *ethos* and philosophy (Mahon, 2008).

Ultimately, the notion of mindfulness as "caring of the self" (*epiméleia heautoû*) through *prosoché* (moment-by-moment attention) and *phronesis* (wise behave) is an indubitable heritage of Western culture, having preserved its private trajectory on Western thought (Greenslade, 2015). Even in modern thought, from Schiller's aesthetic experience to Heidegger´s *Besinnung*, parallels with the notion of "present- moment attention" are established (McGhee, 2000).

It is still unclear, however, how much of the modern word "mindfulness" is derived from *prosoché*, *phronesis* and other ancient terms, or even the Eastern Pali, *sati*. Understanding mindfulness as a universal human feature, and not a modern concept inevitably attached to Buddhist ideas, may avoid stereotypical and rigid descriptions, unfruitful debates and impoverished representations. Holding mindfulness as a universal concept makes it possible to amplify and broaden its reach as a route to human well-being and contentment.

Mindfulness in the Western Religions, Philosophy and Science

Self-investigation of "human interiors" is part of the psychological condition (Carruthers & Chamberlain, 2000; Feinberg & Mallatt, 2016). Therefore, mindfulness is an expression of the "human interiors" exploration that humans evolved over time as a natural, adaptive skill (Cardeña & Winkelman, 2011). Langer (1992) explains mindfulness in terms of "treatment of information," in other words, how we process information (objective and subjective). Thus, mindfulness is understood as an intrinsic and natural human experience (Friedman, 2010).

As previously stated, the concept and development of "exercises" to foster "present-moment attention," mindfulness, is present in diverse cultures and languages. Chinese, Japanese, Indian, Greek, Arabic, and other cultures, organized within specific religions or philosophies are their own descriptions and exercises of mindfulness (Chiesa, 2013; Wilson, 2014). Idiosyncrasies from these cultural expressions of "mindfulness" progressively shaped the modern investigation of "human interiors" (Wallace, 2000). Descriptions of "religious" or "spiritual" mindfulness could be found in Jewish, Christian or Muslim theologies. While Mirdal (2012) describes a mystical Sufi mindfulness, Vallely (2006) writes about a Jewish mindfulness. Bushlack (2014) recognize in the writings of St. Thomas Aquinas some Christian concepts of mindfulness: "the relationship between the passions and prudence implies a certain kind of awareness and capacity for mature discernment

of one's desires". The goal of Prudence, in Aquinas' theology, otherwise, consists, on an ultimate level, of "knowing and loving God." Therefore, when mindfulness is presented as part of a religious system, it is usually attached to a strong belief system, and also a metaphysical and an ethical code (Bodhi, 2011; Gethin, 2011; Seager, 2012; Sun, 2014).

From medieval theology to modern philosophy, there is no coherent usage of the word mindfulness, at least expressed as "mindfulness," but even the *cogito* of the Cartesian mind/body problem could be seen as something related to an attentive instance of self-observation. For Descartes, the movement of our attention affects our epistemic domain (the way we perceive and validate reality). It´s curious to notice that in Heidegger´s *Besinnung,* mindfulness is understood as "being mindful of oneself," but not "oneself reflecting on the self" (Enowning, 2006). Heidegger´s provocations rely on previous assertions from Husserlian philosophy on "natural attitude" vs. "phenomenological attitude;" the later considered an experience similar to mindfulness, inasmuch as someone is closely observing his subjective and sensory experiences.

As exposed by the above examples, inside classical and modern Philosophy, from Pythagoras to Husserl, mindfulness is observed, though not always by the word "mindfulness," as a mental process unattached to a religious system.

Around the 19th century emerged a "scientific" approach of subjectivity within Psychology. Theoretical debates around "conscious experience" are verified by empirical explorations. At this point, it is possible to delineate two sides of "non-Buddhist" mindfulness: (I) – a non-Buddhist, *non-scientific*, western mindfulness, which is unfolded in: a) non-Buddhist, but religious, as Christian mindfulness (Friedman, 2010) and b) non-Buddhist and non-scientific, through classical and modern Philosophy; (II) – a non-Buddhist, *but scientific*, western root of mindfulness: the psychological works of Wundt, James and later Langer, Hayes and even Gendlin (Focusing theory) (Carmody, 2014; Schmidt, 2011).

Table 2.

Multiple Roots and Perspectives of Western Mindfulness

Western mindfulness	Manifestation
Religion	Christianity, Islamism, etc
Philosophy	Classical and Modern Philosophy
Science	From Wundt and James to Gendlin, Langer and Hayes

Wilhelm Wundt, the father of Modern Psychology, though not explicitly using the word mindfulness, stressed how the "process of clearness and distinctness" affects conscious experience. Perhaps what Wundt calls a "spontaneous or passive apperception*"* could be described as being similar to the Stoic or the Buddhist notions of mindfulness. The difference from the Stoics and Buddhists to Wundt was an effort, by the latter to use empirical measurement and generate mathematically expressible results. Stanley (2012) recognizes mindfulness as "becoming aware of experience and paradoxically becoming intimately distant with our experience", a conceptual comprehension related to the early introspectionist method of William James, another "father" of Psychology.

Since the foundation of Psychology, almost every psychological theory has presented a correlate concept of mindfulness, from the "evenly suspended attention" of Psychoanalysis and the "way of being" of Existentialism/Humanism to the "distancing techniques" of Cognitive-Behavioral Psychology. The very act of psychotherapy could be a way of fostering mindfulness skills (Bach, Hayes, & Levin, 2015).

It is possible to find correlations of mindfulness in almost every School of Psychology, but two contemporary theories explicitly developed a model of mindfulness independently from Buddhism or any religious system. The first one is Langer´s social-cognitive mindfulness, a model where it's fundamental to "consider the consequences of whatever information is processed mindfully or mindlessly" (Langer, 1992). According to Langer's extensive research, mindless behavior can have a negative impact on human performance and health (Langer, 2014). The way of reducing adverse effects of mindlessness, the opposite of mindfulness, could be by changing perspective and other cognitive restructuring techniques. For Langer (1992, p. 138) mindfulness is "a state of alertness and lively awareness" and "being aware of the context". While describing

positive results of mindfulness on physical and mental health, in Langer´s model there is not a regular protocol or series of exercises to foster mindfulness, as in Kabat-Zinn´s MBSR. Sustaining an intention of being "open to experience" and a "lightly even present" effort to break mindlessness states is the way in which someone could be fostering mindfulness skills in Langer´s model. Additionally, Langer states the importance of "successfully meeting novel challenges" for breaking the everyday routine of expected successes. Risk taking can lead individuals to be more aware of their environment and develop mindfulness (Langer, 2006).

A similar perspective is assumed by Hayes et al. (1999) where mindfulness is seen as part of a psychotherapeutic process to promote psychological flexibility. Core psychological abilities including acceptance, cognitive defusion, self-as-context and contact with the present moment are reinforced through mindfulness exercises (Hayes, Strosahl, & Wilson, 2011). Most of these exercises involve imaginative situations and meditative practices, such as those usually deployed at the Kabat-Zinn MBSR and most MBIs, are just another way to foster mindfulness, but not the only way (Hayes & Shenk, 2004). One example of mindfulness without meditation is an exercise called "Leaves on a stream", described below (Chang, 2011):

"Leaves on a Stream" Exercise

(1) Sit in a comfortable position and either close your eyes or rest them gently on a fixed spot in the room.

(2) Visualize yourself sitting beside a gently flowing stream with leaves floating along the surface of the water. Pause 10 seconds.

(3) For the next few minutes, take each thought that enters your mind and place it on a leaf… let it float by. Do this with each thought – pleasurable, painful, or neutral. Even if you have joyous or enthusiastic thoughts, place them on a leaf and let them float by.

(4) If your thoughts momentarily stop, continue to watch the stream. Sooner or later, your thoughts will start up again. Pause 20 seconds.

(5) Allow the stream to flow at its own pace. Don't try to speed it up and rush your thoughts along. You're not trying to rush the leaves along or "get rid" of your thoughts. You are allowing them to come and go at their own pace.

(6) If your mind says "This is dumb," "I'm bored," or "I'm not doing this right" place those thoughts on leaves, too, and let them pass. Pause 20 seconds.

(7) If a leaf gets stuck, allow it to hang around until it's ready to float by. If the thought comes up again, watch it float by another time. Pause 20 seconds.

(8) If a difficult or painful feeling arises, simply acknowledge it. Say to yourself, "I notice myself having a feeling of boredom/impatience/frustration." Place those thoughts on leaves and allow them float along.

(9) From time to time, your thoughts may hook you and distract you from being fully present in this exercise. This is normal. As soon as you realize that you have become sidetracked, gently bring your attention back to the visualization exercise.

Exercises such as the above are different both from Kabat-Zinn MBSR and Langer social-cognitive mindfulness as the former is a behavioral medical protocol and the latter is not a therapeutic system. Nevertheless, the exercise is in line with Langer´s perspective of mindfulness as a psychological and non-spiritual process. Similar versions of these exercises could be found even in traditions from the past and more contemporary approaches. Seneca´s, Marcus Aurelius stoic, or even Gendlin´s focusing exercises, are not substantially different from Hayes's contribution.

The Complexity of Mindfulness in Eastern Contemplative Traditions

As MBSR partly derives from a secularization of Buddhism in the West, and any other MBIs are grounded on MBSR, a strong association between mindfulness and Buddhism is maintained.

But the journey of mindfulness in western Buddhism is convoluted (McMahan, 2008; Seager, 2012; Williams & Kabat-Zinn, 2011; Wilson, 2014) and elsewhere this debate is exhaustively discussed (Grossman & Van Dam, 2011; Purser & Milillo, 2015; Sun, 2014; Williams & Kabat-Zinn, 2011). Nonetheless, how western Buddhism met secular mindfulness, and both developed together?

(1) Although the idea of "present moment attention" could be found in every Eastern Contemplative Tradition, Buddhism is the main source of contemporary mindfulness movement. Just a few studies research mindfulness from other Eastern sources such as Taoism, Shintoism or even classical Hindu perspective;

(2) Early Western sources of mindfulness arise from the cultural adaptations of Buddhism, particularly, in North America during the 60s-70s, before its insertion into the scientific and health environments;

(3) Efforts to secularize mindfulness began inside western Buddhism societies, as modern Burmese "insight movement". The *Dharma* (Buddhist teachings) began to be taught as "the expression of a universal truth that transcends traditional religious boundaries";

(4) Western Buddhist practitioners and monks from the 70s, including Jack Kornfield, Joseph Goldstein, Philip Kapleau and Nyanaponika Thera greatly influenced the "escape" of Buddhist Mindfulness from its "religious dimension" to a broad scenario. It´s known as the "dharma-for-all movement";

(5) This scenario provided fertile ground for John Kabat-Zinn's creation of the first "non-Buddhist" mindfulness – the Mindfulness-Based Stress Reduction (MBSR) program.

(6) For down-to-earth reasons, during the late 70s, MBSR was presented as a secular, non-religious, health applied, intervention, only "inspired" by Buddhism.

While presented as a "secular" intervention, the alleged non-Buddhist MBSR is heavily grounded on Eastern Contemplative Tradition, especially Yoga and Zen Buddhism (Kabat-Zinn, 1982). As we presented before, western Buddhist scholars from the 70s explained "mindfulness" through a general translation for the *Pali* term *sati* (Sanskrit *smrit*), meaning "memory" or "to remember". However, other possible translations were available for *sati* during the 60s-70s, such as "the ascertainment of truth," "watchfulness," "well awake," "correct memory," "right memory," "contemplation," and even "self-discipline" (Wilson, 2014). Only during the 20th century, and as mere convention, "mindfulness" achieved a reasonable consensus as the main English translation for *sati* (Bodhi, 2011). It´s fundamental to notice that, even presented as a "non-religious" medical program, in MSR mindfulness is understood as a derivation of the Buddhist concept.

In Buddhism, an adequate comprehension of *sati* is fundamental to realize the Buddhist spiritual path (Anālayo, 2014; Bodhi, 2011). *Sati* is part of the "Noble Eightfold Path", a core teaching of Buddhism, as *samma-sati* (Right-Mindfulness) and the main ground of the daily practice (Sun, 2014). Inside the "Noble Eightfold Path" right-mindfulness is the seventh fold: "the watchfulness towards one's own experience". Additionally, it is experienced as the bringing of sensory and psychological experience "out of the twilight of unawareness into the light of clear cognition" (Bodhi, 2011, p. 25).

Ultimately, the objective of a Buddhist practitioner is to realize *samma-sati* as part of the "Noble Eightfold Path" and "save his existence" from a world of ignorance (*avidya*) and suffering (*dukka*). A Buddhist dictionary (Anson, 2011) shows how complex the concept of *Sati* should be: "…mindfulness is one of the 5 spiritual faculties and powers (*bala*), one of the 7 factors of enlightenment (*bojjhaṅga*.) and, in its widest sense, one of those mental factors inseparably associated with all *kammically* wholesome (*kusala*) and *kamma*-produced lofty (*Sobhana*) consciousness."

Buddhist mindfulness relies on a strong "belief system" linked to complicated metaphysics and salvational aspects (soteriology) (Bodhi, 2012). Although complex, a fundamental aspect of 70's Western Buddhism was the emphasis on the universality of Buddhist teachings (Wilson, 2014), the "*dhamma*-for-all" movement, as stated by Thera (1972). This possibility of acquiring Buddhist mindfulness without assuming Buddhist principles or core beliefs (as rebirth, karma, deities, etc) is an essential, but thought-provoking, feature of western Buddhist mindfulness (McMahan, 2008) present in MBSR. Should MBSR be part of Buddhism or something as a *quasi*-Buddhism system?

One of the challenges raised by contemporary Buddhist monks and non-Buddhists experts is "how much Buddhist" a system should be to properly transmit mindfulness? (Grossman & Van Dam, 2011; Monteiro, Musten, & Compson, 2015; Purser, 2015). What are the key aspects of Buddhism, including ethics (Śīla) that should be preserved or left out? How Buddhist should a MBSR or DBT be? Should we deeply investigate the role of spirituality variables if MBSR works under "quasi-buddhist" background?

Another concern that emerges from this debate is related to mindfulness teaching (Maex, 2011; Piet, Fjorback, & Santorelli, 2016). In Buddhism, traditionally, only monks or members of the *sangha* with long trainings and lineage transmission were allowed to teach the necessary aspects of the practices (Anālayo, 2014). More appropriately, a monk or practitioner with "realization" in a specific meditation can teach mindfulness practices. Anyway, existing MBSR teacher trainings programs can be undertaken without the supervision of a recognized Buddhist monk. Is it possible to be "universal," "secular," "dhamma-for-all," and yet fully grounded in legitimate Buddhism at the same time?

These tricky concerns are fully alive in the mindfulness movement, but they are specifically true for the Mindfulness-Based Interventions (MBIs), almost entirely derived from MBSR (Piet et

al., 2016). Other contemporary manifestations of mindfulness, such as Langer´s social-cognitive mindfulness, Hayes Acceptance and Commitment Therapy (ACT), and some psychotherapy schools that have emerged outside of Buddhism are not at all or distantly linked with the exposed issues. Linehan's Dialectical Behavioral Therapy (DBT) is one such case as she acknowledges that her mindfulness influences come from Zen Buddhism (Robins, 2002).

Discussion

Ultimately, it is necessary to recognize that there is no adequate or inadequate origin or root of mindfulness, but multiple and complex expressions. A big issue is the difficulty traversing this big map and also the clarity of the message that arises from each of these perspectives, particularly those influenced by the Buddhist tradition. With the development of the map presented in this paper (figure 1) the authors intend to clarify these different, rich and sometimes opposite or complementary perspectives.

As a strategy to incorporate the "meditative" process into the secular world of hospitals, schools and corporations, Kabat-Zinn's MBSR was presented as something fully secular, but how much it really is (or intend to be) remains under heavy debate (Bazzano, 2015; Purser, 2015). In the so called Third-Wave Cognitive Behavioral Therapies, mindfulness could be presented as something derived and adapted from Buddhism, as in DBT, but also grounded in contextual sciences, as in ACT and FAP. Finally, in Langer's work, mindfulness is presented as fully grounded on social-cognitive sciences, but not originally with therapeutic purposes, as in MBIs and Third Wave CBTs. Although not rooted in Buddhism, Langer recognize "meditative practices" as a way to improve mindfulness states. At the same time, mindfulness keeps its own and peculiar journey into Buddhism under peculiar cosmologies, ethical principles and spiritual practices (Zazen, Shamata, Vipassana, etc). The purpose of mindfulness in Buddhism could be more appropriated described as "spiritual" or "religious" since it involves ritualization, religious attendance and spiritual features as "realization," "ultimate happiness" and "liberation from the cycle of rebirths."

Table 3.

Mindfulness Multiple Expressions

Non-Buddhist Mindfulness	*Quasi-Buddhist Mindfulness*	*Buddhist Mindfulness*
Ellen Langer work, Haye´s ACT and DBT*	Mainly MBSR, but MBIs in a general way.	Diverse Buddhist practices such as Shamata and Zazen

*Linehan's DBT is a peculiar case as it´s a contextual psychotherapy anchored in behavioral tradition, but mindfulness practices are inspired on a western reading of Zen Buddhism.

As hundreds of health and non-health professionals, including monks that are becoming scientists (and vice-versa) are delivering and receiving formal training on these different mindfulness perspectives, it is fundamental to know what is really being transmitted in terms of background, purposes and goals. Is it necessary to define boundaries between the sacred and non-sacred teachings of mindfulness? It is a complex debate that must include different fields of knowledge, from religion studies to Psychology, Social Sciences and neuroscientific findings. The present complexity of the phenomena is an invitation for the careful exploration and presentation of mindfulness, beyond any stereotypical and short-sighted debate. It is time for curiosity, not dogma.

References

Alidina, S., & Marshall, J. J. (2013). *Mindfulness workbook for dummies*. Chichester: Wiley.

Alsubaie, M., Abbott, R., Dunn, B., Dickens, C., Keil, T. F., Henley, W., & Kuyken, W. (2017). Mechanisms of action in mindfulness-based cognitive therapy (MBCT) and mindfulness-based stress reduction (MBSR) in people with physical and/or psychological conditions: A systematic review. *Clinical Psychology Review*, *55*, 74-91. doi: 10.1016/j.cpr.2017.04.008

Anālayo, B. (2014). *Perspectives on Satipaṭṭhāna*. Cambridge: Windhorse Publications.

Anson, B. (2011). *Buddhist dictionary*. In BuddhaSasana [website]. Retrieved from http://www.budsas.org/ebud/bud-dict/dic3_s.htm

Aviles, P. R., & Dent, E. B. (2015). The role of mindfulness in leading organizational transformation: A systematic review. *The Journal of Applied Management and Entrepreneurship*, *20*(3), 31-55. doi: 10.9774/GLEAF.3709.2015.ju.00005

Bach, P., Hayes, S. C., & Levin, M. (2015). Mindfulness as a key construct in modern psychotherapy. In B. D. Ostafin, M. D. Robinson, & B. P. Meier (Orgs.), *Handbook of*

mindfulness and self-regulation (pp. 141-154). New York: Springer.

Baer, R. A. (2011). Measuring mindfulness. *Contemporary Buddhism*, *12*(1), 241-261. doi: 10.1080/14639947.2011.564842

Barker, K. K. (2014). Mindfulness meditation: Do-it-yourself medicalization of every moment. *Social Science & Medicine*, *106*, 168-176. doi: 10.1016/j.socscimed.2014.01.024

Bazzano, M. (2015). Before and after mindfulness. *Self & Society*, *43*(1), 3-5. doi: 10.1080/03060497.2015.1018683

Bergmark, A. (2010). Mindfulness training: Specific intervention or psychological Panacea?: Commentaries. *Addiction*, *105*(10), 1708-1709. doi: 10.1111/j.1360-0443.2010.03044.x

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. doi: 10.1007/s12671-012-0110-9

Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., … Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, *11*(3), 230-241. doi: 10.1093/clipsy.bph077

Black, D. S., & Slavich, G. M. (2016). Mindfulness meditation and the immune system: A systematic review of randomized controlled trials: Mindfulness meditation and the immune system. *Annals of the New York Academy of Sciences*, *1373*(1), 13-24. doi: 10.1111/nyas.12998

Bodhi, B. (2011). What does mindfulness really mean? A canonical perspective. *Contemporary Buddhism*, *12*(1), 19-39. doi: 10.1080/14639947.2011.564813

Bodhi, B. (2012). *The numerical discourses of the Buddha: A complete translation of the Anguttara Nikaya teachings of the Buddha*. Somerville, MA: Wisdom Publications.

Bögels, S. M., Lehtonen, A., & Restifo, K. (2010). Mindful parenting in mental health care. *Mindfulness*, *1*(2), 107-120. doi: 10.1007/s12671-010-0014-5

Brown, K. W., Creswell, J. D., & Ryan, R. M. (Eds.). (2016). *Handbook of mindfulness: Theory, research, and practice*. New York: The Guilford Press.

Brown, K. W., & Ryan, R. M. (2006). Perils and promise in defining and measuring mindfulness: Observations from experience. *Clinical Psychology: Science and Practice*, *11*(3), 242-248. doi: 10.1093/clipsy.bph078

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and

evidence for its salutary effects. *Psychological Inquiry*, *18*(4), 211-237. doi: 10.1080/10478400701598298

Burdick, D. (2013). *Mindfulness skills workbook for clinicians & clients: 111 tools, techniques, activities & worksheets*. Eau Claire, WI: Pesi Publishing and Media.

Bushlack, T. J. (2014). Mindfulness and the discernment of passions: Insights from Thomas Aquinas. *Spiritus: A Journal of Christian Spirituality*, *14*(2), 141-165. doi: 10.1353/scs.2014.0043

Cardeña, E., & Winkelman, M. (Orgs.). (2011). *Altering consciousness: Multidisciplinary perspectives*. Santa Barbara, CA: Praeger.

Carmody, J. (2014). Eastern and Western approaches to mindfulness: Similarities, differences, and clinical implications. In A. Ie, C. T. Ngnoumen, & E. J. Langer (Orgs.), *The Wiley Blackwell handbook of mindfulness* (pp. 48-57). Chichester, UK: John Wiley & Sons.

Carmody, J., Reed, G., Kristeller, J., & Merriam, P. (2008). Mindfulness, spirituality, and health-related symptoms. *Journal of Psychosomatic Research*, *64*(4), 393-403. doi: 10.1016/j.jpsychores.2007.06.015

Carruthers, P., & Chamberlain, A. (Orgs.). (2000). *Evolution and the human mind: Modularity, language, and meta-cognition*. Cambridge, UK: Cambridge University Press.

Chambers, R., Lo, B. C. Y., & Allen, N. B. (2008). The impact of intensive mindfulness training on attentional control, cognitive style, and affect. *Cognitive Therapy and Research*, *32*(3), 303-322. doi: 10.1007/s10608-007-9119-0

Chang, L. K. (2011). "Leaves on a stream" – Cognitive defusion exercise. In Mindfulness Muse [website]. Retrieved from http://www.mindfulnessmuse.com/acceptance-and-commitment-therapy/leaves-on-a-stream-cognitive-defusion-exercise

Chaskalson, M. (2011). *The mindful workplace: Developing resilient individuals and resonant organizations with MBSR*. Chichester, UK: Wiley-Blackwell.

Chiesa, A. (2013). The difficulty of defining mindfulness: Current thought and critical issues. *Mindfulness*, *4*(3), 255-268. doi: 10.1007/s12671-012-0123-4

Chiesa, A., & Serretti, A. (2009). Mindfulness-based stress reduction for stress management in healthy people: A review and meta-analysis. *Journal of Alternative and Complementary Medicine (New York, N.Y.)*, *15*(5), 593-600. doi: 10.1089/acm.2008.0495

Coronado-Montoya, S., Levis, A. W., Kwakkenbos, L., Steele, R. J., Turner, E. H., & Thombs, B.

D. (2016). Reporting of positive results in randomized controlled trials of mindfulness-based mental health interventions. *PloS One*, *11*(4), 1-18. doi: 10.1371/journal.pone.0153 220

Davidson, R. J. (2010). Empirical explorations of mindfulness: Conceptual and methodological conundrums. *Emotion*, *10*(1), 8-11. doi: 10.1037/a0018480

Davidson, R. J., & Dahl, C. J. (2018). Outstanding challenges in scientific research on mindfulness and meditation. *Perspectives on Psychological Science, 13*(1), 62-65. doi: 10.1177/1745691617718358

Davidson, R. J., Kabat-Zinn, J., Schumacher, J., Rosenkranz, M., Muller, D., Santorelli, S. F., … Sheridan, J. F. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine*, *65*(4), 564-570. doi: 10.1097/01.PSY. 0000077505.67574.E3

Davidson, R. J., & Kaszniak, A. W. (2015). Conceptual and methodological issues in research on mindfulness and meditation. *American Psychologist*, *70*(7), 581-592. doi: 10.1037/ a0039512

Desbordes, G., Gard, T., Hoge, E. A., Hölzel, B. K., Kerr, C., Lazar, S. W., … Vago, D. R. (2015). Moving beyond mindfulness: Defining equanimity as an outcome measure in meditation and contemplative research. *Mindfulness*, *6*(2), 356-372. doi: 10.1007/s12671-013-0269-8

Dobkin, P. L., & Hassed, C. S. (2016). Future directions, culture and caveats for mindfulness in medical settings. In P. L. Dobkin, & C. S. Hassed (Orgs.), *Mindful medical practitioners: A guide for clinicians and educators* (pp. 105-114). Cham, Germany: Springer International Publishing.

Enowning. (2006, August 14). Mindfulness (GA 66) is the latest work by Heidegger to be translated and published in English [Web log post]. Retrieved from http://enowning.blogspot.com/ 2006/08/mindfulness-ga-66-is-latest-work-by.html

Farias, M., & Wikholm, C. (2015). *The Buddha pill: can meditation actually change you?*. London, UK: Watkins.

Feinberg, T. E., & Mallatt, J. (2016). *The ancient origins of consciousness: How the brain created experience*. Cambridge, MA: The MIT Press.

Foucault, M., & Pearson, J. (2001). *Fearless speech*. Los Angeles, CA: Semiotext(e).

Friedman, H. (2010). Is Buddhism a psychology? Commentary on romanticism in “mindfulness in

psychology". *The Humanistic Psychologist*, *38*(2), 184-189. doi: 10.1080/08873267.2010.485899

Gardner, F. L., & Moore, Z. E. (2012). Mindfulness and acceptance models in sport psychology: A decade of basic and applied scientific advancements. *Canadian Psychology/ Psychologie Canadienne*, *53*(4), 309-318. doi: 10.1037/a0030220

Gendlin, E. T. (2007). *Focusing*. New York: Bantam Books.

Germer, C. K. (2009). *The mindful path to self-compassion: Freeing yourself from destructive thoughts and emotions*. New York: The Guilford Press.

Gethin, R. (2011). On some definitions of mindfulness. *Contemporary Buddhism*, *12*(1), 263-279. doi: 10.1080/14639947.2011.564843

Goldberg, S. B., Tucker, R. P., Greene, P. A., Davidson, R. J., Wampold, B. E., Kearney, D. J., & Simpson, T. L. (2018). Mindfulness-Based Interventions for psychiatric disorders: A systematic review and meta-analysis. *Clinical Psychology Review, 59*, 52-60. doi: 10.1016/j.cpr.2017.10.011

Goyal, M., Singh, S., Sibinga, E. M. S., Gould, N. F., Rowland-Seymour, A., Sharma, R., … Haythornthwaite, J. A. (2014). Meditation programs for psychological stress and well-being: A systematic review and meta-analysis. *JAMA Internal Medicine*, *174*(3), 357-368. doi: 10.1001/jamainternmed.2013.13018

Grabovac, A. (2008). *What is mindfulness?*. In Mindfulness Matters [website]. Retrieved from http://www.mindfulness-matters.org/what-is-mindfulness/

Grabovac, A., Lau, M. A., & Willett, B. R. (2011). Mechanisms of mindfulness: A Buddhist psychological model. *Mindfulness*, *2*(3), 154-166. doi: 10.1007/s12671-011-0054-5

Greenslade, R. (2015). Beyond mindfulness, towards antiquity. *Self & Society*, *43*(1), 35-40. doi: 10.1080/03060497.2015.1018688

Greeson, J. M., Webber, D. M., Smoski, M. J., Brantley, J. G., Ekblad, A. G., Suarez, E. C., & Wolever, R. Q. (2011). Changes in spirituality partly explain health-related quality of life outcomes after Mindfulness-Based Stress Reduction. *Journal of Behavioral Medicine*, *34*(6), 508-518. doi: 10.1007/s10865-011-9332-x

Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits. A meta-analysis. *Journal of Psychosomatic Research*, *57*(1), 35-43. doi: 10.1016/S0022-3999(03)00573-7

Grossman, P., & Van Dam, N. T. (2011). Mindfulness, by any other name…: Trials and tribulations of sati in western psychology and science. *Contemporary Buddhism*, *12*(1), 219-239. doi: 10.1080/14639947.2011.564841

Hadot, P., & Davidson, A. I. (1995). *Philosophy as a way of life: Spiritual exercises from Socrates to Foucault*. Malden, MA: Blackwell.

Hanh, T. N. (1987). *The miracle of mindfulness: An introduction to the practice of meditation*. Boston: Beacon Press.

Hayes, S. C., & Shenk, C. (2004). Operationalizing mindfulness without unnecessary attachments. *Clinical Psychology: Science and Practice*, *11*(3), 249-254. doi: 10.1093/clipsy.bph079

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change* (Vol. xvi). New York: The Guilford Press.

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2011). *Acceptance and commitment therapy: The process and practice of mindful change* (2nd ed.). New York: The Guilford Press.

Hyland, T. (2016). Mindful nation UK – Report by the Mindfulness All-Party Parliamentary Group (MAPPG). *Journal of Vocational Education & Training*, *68*(1), 133-136. doi: 10.1080/13636820.2015.1123926

Iftode, C. (2013). Foucault's idea of philosophy as "care of the self:" Critical assessment and conflicting metaphilosophical views. *Procedia - Social and Behavioral Sciences*, *71*, 76-85. doi: 10.1016/j.sbspro.2013.01.011

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. doi: 10.1016/0163-8343(82)90026-3

Kabat-Zinn, J. (2003). Mindfulness-Based Interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, *10*(2), 144-156. doi: 10.1093/clipsy/bpg016

Kreplin, U., Farias, M., & Brazil, I. A. (2018). The limited prosocial effects of meditation: A systematic review and meta-analysis. *Scientific Reports, 8*(2403), 1-10. doi: 10.1038/s41598-018-20299-z

Kristeller, J. L., & Wolever, R. Q. (2011). Mindfulness-based eating awareness training for treating binge eating disorder: The conceptual foundation. *Eating Disorders*, *19*(1), 49-61. doi: 10.1080/10640266.2011.533605

Kuyken, W., Watkins, E., Holden, E., White, K., Taylor, R. S., Byford, S., … Dalgleish, T. (2010). How does mindfulness-based cognitive therapy work?. *Behavior Research and Therapy*, *48*(11), 1105-1112. doi: 10.1016/j.brat.2010.08.003

Labelle, L. E., Lawlor-Savage, L., Campbell, T. S., Faris, P., & Carlson, L. E. (2015). Does self-report mindfulness mediate the effect of Mindfulness-Based Stress Reduction (MBSR) on spirituality and posttraumatic growth in cancer patients?. *The Journal of Positive Psychology*, *10*(2), 153-166. doi: 10.1080/17439760.2014.927902

Langer, E. J. (1992). Matters of mind: Mindfulness/mindlessness in perspective. *Consciousness and Cognition*, *1*(3), 289-305. doi: 10.1016/1053-8100(92)90066-J

Langer, E. J. (2006). *On becoming an artist: Reinventing yourself through mindful creativity*. New York: Ballantine Books.

Langer, E. J. (2014). *Mindfulness: 25th anniversary edition* (2nd ed.). Boston, MA: Da Capo Lifelong Books.

Langer, E. J., & Imber, L. (1980). Role of mindlessness in the perception of deviance. *Journal of Personality and Social Psychology*, *39*(3), 360-367. doi: 10.1037/0022-3514.39.3.360

Ludwig, D. S., & Kabat-Zinn, J. (2008). Mindfulness in medicine. *JAMA: The Journal of the American Medical Association*, *300*(11), 1350-1352. doi: 10.1001/jama.300.11.1350

Lutz, A., Jha, A. P., Dunne, J. D., & Saron, C. D. (2015). Investigating the phenomenological matrix of mindfulness-related practices from a neurocognitive perspective. *American Psychologist*, *70*(7), 632-658. doi: 10.1037/a0039585

Maex, E. (2011). The Buddhist roots of mindfulness training: A practitioners view. *Contemporary Buddhism*, *12*(1), 165-175. doi: 10.1080/14639947.2011.564835

Mahon, C. M. (2008). The origins of the psychological “interior”—Evidence from imperial roman literary practices and related issues. *Journal of the History of the Behavioral Sciences*, *44*(1), 19-37. doi: 10.1002/jhbs.20284

McCarthy, B., & Wald, L. M. (2013). Mindfulness and good enough sex. *Sexual and Relationship Therapy*, *28*(1–2), 39-47. doi: 10.1080/14681994.2013.770829

McEvilley, T. (2002). *The shape of ancient thought: Comparative studies in Greek and Indian philosophies*. New York: Allworth Press.

McGhee, M. (2000). *Transformations of mind: Philosophy as spiritual practice*. Cambridge, UK: Cambridge University Press.

McMahan, D. L. (2008). *The making of Buddhist modernism*. New York: Oxford University Press.

Medvedev, O. N., Siegert, R. J., Feng, X. J., Billington, D. R., 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. doi: 10.1007/s12671-015-0454-z

Mirdal, G. M. (2012). Mevlana Jalāl-ad-Dīn Rumi and mindfulness. *Journal of Religion and Health*, *51*(4), 1202-1215. doi: 10.1007/s10943-010-9430-z

Monteiro, L. M., Musten, R. F., & Compson, J. (2015). Traditional and contemporary mindfulness: Finding the middle path in the tangle of concerns. *Mindfulness*, *6*(1), 1-13. doi: 10.1007/s12671-014-0301-7

Piet, J., Fjorback, L., & Santorelli, S. (2016). What is required to teach mindfulness effectively in MBSR and MBCT?. In E. Shonin, W. V. Gordon, & M. D. Griffiths (Orgs.), *Mindfulness and Buddhist-derived approaches in mental health and addiction* (pp. 61-83). Cham, Germany: Springer International Publishing.

Pinniger, R., Brown, R. F., Thorsteinsson, E. B., & McKinley, P. (2012). Argentine tango dance compared to mindfulness meditation and a waiting-list control: A randomised trial for treating depression. *Complementary Therapies in Medicine, 20*(6), 377-384. doi: 10.1016/j.ctim.2012.07.003

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. doi: 10.1007/s12671-014-0373-4

Purser, R. E., & Milillo, J. (2015). Mindfulness revisited: A Buddhist-based conceptualization. *Journal of Management Inquiry*, *24*(1), 3-24. doi: 10.1177/1056492614532315

Robins, C. J. (2002). Zen principles and mindfulness practice in dialectical behavior therapy. *Cognitive and Behavioral Practice*, *9*(1), 50-57. doi: 10.1016/S1077-7229(02)80040-2

Rosch, E. (2007). More than mindfulness: When you have a tiger by the tail, let it eat you. *Psychological Inquiry*, *18*(4), 258-264. doi: 10.1080/10478400701598371

Schmidt, S. (2011). Mindfulness in East and West – Is it the same?. In H. Walach, S. Schmidt, & W. B. Jonas (Orgs.), *Neuroscience, consciousness and spirituality* (Vol. 1, pp. 23-38). Dordrecht: Springer Netherlands.

Seager, R. H. (2012). *Buddhism in America* (Rev. ed.). New York: Columbia University Press.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York: The Guilford Press.

Shonin, E., Van Gordon, W., & Griffiths, M. D. (2014). Mindfulness and the social media. *Journal of Mass Communication & Journalism*, *4*(5), 1-4. doi: 10.4172/2165-7912.1000194

Stanley, S. (2012). Intimate distances: William James' introspection, Buddhist mindfulness, and experiential inquiry. *New Ideas in Psychology*, *30*(2), 201-211. doi: 10.1016/j.newideapsych.2011.10.001

Sun, J. (2014). Mindfulness in context: A historical discourse analysis. *Contemporary Buddhism*, *15*(2), 394-415. doi: 10.1080/14639947.2014.978088

Thera, N. (1972). *The power of mindfulness*. Oklahoma City, OK: Unity Press.

Vallely, A. (2006). Jewish redemption by way of the Buddha: A post-modern tale of exile and return. *Jewish Culture and History*, *8*(3), 22-39. doi: 10.1080/1462169X.2006.10512056

Van Dam, N. T., van Vugt, M. K., Vago, D. R., Schmalzl, L., Saron, C. D., Olendzki, A., … Meyer, D. E. (2017). Mind the hype: A critical evaluation and prescriptive agenda for research on mindfulness and meditation. *Perspectives on Psychological Science, 13*(1), 36-61. doi: 10.1177/1745691617709589

Van Gordon, W., Shonin, E., & Griffiths, M. D. (2016). Are contemporary mindfulness-based interventions unethical?. *British Journal of General Practice*, *66*(643), 94-94. doi: 10.3399/bjgp16X683677

Virgili, M. (2015). Mindfulness-Based Interventions reduce psychological distress in working adults: A meta-analysis of intervention studies. *Mindfulness*, *6*(2), 326-337. doi: 10.1007/s12671-013-0264-0

Wallace, B. A. (2000). *The taboo of subjectivity: Toward a new science of consciousness*. New York: Oxford University Press.

Wallace, B. A., & Shapiro, S. L. (2006). Mental balance and well-being: Building bridges between Buddhism and Western psychology. *American Psychologist*, *61*(7), 690-701. doi: 10.1037/0003-066X.61.7.690

Williams, J. M. G., & Kabat-Zinn, J. (2011). Mindfulness: Diverse perspectives on its meaning, origins, and multiple applications at the intersection of science and dharma. *Contemporary Buddhism*, *12*(1), 1-18. doi: 10.1080/14639947.2011.564811

Williams, J. M. G., Russell, I., & Russell, D. (2008). Mindfulness-based cognitive therapy: Further issues in current evidence and future research. *Journal of Consulting and Clinical Psychology*, *76*(3), 524-529. doi: 10.1037/0022-006X.76.3.524

Wilson, J. (2014). *Mindful America: The mutual transformation of Buddhist meditation and American culture*. New York: Oxford University Press.

Wright, S. (2013). Meditate to medicate: Stephen Wright warns about the potential dangers of seeing "mindfulness" as a personal or global panacea. *Nursing Standard*, *28*(11), 26-27. doi: 10.7748/ns2013.11.28.11.26.s29

Zeidan, F., Johnson, S. K., Diamond, B. J., David, Z., & Goolkasian, P. (2010). Mindfulness meditation improves cognition: Evidence of brief mental training. *Consciousness and Cognition*, *19*(2), 597-605. doi: 10.1016/j.concog.2010.03.014

Zenner, C., Herrnleben-Kurz, S., & Walach, H. (2014). Mindfulness-based interventions in schools–A systematic review and meta-analysis. *Frontiers in Psychology*, *5*(603), 1-20. doi: 10.3389/fpsyg.2014.00603

Zoogman, S., Goldberg, S. B., Hoyt, W. T., & Miller, L. (2015). Mindfulness interventions with youth: A meta-analysis. *Mindfulness*, *6*(2), 290-302. doi: 10.1007/s12671-013-0260-4

CAPÍTULO 2

Sugestão de Título para Artigo ou Capítulo – *The Physician Buddha: a medical rationality dimension to understand Mindfulness Based Interventions*

THE PHYSICIAN BUDDHA: A MEDICAL RATIONALITY DIMENSION TO UNDERSTAND MINDFULNESS BASED INTERVENTIONS

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Mindfulness has been a topic garnering increasing interest in the last decades (Wilson, 2014). This is reinforced by the dramatic increase in the number of scientific published papers (Hyland, 2016). This empirical work has been made possible with the development of standardized protocols referred to as Mindfulness Based Interventions or MBIs, which have been created, offered and evaluated across a variety of sectors including education, business and health (Cullen, 2011). One example of the recognition of this approach by government institutions is the fact that The National Institute of Clinical Excellence (UK) support and recommend Mindfulness-based cognitive therapy (MBCT) – one among dozen validated MBIs - to reduce relapse in depressed individuals in the British National Health System services (Hyland, 2016).

Although empirically supported for more than three decades, the very concept of mindfulness is still under debate (Bishop et al., 2004; Davidson & Kaszniak, 2015; Gethin, 2011; R. E. Purser & Milillo, 2015). One of the reasons is because the concept of mindfulness unfolded along different contexts through time. Naturally, one topic of discussion in the scientific literature is how to succinctly describe mindfulness so as not to denature or distort the concept and practices (Grossman & Dam, 2011). Clarity in the use of the language is important not only for research and evaluation purposes, but also to allow clear and consistent communications with clients, carers and colleagues.

One of these contexts is the religious Buddhist western tradition. In western Buddhism the term mindfulness was applied as a translation for Indian philosophical/religious concepts and practices, particularly the concepts of *Sati* and Buddhist practices of silent meditation (Gethin, 2011). The use of mindfulness on Buddhism is not unanimous as it depends on which Buddhist philosophical tradition it arises. Buddhist concepts and practices as diverse as *Shamata*, *Vipassana* or *Zazen* could be seen translated as the same word – mindfulness.

In late 70´s, some decades after the Buddhist using of the term mindfulness, researchers from Social Cognitive sciences and Contextual Psychotherapies, as Langer (Langer, Hatem, Joss,

& Howell, 1989; Langer, 2009, 2014; Langer & Newman, 1979) and Hayes (Hayes & Broadbent, 1988; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Hayes et al., 1999), start using the mindfulness with no correlation to the Buddhist context but to attention process as seen on psychological and behavioral sciences. More recently, neuroscientists started a deep investigation of mindfulness (as part of meditative practices) using neurocognitive language (brain parts, functions, etc) (Lutz et al., 2015). However, some Buddhist jargon is still present in neuroscientific mindfulness as the authors refer to mindfulness mainly as a "meditative experience" (Davidson & Kaszniak, 2015; Kabat-Zinn et al., 1992). This multiple, complex, and sometimes confuse context could be a challenge to those quickly introduced to the Mindfulness field. Thus, mindfulness is a term that could be applied in philosophical/religious context, scientific context or a mixed context involving both religious/philosophical and scientific assumptions.

A Real Meaning for "Mindfulness"?

It´s important to step back and look at the (Merriam-Webster) Dictionary where we can find that mindfulness is a noun used in the English Language even before XVII century. It means the "state or quality of being mindful". In turn, the word mindful is an adjective that, according to the same dictionary, means to be "aware of something that may be important" or simple "inclined to be aware". This demonstrates that, regardless of the context in which the term is used, it exists as a language feature. So, it´s not correct to say that mindfulness emerged or derived – at all – from Buddhism, or even from the scientific field. In western world, Buddhism translations of sacred texts started just in XIX century (Seager, 2012). However, the word mindfulness emerged from the language itself, before the landing of Buddhism in English spoken countries. It´s imperative to be aware of it since it avoids unnecessary controversies about the origins of the term. Even though, most of the well-recognized field authors claims that mindfulness, in a broad sense, emerged from Buddhism or contemplative traditions (Davidson & Kaszniak, 2015; Kabat-Zinn et al., 1992; Williams & Kuyken, 2012).

It´s reasonable to admit the existence of both a "Buddhist" and a "Non-Buddhist" (or "scientific") mindfulness, the last inspired on the original meaning of the English noun, namely: "an specific process of attentional awareness". Buddhist and Non-Buddhist mindfulness emerged from distinguished philosophical, linguistically, pragmatically and ethical perspectives (Friedman, 2010; Grossman & Van Dam, 2011; Sun, 2014; Wallace & Shapiro, 2006; Williams & Kabat-Zinn,

2011). In any case, the so-called Mindfulness Based Interventions (MBIs) developed as hybrid endeavor grounded both in the field of Behavioral/Integrative medicine and in Contemplative Traditions, as Buddhism and Yoga. The influence of Buddhist ideas and practices is notable in the development of most of the most prominent MBIs, especially the Mindfulness Based Stress Reduction (MBSR), but even in Mindfulness Based Cognitive Therapy (MBCT), who is originally grounded in Cognitive Sciences (Kabat-Zinn et al., 1992; Teasdale et al., 2000). In the MBIs, the teaching of mindfulness skills is delivered through a series of exercises inspired by yoga movements and silent and guided meditative practices. In addition, it´s usual the presence of several meditative *setting* elements, as meditative bells, zen cushions and yoga mats (Kabat-Zinn et al., 1992). Practitioners are usually invited to do some practices in the floor on sitting meditation postures. Sometimes, Zen poems and Buddhist folkloric histories take part of the mindfulness program. When these elements are present in a MBI, a MBSR or MBCT group could easily look like as a religious meditation group (Friedman, 2010).

It´s fundamental to understand that mindfulness as usually taught in the MBIs could be distinct from the mindfulness premises, language and setting applied in the cognitive, psychotherapeutic and neuroscientific realms (Hayes & Shenk, 2004; Langer, 1992; Russell & Arcuri, 2015). Even that, the works of Langer, a social cognitive researcher, and Hayes, a contextual psychotherapist and researcher, still involves attention regulation process but with no necessary influence from ancient contemplative wisdom. It´s most influenced by linguistics, social cognition, behavioral sciences and neuroscientific findings. In addition, since the neurocognitive sciences started to investigate the neural correlates of mindfulness practices, as attentional regulation and cognitive flexibility (acceptance) exercises, the Buddhist dimension is not necessarily implied (Russell & Arcuri, 2015). Some neuroscience authors keep investigating religious populations or individuals, as Buddhist monks, but the language applied is sustained mostly by scientific knowledge and the results presented purely on academic language (Davidson, 2010; Hölzel, Carmody, et al., 2011; Malinowski, 2013).

Although, the "mixed perspective"– half-scientifically and half-religious oriented – taken by the traditional MBIs could be a risky journey, since Buddhism is an ancient religious/philosophical tradition with a plethora of intellectual and experiential minutiae (Bodhi, 2011; Purser & Milillo, 2015). As noted previously, in the Buddhist tradition the description of mindfulness varies from different schools, lineages, practices, terminologies and has a wide range

of cultural expressions (Dunne, 2011). In the process of developing a scientific MBI, usually built upon MBSR model, the complexity of Buddhist mindfulness is condensed in some concepts and techniques pinched from different contemplative traditions or schools. Prominent MBIs, as MBSR and MBCT, are the most popular mindfulness medical interventions and plenty of "real time" Buddhist influences. As the Buddhist corollary is unfamiliar for traditional western models of car, researchers on this field should be encouraged to seek clarification and language to explain, compare, or adapt this practice and concept to current secular health systems.

The Medical Rationality Concept

A possible resolution for this issue is using a health care analysis matrix, developed by Luz (1996, 1997), a health social scientist, favorably applied in the study of unconventional medical systems. The author developed a conceptual category called "medical rationality", defined as a structured and coherent set of five interrelated dimensions (a matrix): a doctrine medical (explanation of sickness, their origin and cure), a morphology (anatomy understanding), a vital dynamics (physiology understanding), a diagnosis system and a therapeutic system, all based on a determined cosmology (or world vision). The study of care systems through these dimensions facilitates analytical, descriptive, and comparative studies that seek to understand the knowledge developed by unconventional healing practices in relation to the hegemonic biomedical model. In other words, this matrix contributes to build compared epistemologies and academic knowledge, which helps to promote legitimacy of an innovative intervention for its formalization and institutionalization (Tesser, 2012).

All these processes are embedded in a context of many elements such as the social construction of the relationship between society and science, the concentration of power, the epistemological hegemony, the medical-industrial complex, the valuation of the humanization of care, different traditions, values, worldviews and conceptions of human.

As social demands and popular interest in MBIs are growing, it requires caution, and as much as possible clarity, to understand the various distinct and related concepts as East meets West or traditional contemplative traditions meets scientific method (Friedman, 2010; Grabovac et al., 2011; Wallace & Shapiro, 2006). To a clinician or a researcher who has entered the mindfulness field, or those already working with MBIs, it can be a challenging task to have a suitale breadth of understanding of what mindfulness really means, where it comes from, and where it is now in

relation to health promotion in different health fields. Even the notion of MBCT as a relapse prevention intervention rather than a treatment for depression points to a common confusion that can occur. Many understand that MBCT is a treatment for depression. The literature and developers of MBCT are clear that it is not a treatment, it is a relapse prevention intervention (Segal et al., 2002). This reflects the preventative aspect of many Eastern approaches in contrast to the more reactive treatment approach in Western models of health. This is a good example of how confusions can occur when East meets West without a solid rational background. Our aim is to explore descriptions of mindfulness by a narrative review and to present how they could be applied to the medical rationality dimensions developed by Luz (1996, 1997). Our aim is not to fully review the traditional Buddhist texts, but some recognized authors in the Buddhist mindfulness area and referred to a special issue on mindfulness of the Journal Contemporary Buddhism (Kabat-Zinn & Williams, 2011) which presented a rich diversity of views by the main authors on this topic.

Mindfulness Definitions from East to West

Table 1 presents different descriptions and perspectives of mindfulness found in the selected bibliography, including those not related to religious traditions as those of Langer and Hayes. In what we are labeling as “the hybrid Buddhist-medical context” or “mixed perspective” probably the most common description comes from Kabat-Zinn (2003) (Table 1). The main reason for this is the popularity and evidence built on the mindfulness-based stress reduction (MBSR) program. Elsewhere he describes details about the origin of this program (Kabat-Zinn, 2011).

Looking at the descriptions in Table 1 it is clear that the attempts at western, secular definitions are considerably shorter and concise than those from traditional texts. This may reflect the need to offer something (relatively) simple and/or the removal of the construct of mindfulness from a larger set of metaphysics, rituals, teachings and ethics. In Hayes and Langer definitions it´s noticeable the emphasis on cognitive and behavioral common themes as “perception”, “problem solving”, “environment”, “defusion” and “valued action”.

However, the very understanding of the word “mindfulness” changes as its viewed through scientist or clinician eyes when compared to someone who has a more philosophical/religious experience of mindfulness. In a broad sense, even the long Buddhist definitions should be understood as an instructional explanation to a beginner practitioner (Dreyfus, 2011).

To develop a testable operational definition, a group of researchers (Bishop et al., 2004), most of them from the clinical psychology approach, elaborated a two-component model of mindfulness (Table 1). Other researchers, as Grossman and Dam (2011), consider Buddhist texts presented mindfulness as a process involving four distinct phases (body, feelings, mind, phenomena) and several features (Table 1). Olendzki (2011) describes two divergent views of mindfulness one within an innatist and other in a constructivist model of development. In the first, mindfulness is considered present in all states of consciousness (a universal mental factor), while in second it arises together with other 19 mental factors only in the wholesome mind moments (wholesome universal). He also offers details about the emotional attitudes specific to mindfulness as a form of attention (Table 1).

Genthin (2011) illustrated how the Burmese tradition describes mindfulness in a way that looks congruent with Kabat-Zinn's,and Bishop and colleagues' definitions (Table 1). In contrast, citing traditional Buddhist texts, he also presented mindfulness as a kind of ethical intuition, having two characteristics (calling to mind and taking possession) and many terms to illustrate the nature of the *pali* term *Sati*. Dreyfus (2011), a Buddhist scholar, as a variation on Kabat-Zinn's definition, describes mindfulness as a cognitive activity linked to memory. *Sati* is also derived from *Sarati* who is remembering. The commentary of the translator Rhys Davis cited by Bodhi (2011) also brings this etymological root of *Sati*, but extrapolates the idea of memory to specified facts like the Buddhist concept of Impermanence. According to Wallace (2006), from the perspective of the Indian and Tibetan Mahayana traditions, mindfulness is related to the ability to keep the attention focused with no distraction. It´s applied in insight meditation (*vipassana*) but needs to be early developed in *shamata* (calm abiding) practices of attention stabilization. Vidyamala Burch's description (2008), as Kabat-Zinn´s, a "mixed-perspective" balancing science and religion, seems to link some of the previously cited concepts, with an emphasis on the present moment; the awareness of what is happening and the ability to make choices.

To illustrate a canonical perspective Bodhi (2011) presents excerpts from Buddhist discourses, *Samyutta Nikayas*, *Digha Nikayas* and others, which has explanations about Buddhist teachings related to mindfulness.

It´s particularly important to understand that this disagreement around "what mindfulness really is" provide extra-difficulties on creating a valid path to measure mindfulness. In the scientific and clinical context, as in the religious, mindfulness could be understand as distinct concepts. From

a scientific perspective mindfulness can be a mental state (variate nature), a dispositional (lasting nature) trait or simply a practice. Clinicians and researchers should be aware that these presumptions affect the way more than 15 scales developed (all asking subtly different questions and with slightly different foci). There is also the issue of how to measure mindfulness in those who do not know what it is. In the same way the definition offered Kabat-Zinn may be read differently by a naiver versus experienced practitioner, so the questions on scales such as the FFMQ may be understood differently before or after training. (could put in it about scores go down because people have more realistic awareness of their attention, judging etc). By the time several mindfulness self report scales has been proliferated, each one with different theoretical perspectives and factorial solutions.

Searching for Mindfulness. For Whom?

Table 1 reveals that there are some common themes but little consensus as to what mindfulness is. It's conceptualization can differ between Buddhist schools themselves and from mindfulness as adopted in contemporary MBI (e.g. MBSR, MBCT), research in social-cognitive psychology (e. g. illusion control studies) and different branches of contextual psychotherapies. It is important to understand this diversity in order to have clarity on discerning specific contexts where unlike practices are all referred to as mindfulness.

If used in the secular medical context, professionals and researchers who have not had contact to Buddhist terminology before may struggle to understand clearly some names and expressions like "The Eightfold Path", "The Five Spiritual Faculties", "right view", "right effort", "right mindfulness", "enlightenment factor" and other concepts and words in *Pali* (e.g. *nibbana*, *Nikayas*). The presence of all these words to explain mindfulness in the Buddhist view illustrates how difficult is to understand mindfulness as an isolated practice. In the Buddhist sense, the primary intention in the practice of "Right Mindfulness", even when integrated to a whole system of other practices, is the attainment of liberation (*nibbana*). As a fact, to Buddhist Teachers, according to *Abhidharma*, the so-called Buddhist Psychology Compendium, mindfulness is just one of the 51 mental factors described by Asanga as part of attaining the ultimate goal of realization. It´s important, but not more than the other 50 factors.

Our reading is that although MBIs as MBSR and MBCT has indeed a connection with practices rooted in different Buddhist traditions, it should be presented as secular, accessible to any

people, regardless philosophical and religious background. Nevertheless, the reality is that, because of the historical, conceptual and environmental aspects, the well-known MBIs are presented with a *quasi*-religious aspect. Thus, even with an effort to promote secular context and language, the massive presence of Buddhist supporters, Buddhist concepts (clarity, equanimity, and interdependence), Buddhist poems, Zen cushions and meditation bells all around instigate the permanence of a continuous Buddhist calling. Even though, these *quasi*-religious MBI programs are offered within the western medical system to complement the service in order to alleviate distress caused by disease. In other words, contemporary MBI, even with the present issues, are an example of an integrative practice in the hegemonic biomedical system.

Table 1.
A Selection of Mindfulness Descriptions and Perspectives with their Source and Reference

Description of Mindfulness	Author or text source	Reference
"the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment"	Jon Kabat-Zinn - developer of Mindfulness Based Stress Reduction Program (1979)	Kabat-Zinn, 2003
“the process of drawing novel distinctions […] that implies in (1) a greater sensitivity to one’s environment, (2) more openness to new information, (3) the creation of new categories for structuring perception, and (4) enhanced awareness of multiple perspectives in problem solving”	Ellen Langer	Langer and Moldovea nu (2000)
“[…] a interactive process of contacting events in the present moment but doing so in a way that is defused, accepting, and conscious – and all of that in the service of values and effective action.”	Steven Hayes	Fletcher and Hayes (2005)
A "kind of nonelaborative, nonjudgmental, present-centered awareness in which each thought, feeling, or sensation that arises in the attentional field is acknowledged and accepted as it is." " a process of regulating attention in order to bring a quality of non-elaborative awareness to current experience and a quality of relating to one's experience within an orientation of curiosity, experiential openness and acceptance." " a process of gaining insight into the nature of one's mind and the adoption of a de-centered perspective on thoughts and feelings so that they can be experienced in terms of their subjectivity	a group of researchers consensus	Bishop et al, 2004

(versus their necessary validity) and transient nature (versus their permanence)." Two component model of mindfulness which involves: a) the self-regulation of attention on immediate experience and b) adopting an orientation of curiosity, openness and acceptance.		
not as a mental function or trait, but as a practice or process involving at least four distinct phases..., ranging from body sensations, to awareness of more expansive mental content and process, such as emotion and altered view of self. It connotes several features: (1) deliberate, open-hearted awareness of moment-to-moment perceptible experience; (2) a process held and sustained by such qualities as kindness, tolerance, patience and courage (as underpinnings of a stance of nonjudgmentalness and acceptance); (3) a practice of non-discursive, non-analytic investigation of ongoing experience; (4) an awareness markedly different from everyday modes of attention; and (5) in general, a necessity of systematic practice for its gradual refinement."	researchers describing how Buddhist texts primarily refer to Mindfulness	Grossman & Dam, 2011
"a rather advanced state of wholesome constructed experience" Mindfulness is one of the nineteen wholesome universal mental factors. "a particular attitude or emotional stance toward the object of awareness. (…) with the presence of mind, non-forgetfulness, and a certain stability of focus." It can not co-arise with restlessness, delusion and all the other unwholesome states. "A mental state that arises over and above basic levels of attention, intention and one-pointedness (...) generating energy or joy." Factors that co-arise with Mindfulness: non-greed, non-hatred, equanimity, conscience, respect, confidence (or faith) and tranquillity, lightness, malleability, wieldiness, proficiency, and rectitude. These can be seen as qualities of mindful awareness, rather than just awareness. "All wholesome universal factors will arise and pass away as a group, not only when one practices insight meditation formally but at any time one has a wholesome thought, performs a wholesome action, or speaks a wholesome word." Mindfulness meditation involves deliberate cultivation of this mind state in a continuous series of mind moments. Mindfulness within a constructivist model of development.	*Abhidamma-sangaha* (Southern Buddhist schools of South and Southeast Asia)	Olendzki, 2011
"mindfulness and wisdom are considered among the universal mental factors and thus arise and pass away in every single mind moment. They are presumably eclipsed or over-ridden by unwholesome factors, but nevertheless underlie such mental states." "later Buddhist view of mind already awakened, inherently wise. (...) The practice becomes one of uncovering the originally pure nature of mind." Mindfulness within an innatist model.	*Sanskrit Abhidharmakosa* (Northern Buddhist Schools of North West India and others)	Olendzki, 2011
"With meditation training, one may deliberately direct attention to the breath, but the quality of this attention may still be quite ordinary. (...) directed attention may also be present in unwholesome mind states, such as when one breaths heavily in a rage or in the process of committing a terrible crime. But when the wholesome form of attention manifests, namely Mindfulness, the breath is viewed in a different light, is held with a different touch, is cognized	Andrew Olendzki, senior scholar in Buddhist studies.	Olendzki, 2011

with a different quality of mind. Now the emotional tone, the intentional stance, the attitude with which one beholds the object is rooted in non-greed, non-hatred, and non-delusion (...) and even though the object of awareness is something ordinary (...), the moment is profoundly transformative." "Mindfulness is not just heightened attention, but is attention that has become confident, benevolent, balanced and fundamentally wholesome."		
" the message of Mahasatipatthana Sutta might be summed up as if you consistently "remember" what it is you are doing in any given moment, you will truly see what it is you are doing; and in truly seeing what it is you are doing, those of your deeds, words and thoughts that are motivated by greed, hatred and delusion will become impossible for you'. The association of 'mindfulness' with 'conscience', however, and its characterization as a kind of ethical intuition is not what has been emphasized or brought out in the definitions that have been current more recently in the context of mindfulness-based cognitive therapy, for example, which tend to stress that mindfulness is a 'non-judgemental' kind of observation."	*Mahasatipatthana Sutta*	Gethin, 2011
"Tradition that lies behind the adoption of both the term 'mindfulness' and certain practices in the context of modern psychotherapy": Burmese tradition with teachers as Mahasi Sayadaw, U Ba Khin, Nanamoli (The Path of purification, 1964), Nyanaponika Thera (The heart of Buddhist meditation,1954), in the west with Jack Kornfield, Joseph Goldstein and others. "The most direct way to understand our life situation, who we are and how we operate, is to observe with a mind that simply notices all events equally. This attitude of non-judgmental, direct observation allows all events to occur in a natural way. By keeping attention in the present moment, we can see more and more clearly the true characteristics of our mind and body process."(Kornifield,1977)	Burmese tradition	Gethin, 2011
"sati has two characteristics : 'calling to mind' (apilapana) and 'taking possession' (upaganhana). Thus sati is explained as calling to mind wholesome and unwholesome qualities such that the meditator is in a position to know which qualities are the ones he should pursue and which are the ones he should not. (...)Secondly, sati is said to follow the outcome of qualities, (...) with the result that the meditator can remove those which are not helpful and take possession of those which are helpful."	*Milindapanha*	Gethin, 2011
"terms that are intended to illustrate the nature of sati (…): recollection (anussati), recall (patissati), remembrance (saranata), keeping in mind (dharanata), absence of floating (apilapanata), absence of forgetfulness (asammussanata)."	Early Abhidhamma literature - *Dhammasangani*	Gethin, 2011
Cognitive nature of mindfulness. "Mindfulness is (...) not the present-centred non-judgmental awareness of an object but the paying close attention to an object, leading to the retention of the data so as to make sense of the information delivered by our cognitive apparatus. Thus, far from being	Georges Dreyfus, professor of religion	Dreyfus, 2011

limited to the present and to a mere refraining from passing judgment, mindfulness is a cognitive activity closely connected to memory, particularly to working memory, the ability to keep relevant information active so that it can be integrated within meaningful patterns and used for goal directed activities."		
Etymologically Sati is Memory. But as happened at the rise of Buddhism to so many other expressions in common use, a new connotation was then attached to the word, a connotation that gave a new meaning to it, and renders 'memory' a most inadequate and misleading translation. It became the memory, recollection, calling-to-mind, being-aware-of, certain specified facts. Of these the most important was the impermanence (the coming to be as the result of a cause, and the passing away again) of all phenomena, bodily and mental. And it included the repeated application of this awareness, to each experience of life, from the ethical point of view.	Rhy Davis - translator founder of the Pali Text Society in commenting to the translation of the *Satipattana Sutta*	Bodhi, 2011
"…mindfulness is defined as the faculty of maintaining attention, without forgetfulness or distraction, on a familiar object. (…) it acts as the basis for single-pointed, focused attention, known as Samadhi. (…) Mindfulness is cultivated in the practice of shamata, and is applied in the practice of contemplative insight."	Indian and Tibetan Mahayana Traditions	Wallace, 2006
"Live in the moment, notice what is happening and make choices in how you respond to your experience rather than being driven by habitual reactions."	Vidyamala Burch, The Breathworks foundation	Burch V, 2008, p.55
" to fulfill its role as an integral member of the eightfold path mindfulness has to work in unison with right view and right effort. This means that the practitioner of mindfulness must at times evaluate mental qualities and intended deeds, make judgments about them, and engage in purposeful action. In conjunction with right view, mindfulness enables the practitioner to distinguish wholesome qualities from unwholesome ones, good deeds from bad deeds, beneficial states of mind from harmful states. In conjunction with right effort, it promotes the removal of unwholesome mental qualities and the acquisition of wholesome qualities. It is only in this way that the practice of mindfulness can lay a foundation for correct wisdom to arise and extirpate the roots of suffering."	Ven. Bhikkhu Bodhi	Bodhi, 2011
"And what, monks, is right mindfulness? Here, a monk dwells contemplating the body in the body, ardent, clearly comprehending, mindful, having removed covetousness and displeasure in regard to the world. He dwells contemplating feelings in feelings . ..contemplating mind in mind . . . contemplating phenomena in phenomena, ardent, clearly comprehending, mindful, having removed covetousness and displeasure in regard to the world. This is called right mindfulness."	*Digha Nikayas* (about the noble eigthfold path)	Bodhi, 2011

"'Monks, this is the one-way path for the purification of beings, for the overcoming of sorrow and lamentation, for the passing away of pain and displeasure, for the achievement of the method, for the realization of nibbana, that is, the four establishments of mindfulness. What four? Here, a monk dwells contemplating the body in the body . . . feelings in feelings . . . mind in mind . . . phenomena in phenomena, ardent, clearly comprehending, mindful, having removed covetousness and displeasure in regard to the world. This, monks, is the one-way path for the purification of beings . . . for the realization of nibbana, that is, the four establishments of mindfulness.."	*Digha Nikayas - Satipatthana Sutta* (the Discourse on the Establishment of Mindfulness)	Bodhi, 2013
'the monk recollects that Dhamma and thinks it over. By doing so, on that occasion the monk arouses, develops, and fulfils the enlightenment factor of mindfulness.'	*Samyutta Nikaya*	Bodhi, 2011
"And what, monks, is the faculty of mindfulness? Here, the noble disciple is mindful, possessing supreme mindfulness and alertness, one who remembers and recollects what was done and said long ago. This is called the faculty of mindfulness." (*satindriya*)	*Samyutta Nikaya* (about the five spiritual faculties)	Bodhi, 2011
The faculty of Mindfulness is to be directly known as presence. "Mindfulness establishes the presence of the object and thereby makes it available to scrutiny and discernment." "...to make the objective field clearly available for inspection. (…) sati has its manifestation 'directly facing the objective domain'. We might characterize mindfulness in this sense, in the simplest terms, as lucid awareness. (…) its two primary canonical meanings: as memory and as lucid awareness of the present happenings. (…) When the object being cognized pertains to the past (…) its vivid presentation takes the form of memory. When the object is a bodily process (…) or it is a mental event like a feeling or thought, its vivid presentation takes the form of lucid awareness of the present."	*Patisambhidamaga, Visuddhimagga*	Bodhi, 2011
"sati has still other roles in relation to meditation (…) the object is a conceptual phenomenon-the qualities of the Buddha, the repulsiveness of the body, the inevitability of death, or lovable living beings-yet the mental pose that attends to them is designated mindfulness. What unites them, from the side of the subject, is the lucidity and vivacity of the act of awareness, and from the side of the object, its vivid presentation."	*Anguttara Nikaya, Digha Nikaya, Majjhima Nikaya, Suttanipata.*	Bodhi, 2011
"One understands wrong intention as it is and right intention as it is; this is one's right view . . . . One makes an effort to abandon wrong intention and to acquire right intention: this is one's right effort. Mindfully one abandons wrong intention and mindfully one acquires and dwells in right intention: this is one's right mindfulness." The same is applied to right speech, action and livelihood.	*Majjihima Nikaya*	Bodhi, 2011

A Medical Rationality for Quasi-Buddhist MBIs Frameworks

Currently, a suitable way of not correlating Buddhism with mindfulness is inside a purely understanding of attentional process, psychological acceptance and neural correlates. Some success has been done within this perspective, as the works of Langer, Hayes and some neuroscientific investigation of mindfulness. In addition, some newly developed neurocognitive-focused MBIs, as Body In Mind Training, are starting this "fully scientific taking" on mindfulness (Russell, 2011; Russell & Tatton-Ramos, 2014). However, as stated previously, the most prominent and well researched MBIs were developed under deep inspiration on contemplative traditions influence.

Buddhist tradition is not exactly a medical system. However, many Buddhist discourses compare Buddha as a doctor or supreme surgeon (*sallakatto anuttaro*) and his teachings as medicine (Anālayo, 2014; Bodhi, 2011; Maex, 2011). According to this, *dukkha* (unsatisfactoriness) could be seen as the disease, attachment and craving as the virus, the so called Eightfold path as the cure and *nibbana* (liberation) as health (Analayo, 2006).

As previously mentioned, the concept of mindfulness in the Buddhist tradition has many different elements from mindfulness within alleged non-Buddhist MBIs. To discern differences between the concepts of Buddhist tradition and secular services is important for the development and understanding of the clinical uses and researches involving these contexts (Dorjee, 2010). It´s also important to notice that mindfulness could be developed without MBIs language, solely in Buddhist context, but the authors understand that religious teachers, as monks, and not scientists or psychotherapists, should be responsible with this training. In addition, the concern of this paper is to build a skillful way to delineate and clarify different possibilities of implementing and transmitting mindfulness. Considering these ideas, we used the Medical Rationality category to explore different aspects of these two contexts: the Contemporary MBI (MBSR, MBCT within the biomedical medicine) and the Buddhist Psychology (Table 2). Although Buddhism has a wide range of different cultural expressions, the aim of the present study is to consider a general aspect of mindfulness within this tradition.

In the Medical Rationality category, the first one, (1) Cosmology, refers to the general conceptions of the world around us; ethical values shared with a given culture that shapes the other five dimensions. The Doctrine category (2) is related to the general conceptions about health, disease and healing. Morphology (3) is the general description of the human body-mind and structure. The Vital dynamics category (4) is concerned about the functionality of the body-mind.

The Diagnostic system (5) comprises the diagnostic patterns, practices and tools. Finally, the Therapeutic system category (6) is about how to re-establish, keep and expand the health status (Luz, 1997).

Table 2 shows an initial exploration in identifying these elements presented in MBI and Buddhist Psychology. The increasing popularity of mindfulness approaches is a typical example of the search for well-being and mental health by different/alternative means beyond conventional medical models. Although only the personal and direct practice will embody the understanding of mindfulness, we hope that the descriptions presented in this study help professionals to have a clear view of different contexts, intentions and conceptualizations about mindfulness. Despite the growing popularity of mindfulness, many researchers, clinicians and patients are not fully aware of these issues. This may lead to confusion and poorly managed expectations. The latter may be harmful to the therapeutic alliance in the case of psychological work. May this text not only clarify this but also support the overcoming of possible epistemological barriers that can exist when we related to some knowledge based on a different logic (cosmology) from the official or hegemonic one (Luz, 2012). We hope that this intellectual and conceptual exposition prompts clinicians and researchers to consider more deeply their own experience of mindfulness with the intention to keep learning more and more from first person experience, the answer to these questions: "What is mindfulness? What mindfulness I want to learn and want to teach?"

Table 2.
Explorations about the Cosmology and the Five Dimensions of Medical Rationality in the Contemporary Mindfulness-Based Interventions and Buddhist Tradition

	Contemporary Mindfulness-based Interventions (MBSR/MBCT)	Buddhist Psychology
Cosmology	Classical (Newtonian) Physics (causality) Behavioral Science Paradigm Cognitive Behavioral Therapy Neuroscience	Buddhist cosmology (Liberation, rebirth, Planes of existence, The twelve links of dependent arising, the four great elements (earth, air, fire, water) and the material derived of the four great elements, body, mind. The three characteristics of existence:Impermanence, Suffering and Non-self.
Doctrine	Causal theories of disease and its defeating	The Four noble truth (suffering, cause, cessation, way: The eightfold path),
Morphology	Organic systems and psyschodynamics Structural brain areas related to attention	The Five Aggregates: 1.Rupa (corporeal, material process) 2.Vedana (feeling-

	control, emotion regulation, working memory, body consciousness, self-regulation. Attention network system, meta-cognition, meta-awareness.	pleasant/unpleasant/neither) 3.Sanna (perception/discrimination), 4.Sankhara (formations: intentions, activities, dispositions) 5.Vinnana (Consciousness). (Abhidamma)
Vital Dynamics	Pathophysiology, cognitive and pshychological process Attention network vs. Default Mode Network Being mode, Doing mode	The chain of dependent co-arising (mental and sensory input (18 dhatu), unconscious automatic sensory selection (phassa), feeling/ sensation (vedana), appercetion (sanjanti), thinking/ emotion (vitakketi), mental elaboration (papanceti), wholesome and unwholesome mental factors, The seven factors of awakening, The Five hindrances. The four limitless qualities of heart: Loving kindness, Compassion, Sympathetic joy, Equanimity.
Diagnosis	Semiology, anamnesis, physical, psychological exams, support exams.	Introspection, direct subjective experience
Therapeutics	Mindfulness of breath, body, sound, thoughts, difficulties (sitting meditation), walking meditation, mindful movement, mindful eating, mindful daily activities, home formal meditation practices, inquiring by the facilitator, group sharing, poetry, stress physiology lectures, pleasant and unpleasant diary, coping strategies to stress/depression, communication abilities, list/plan pleasure/mastery activities, guided reflections about practices and learnings. Self-care, self-responsability, self-investigation, direct experience. Attitudinal foundations: non-judging, patience, beginner´s mind, trust, non-striving, acceptance, letting go.	The eightfold path: A)Ethics: right speech, right action, rigth livelihood; B) Meditation: right effort, right mindfulness, right concentration; C) Wisdom: right vision, right emotion. *Shamata* (calm abiding), *Vipassana* (insight) Meditation.

References

Analayo (2006). *Satipattana*: the direct path to realization. Birmingham: Windhorse Publications.

Anālayo (Org.). (2014). *Perspectives on Satipaṭṭhāna*. Cambridge: Windhorse Publ.

Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., … Devins, G. (2004). Mindfulness: A Proposed Operational Definition. *Clinical Psychology: Science and Practice*, *11*(3), 230–241. http://doi.org/10.1093/clipsy.bph077

Bodhi, B. (2011). What does mindfulness really mean? A canonical perspective. *Contemporary Buddhism*, *12*(1), 19–39. http://doi.org/10.1080/14639947.2011.564813

Burch, V. (2008). *Living well with pain and illness: using mindfulness to free yourself from suffering*. London: Piatikus.

Cullen, M. (2011). Mindfulness-Based Interventions: An Emerging Phenomenon. *Mindfulness*. 2(3):186-93.

Davidson, R. J. (2010). Empirical explorations of mindfulness: Conceptual and methodological conundrums. *Emotion*, *10*(1), 8–11. http://doi.org/10.1037/a0018480

Davidson, R. J., & Kaszniak, A. W. (2015). Conceptual and methodological issues in research on mindfulness and meditation. *American Psychologist*, *70*(7), 581–592. http://doi.org/10.1037/a0039512

Dorjee, D. (2010). Kinds and Dimensions of Mindfulness: why it is important to distinguish them. *Mindfulness,* 1, 152-160.

Dreyfus, G. (2001). Is mindfulness present-centred and non-judgmental? A discussion of the cognitive dimensions of mindfulness. *Contemporary Buddhism*, 12(1), 41-54.

Dunne, J. (2001). Toward an understanding of non-dual mindfulness. *Contemporary Buddhism*, 12(1), 71-88.

Friedman, H. (2010). Is Buddhism a psychology? Commentary on romanticism in "mindfulness in psychology". *The Humanistic Psychologist*, *38*(2), 184–189. http://doi.org/10.1080/08873267.2010.485899

Gethin, R. (2011). On some definitions of mindfulness. *Contemporary Buddhism*, *12*(1), 263–279. http://doi.org/10.1080/14639947.2011.564843

Grabovac, A., Lau, M. A., & Willett, B. R. (2011). Mechanisms of Mindfulness: A Buddhist Psychological Model. *Mindfulness*, *2*(3), 154–166. http://doi.org/10.1007/s12671-011-0054-5

Grossman, P., & Van Dam, N. T. (2011). Mindfulness, by any other name…: trials and tribulations of sati in western psychology and science. *Contemporary Buddhism*, *12*(1), 219–239. http://doi.org/10.1080/14639947.2011.564841

Hayes, N. A., & Broadbent, D. E. (1988). Two modes of learning for interactive tasks. *Cognition*, *28*(3), 249–276. http://doi.org/10.1016/0010-0277(88)90015-7

Hayes, S. C., & Shenk, C. (2004). Operationalizing Mindfulness Without Unnecessary Attachments. *Clinical Psychology: Science and Practice*, *11*(3), 249–254. http://doi.org/10.1093/clipsy.bph079

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change* (Vol. xvi). New York, NY, US: Guilford Press.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experimental avoidance and behavioral disorders: a functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology*, *64*(6), 1152–1168.

Hölzel, B. K., Carmody, J., Vangel, M., Congleton, C., Yerramsetti, S. M., Gard, T., & Lazar, S. W. (2011). Mindfulness practice leads to increases in regional brain gray matter density. *Psychiatry Research: Neuroimaging*, *191*(1), 36–43. http://doi.org/10.1016/j.pscychresns.2010.08.006

Hyland, T. (2016). Mindful Nation UK – Report by the Mindfulness All-Party Parliamentary Group (MAPPG). *Journal of Vocational Education & Training*, *68*(1), 133–136. http://doi.org/10.1080/13636820.2015.1123926

Kabat-Zinn, J., Massion, A. O., Kristeller, J., Peterson, L. G., Fletcher, K. E., Pbert, L., … Santorelli, S. F. (1992). Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders. *The American Journal of Psychiatry*, *149*(7), 936–943.

Kabat-Zinn, J. (1982). An out-patient program in Behavioral Medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *Gen Hosp Psych*, 4, 33-47z

Kabat-Zinn, J. (2011). Some reflections on the origins of MBSR, skilful means, and the trouble with maps. *Contemp Buddhism,* 12(1), 282-306.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clin Psychol: Sci Pract*., 10(2),144-56

Langer, E. J., Hatem, M., Joss, J., & Howell, M. (1989). Conditional teaching and mindful learning. *Creativity Research Journal*, *2*(3), 139–150. http://doi.org/10.1080/10400418909534311

Langer, E. J. (1992). Matters of mind: Mindfulness/mindlessness in perspective. *Consciousness and Cognition*, *1*(3), 289–305. http://doi.org/10.1016/1053-8100(92)90066-J

Langer, E. J. (2009). *Counterclockwise: Mindful Health and the Power of Possibility* (1 edition). New York: Ballantine Books.

Langer, E. J. (2014). *Mindfulness, 25th anniversary edition* (Second Edition, 25th anniversary edition). Boston, MA: Da Capo Lifelong Books.

Langer, E. J., & Newman, H. M. (1979). The Role of Mindlessness in a Typical Social Psychological Experiment. *Personality and Social Psychology Bulletin*, *5*(3), 295–298. http://doi.org/10.1177/014616727900500304

Lutz, A., Jha, A. P., Dunne, J. D., & Saron, C. D. (2015). Investigating the phenomenological matrix of mindfulness-related practices from a neurocognitive perspective. *American Psychologist*, *70*(7), 632–658. http://doi.org/10.1037/a0039585

Luz, M. T. (1996). Racionalidades médicas e terapêuticas alternativas. In: *Série - Estudos de Saúde Coletiva*, 62. Rio de Janeiro: Universidade do estado do Rio de Janeiro

Luz, M.T., Camargo, J.R. (1997). A Comparative Study of Medical Rationalities. *Curare* (Berlin), 1(12), 47-58

Luz, M.T. (2012). *Natural, Racional, Social: Razão médica e racionalidade científica moderna*. 3rd.ed. São Paulo: HUCITEC.

Maex, E. (2011). The Buddhist roots of mindfulness training: a practitioners view. *Contemporary Buddhism*, *12*(1), 165–175. http://doi.org/10.1080/14639947.2011.564835

Malinowski, P. (2013). Neural mechanisms of attentional control in mindfulness meditation. *Frontiers in Neuroscience*, *7*, 8. http://doi.org/10.3389/fnins.2013.00008

Olendzki, A. (2011). The construction of Mindfulness. *Contemp Buddhism,* (1), 55-70

Purser, R. E., & Milillo, J. (2015). Mindfulness Revisited: A Buddhist-Based Conceptualization. *Journal of Management Inquiry*, *24*(1), 3–24. http://doi.org/10.1177/1056492614532315

Russell, T. A. (2011). Body in mind training: mindful movement for severe and enduring mental illness. *British Journal of Wellbeing*, *2*(4), 13–16.

Russell, T. A., & Arcuri, S. M. (2015). A neurophysiological and neuropsychological consideration of mindful movement: clinical and research implications. *Frontiers in Human Neuroscience*, 282. http://doi.org/10.3389/fnhum.2015.00282

Russell, T. A., & Tatton-Ramos, T. (2014). Body In Mind Training: Mindful Movement for the Clinical Setting. *Neuro-Disability and Psychotherapy: A Forum for the Practice and Development of Psychological Therapies for Neurological Conditions*, *2*(1), 108–136.

Seager, R. H. (2012). *Buddhism in America, Revised and Expanded* (revised and expanded edition edition). New York: Columbia University Press.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-Based Cognitive Therapy for Depression: A New Approach to Preventing Relapse*. Guilford Publication.

Sun, J. (2014). Mindfulness in Context: A Historical Discourse Analysis. *Contemporary Buddhism*, *15*(2), 394–415. http://doi.org/10.1080/14639947.2014.978088

Teasdale, J. D., Segal, Z. V., Williams, J. M. G., 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), 615–623. http://doi.org/10.1037//0022-006X.68.4.615

Tesser, C. D. (2012). Pesquisa e institucionalização das práticas integrativas e complementares e racionalidades médicas na Saúde Coletiva e no SUS: uma reflexão. In: *Luz, M.T. e Barros, N.F. Racionalidades e Práticas Integrativas em saúde*. Rio de Janeiro: UERJ/IMS/LAPPIS

Wallace, B. A. (2006). *The attention revolution: unlocking the Power of the focused mind*. Somerville, MA: Wisdom Publication

Wallace, B. A., & Shapiro, S. L. (2006). Mental balance and well-being: Building bridges between Buddhism and Western psychology. *American Psychologist*, *61*(7), 690–701. http://doi.org/10.1037/0003-066X.61.7.690

Williams, J. M. G., & Kabat-Zinn, J. (2011). Mindfulness: Diverse Perspectives on its Meaning, Origins, and Multiple Applications at the Intersection of Science and Dharma. *Contemporary Buddhism*, *12*(1), 1–18.

Williams, J. M. G., & Kuyken, W. (2012). Mindfulness-based cognitive therapy: a promising new approach to preventing depressive relapse. *The British Journal of Psychiatry: The Journal of Mental Science*, *200*(5), 359–360. http://doi.org/10.1192/bjp.bp.111.104745

Wilson, J. (2014). *Mindful America: The Mutual Transformation of Buddhist Meditation and American Culture*. New York: Oxford University Press.

CAPÍTULO 3

Body in Mind Training: Mindful movement for the Clinical Setting

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BODY IN MIND TRAINING: MINDFUL MOVEMENT FOR THE CLINICAL SETTING

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Abstract

As the evidence base for mindfulness based interventions (MBIs) grows, there is considerable interest in what the "next wave" of MBIs might look like. In the following article, the rationale, development and initial implementation of a mindful movement-based intervention, Body in Mind Training, is described. Body in Mind Training (BMT) is a mindfulness training approach informed by neuroscience data and using embodied learning that can be used for both individuals and groups in the clinical setting. It provides an alternative methodology for working mindfully with clients who might struggle, for whatever reason, to engage with the currently available MBI protocols. The BMT Framework provides a guide to therapists and health care workers to implement mindfulness in their personal and professional lives and from this, support clients in their exploration of mindfulness. The intention of this article is to share, in Part I, the underlying theoretical concepts and research underpinning this predominantly body and movement based mindfulness training method. Part II details how the BMT Framework and BMT Group protocol evolved from trainings and consultations with a variety of health care workers. Part III provides further details about the implementation of the BMT Framework in the clinical environment. This article is not a review of mindfulness but rather a presentation of a model alongside the early observations of its implementation. It is hoped that this paper might inspire others to consider how to integrate mindful movement into their work and stimulate research and debate in this different route to mindfulness. Working from neurological principles this approach has transdiagnostic appeal. If the principles of mindfulness and neuroscience knowledge are combined, the BMT Framework can be used in any setting.

Introduction

Part 1: Theoretical Underpinnings of BMT

The Task of Therapy

For clients entering psychological services, a key task is to enhance emotion regulation skills (Berking et al., 2008). Emotion regulation is defined as "all of the conscious and non-conscious strategies we **use** to increase, maintain, or decrease one or more components of an emotional response" (Gross, 2001). Emotion dysregulation presents in both chronic and acute forms and arises following emotional or physical trauma (Cicchetti, Ackerman, & Izard, 1995; Thayer & Lane, 2000). Fundamentally, a proactive and effective emotion regulation requires the integration of bodily and cognitive processes in a way that brings into consciousness the sensations, mental habits and emotional states that usually lie outside of awareness (Maiese, 2011; Mehling et al., 2011; Niedenthal, 2007; Thayer & Lane, 2000).

What is Currently Offered?

In the currently prevalent cognitive behavioural therapy (CBT) approach, the collaborative therapeutic endeavour requires access to and manipulation of dysfunctional cognitions and attitudes (Beck & Beck, 2011; Leahy, 2006), emphasizing a more mental as compared to bodily psychotherapeutic dimension. This explicit process relies on the ability to overtly label and engage with cognitive and emotional material – changing cognition in order to impact on emotion (Leahy & Tirch, 2011). While a large evidence base supports this approach (Roth & Fonagy, 2005) clients with neurological damage, learning difficulties or with chronic, complex or severe issues, may be less well served by this approach (Lynch, Laws, & McKenna, 2010; Meyer & Hautzinger, 2012). Psychoanalytic approaches work more implicitly (Schore, 2011) through slow and dynamic modifications of the underlying structure of mind. This makes the effects hard to measure and as a result, psychodynamic approaches are often positioned outside of the mainstream health services (Sandell, Blomberg, & Lazar, 1997).

More recently, the growing field of Mindfulness Based Interventions (MBIs) offers a new and refreshing perspective (Eberth & Sedlmeier, 2012; Jon Kabat-Zinn, 2003). These approaches include Mindfulness-Based Stress Reduction (MBSR), Mindfulness-Based Cognitive Therapy (MBCT), Acceptance and Commitment Therapy (ACT) and Dialectical

Behavioural Therapy (DBT). All of these approaches integrate aspects of mindfulness (to a greater or lesser degree) and a growing evidence base supports their efficacy across a range of mental and physical health conditions (Baer, 2005; Carlson, 2012; Mace, 2007)

The MBIs are structured in an integrative body/mind framework, with most working through the body via a specific aspect of cognition (attention training). Although already integrated into the scientific environment and language, there are current issues about how much these interventions are "packed versions" of spiritual and religious teachings (Bazzano, 2015; Purser, 2015). This is an important concern as spirituality variables are not really measured in current protocols that assume themselves as "fully" secular. It´s known that spirituality can affect outcomes, even in MBIs (Greeson et al., 2011; Labelle et al., 2015). As a way of designing more robust and coherent MBIs researchers must measure the possible religious aspects of a MBI or develop an intervention that is mostly grounded on scientific knowledge (Labelle, Lawlor-Savage, Campbell, Faris, & Carlson, 2015; Lutz et al., 2015). To achieve this level of a fully neurocognitive, secular intervention, is one of the main purposes of building the Body In Mind Training protocol.

As a general rule, MBIs protocols – besides the alleged religious elements – support the development of "the moment by moment attention to bodily sensations and thoughts" (Kabat-Zinn, 2003; Segal, Williams, & Teasdale, 2002; Williams & Penman, 2012). The progressive development of different metacognitive abilities is the driver behind this training, but the fundamental role of the body to the effects is often played down (Worsfold, 2009).

The Body in Mindfulness Training

Even in Buddhist traditions, mindfulness starts with the breath and body. "If one thing…is developed and cultivated, the body is calmed, the mind is calmed, discursive thoughts are quieted, and all wholesome states that partake of supreme knowledge reach fullness of development. What is that one thing? It is mindfulness directed to the body" (N. Bodhi & Bodhi, 2012b). This emphasis on the body is not exclusive to Eastern philosophies. Nietzsche commented "Behind your thoughts and feelings, my brother, there stands a mighty ruler, an unknown sage--whose name is self. In your body he dwells; he is your body. There is more reason in your body than in your best wisdom." (Nietzsche, 2009).

Mindfulness of the body is the first step in the task of calming the mind and regulating emotions as taught in MBIs and a different sort of engagement with the non-verbal "felt sense" of the body is fundamental to MBIs and their effects. The fact that bodily sensations can only be experienced in the present moment, and particularly so during movement, makes them an accessible entry point to mindfulness. However, assessment of bodily awareness is not usually a feature of these studies. Measurement of bodily awareness is a developing, but problematic area of research (Mehling et al., 2011), relying on subjective reports of non-verbal experiences.

Neurophysiological research demonstrates that mindfulness does indeed, start with the body (Kerr, Sacchet, Lazar, Moore, & Jones, 2013). Kerr state that "Learning to control alpha oscillations in SI [primary somatosensory cortex] through localized body-focused attention may be a key gateway mechanism for learning to use thalamocortical alpha regulation to suppress irrelevant sensory inputs across sensory neocortex in an internally directed, top-down manner, for forms of regulation such as selective attention and working memory." (Kerr et al., 2013, p.12). From attending to the body in this way, follows the ability to regulate more abstract mental sensations such as thoughts, memories, images etc.

Evidence from MBIs supports this notion, if indirectly. The mindful yoga component in MBSR seems particularly potent. The time of yoga homework practice was significantly correlated with a large number of outcome variables; despite being completed on fewer days, and for shorter duration (Carmody & Baer, 2008). It was the only practice significantly correlated with changes in the "non-judging" component of the Five Factor Mindfulness Questionnaire. A predominantly yoga-based mindfulness protocol evaluated in (one of the few) RCTs was shown to be helpful in binge eating disorder (McIver, O'Halloran, & McGartland, 2009).

Tang and colleagues created an Integrative Body-Mind protocol (based on Chinese medical theory). They showed that after 11 hours of training healthy participants improved their performance on an attention test. There were also changes in the functional activation and white matter tract integrity of the anterior cingulate cortex (Tang, Lu, Fan, Yang, & Posner, 2012). These studies suggest that body-based practices have a particular potency that may currently be minimized. (Worsfold, 2009) reminds us that mindfulness of the body as taught in MBIs is more than just a vehicle to effect change in metacognition and highlights the lack of discussion in the

mindfulness literature and clinical theory in general regarding how the body is conceptualized (Worsfold, 2009).

One speculation is that as many MBI's have been adopted by mental health workers they have migrated into the more known "mental" domain. This may be due to a training that prioritizes the mental, lack of confidence in body-based practices, or the prevalence of burnout and "wounded healers" in the profession (Carl Jung and Marsha Linehan being two well-known examples) making it hard for this group to engage with their own bodily experience. Although MBIs are offered to our clients, the suffering and need among staff is significant. Staff in UK mental health teams had the highest rates of depersonalization and emotional exhaustion in a recent European comparison (Hill et al., 2006).

It seems there is much potential for more body and movement ways of working and this is currently underdeveloped. It is essential to understand this aspect of mindfulness is not just a stage to pass through. In some traditions such as Daoism, mindful movement is taken to the highest degree of spiritual endeavor (Liao, 2000).

Other Body-Based Practices

A growing number of body psychotherapies and somatic education methods (Fogel, 2013; Totton, 2005) are attracting the attention of mainstream health providers, particularly for clients who struggle to engage with mainstream therapies. These include Feldenkrais, Rolfing, Eutonia, and Continuum Movement to name a few (Totton, 2005). Anecdotal and case study reports are favourable, but an issue with this work is the compartmentalization of the different traditions making it hard to discern a cohesive underlying mechanism of action. The evidence base, perhaps for this reason, remains sparse (Davis, 2009; Ives, 2003).

Two body-based practices with a long history and theoretical foundation (non bio-medical) are the Eastern mind-body practices of Tai Chi and Yoga. These terms broadly describe a range of practices with a growing evidence base for efficacy across a range of physical (Buffart et al., 2012; Lan, Chen, Lai, & Wong, 2013; Liu, Li, & Shnider, 2010) and mental (Cabral, Meyer, & Ames, 2011; Wang et al., 2010) conditions. The predominant explanation for their efficacy rests on the consequences of relaxation response activation (Dusek & Benson, 2009; Jahnke, Larkey, Rogers, Etnier, & Lin, 2010). However, this is only one part of their mechanism and likely selling them far short of their healing potential.

A challenge with appraising these approaches is their mode of action/learning. In movement practices such as Tai Chi, an implicit learning of internal patterns of body and mind occurs over years of practice and repetition of the slow and gentle physical movements. Hayes and Broadbent (1988) have defined implicit learning as "the unselective and passive aggregation of information about the co-occurrence of environmental and features". This type of training makes the ability to report on what has changed (and how) limited as it has entered the "system" in a non-verbal, non-conceptual way (Liao & Masters, 2001). This is supported by Carmody and Baer's (2007) observation that yoga practice in MBSR was correlated with all except the "describing" factor of the FFMQ.

This way of learning is reflected in a pedagogy which uses observation, mirroring, repetition, tactile adjustments and little overt instruction. The classic texts of Tai Chi (W. Liao, 2000) can increase confusion as the language describing the concepts makes much use of metaphor. The implicit learning and use of metaphorical language can be difficult for general Western audiences and make it hard for empirical studies to be conducted (Sieh & Ralston, 1993).

Body in Mind Training Design

BMT works in an optimum and still relatively unexplored zone, between the underdeveloped opportunities for mindful movement as a part of MBIs and making more explicit the ancient body expertise from Tai Chi and martial arts. Using mindful attention to the body in an innovative way (Chiesa, Serretti, & Jakobsen, 2013; Kerr et al., 2013), BMT aims to mine the edge between non-conscious (implicit) and conscious (explicit) bodily, cognitive and emotional experiences. It works from a "bottom-up" body-oriented stance with the bodily sensations (including those associated with emotional states) as the object of the "top-down" attention (Brewer et al., 2011; Chiesa et al., 2013; Russell, 2011). The aim was to develop mindful movement exercises for use by anyone who might struggle to engage with the currently available MBIs, thus widening access to mindfulness. A secondary aim was to help clinicians begin to work in a mindful way using the body, so that they too can benefit (Russell, 2011).

As a foundation – especially for the design and delivery of the exercises - BMT uses the growing neuroscientific knowledge base around how the body is represented in the brain. Additionally, embodied learning principles are inherent in the teaching (Bohannon, 2010;

Bresler, 2004) creating a learning experience that is embedded at a deeper level. In the following sections, the developmental process and underlying scientific rationale are detailed, followed by some reflections on the clinical implementation.

What's So Important about Movement?

Even the most basic notion of the "self" – the conscious being – depends on the movement of an organism (Damasio, 2012; Dehaene & Naccache, 2001). When we begin move independently in the world a "psychological revolution" occurs as multiple cognitive and social processing abilities come on-line (Anderson et al., 2013; Damasio, 2012). Functional activity of the growing infant plays a key role in the "formation, construction and development of structure in the nervous system" (Anderson et al., 2013).

Key structures of the brain that activate the organism to engage with the environment and others, including basal ganglia and cortical motor loops have a role in cognition (Middleton & Strick, 2002). (Wolpert, Diedrichsen, & Flanagan, 2011) have even gone so far as to suggest that movement was the real reason brains evolved (see his TED talk entitled "The real reason for brains"). The development of brain regions controlling motoric behaviour may thus underpin the subsequent evolution of "higher-order" regions sub-serving emotion and cognition. Within cognitive science, a growing research field, embodied cognitive neuroscience, considers more deeply the role of the body in cognition (Gallagher, 2006).

Movement and Emotion: Approaching and Avoiding

Davidson (1992) update on early theories of emotion (Ekman, 1992; Tomkins, 2008) highlights the functional role of emotions, driving the organism to either approach or avoid evolutionarily important stimuli. Our movements therefore can provide clues as to our underlying emotional and motivational state. Gray's neuropsychological theory of anxiety (Gray & McNaughton, 2000), based on extensive animal work, details a behavioural approach system, a fight/flight system and a behavioural inhibition system.

Similarly, Cloninger has proposed a psychobiological model of temperament and character which captures the fundamental integration of motor, cognitive and emotional inhibition patterns. These play out in our lived experience and personality, including our propensity for novelty seeking and harm avoidance behaviours (Cloninger, Svrakic, &

Przybeck, 1993; Gardini, Cloninger, & Venneri, 2009). Emotional and motivational states are thus intimately linked with movement.

Movement and Mood Are Closely Related

In many psychiatric conditions, disruptions in approach and avoidance movements are evident; reduced activation in depression, physical avoidance in anxiety, agitation in mania and psychosis (Noggle & Dean, 2012). Not moving the body impacts on mood, as seen in neurological conditions that affect mobility (such as Parkinson's) where there is high co-morbidity with depression (Cummings, 1992). Mild and severe mental distress can be modified by movement/exercise (NICE, 2004) and in healthy individuals exercise improves cognitive performance (Chaddock et al., 2012; Hillman, Erickson, & Kramer, 2008) in a way observable in the brain (Chapman et al., 2013; Nithianantharajah & Hannan, 2009). Researchers such as Meijer (1989), Wallbott (1988) and more recently App et al., (2011) suggest that movements help us to not only express but also process emotions, with movements providing information that can help us recognize what we are feeling.

Part 1 Summary

In summary, movement and the motor system provide an essential foundation for our emotional and cognitive lives. Fundamental movements towards or away from things are enacted by the body, in the living world (Candidi, Aglioti, & Haggard, 2012; Gibbs, 2006; Maiese, 2011). Movement and mood are intimately linked; lack of movement impacts negatively on us; and movement, positively. BMT makes movement the central training tool for these reasons. Body-based practices such as Tai Chi bring a wealth of knowledge about the moving body – when this is made explicit, with mindful intention and attention possibilities for change in the whole mind-body system occur. In the next section, the development process of the BMT program is described.

Part 2: The Development Process of BMT

Although a fully secular, neurocognitive protocol, BMT arose from the integration of martial arts theory and practice with neuroscience and clinical psychology. In the following

sections the developmental process to bring these exercises into the mainstream health setting are briefly detailed. The reader is referred to Russell (2011) and a forth-coming book for more details (Russell, 2015).

Phase 1 – BMT in the Acute Psychiatric Setting

Working in the adult psychiatric mental health setting and predominantly with those experiencing severe and enduring conditions, a series of mindful movement exercises were piloted across in and out-patient settings (Russell, 2011). Table 1 provides a summary of the activities conducted. The purpose of these groups was to determine the acceptability and feasibility of the exercises and gain feedback from participants about what they found helpful in the class and what they utilized in daily life.

The groups were predominantly offered on male wards to understand whether this approach, based on martial arts and neuroscience might appeal to this group. In the mindfulness literature, females are twice as likely to remain engaged with MBIs (J Kabat-Zinn & Chapman-Waldrop, 1988), and there are predominantly female participants in MBCT studies (Piet & Hougaard, 2011; 63-81% of the samples in their meta-analysis were female). Engagement with "meditation" or "yoga" may be a barrier for males.

Table 1.
Activities in the BMT Class with the Links to Mindfulness Theory and Tai Chi Theory.

Basic warm up: Slow, intentional, mindful movements of the major joints (neck, wrists, shoulders, elbows, waist, hips, knees, ankles). Exercises completed to the ability of the individual, with modifications suggested as required.
Mindfulness Theory Link: Emphasis on focusing and maintaining attention to bodily sensations and listening to the body to find your own pace/limit (compassion). Experiments with pacing to illustrate how slowing down (or pausing) allows us to see more and guidance on tracking intention to move prior to movement.
Tai Chi Theory Link: Highlighting transitions from stillness to movement and back to stillness, exploration of effort and ease in the movements, increasing range of motion (stretch) via integration of bodily sensations, mind and breath.

Stationary elements: Working left/right brain with co-ordinated hand and leg movements (for example the preparation for the Tai Chi movement "Ward off" and static "Wave Hands Like Clouds").

Mindfulness Theory Link: Mindful awareness of mental reactivity and the habits triggered when challenged with a novel movement sequence. Highlighting differential sensory input from left and right sides of the body to pique curiosity and increase self-directed exploration of the body

Tai Chi Theory Link: Breaking down movements into segments to re-build in a more integrated way, attending with focused and broad attention to the whole body during a movement, working with the principle of fang sung (a state of alert relaxation in the body).

Dynamic (moving) elements: Working balance, posture, co-ordination and weight-shifting, for example, Wave Hands Like Clouds and Repulse the Monkey. Waist turning practices and sequences that emphasise the sequential and consequential connections between body parts and movement.

Mindfulness Theory Link: Focused and broad attention highlighted throughout the movements attending to proprioceptive and kinaesthetic feedback, awareness of intention and execution phases of the movement, alertness to mental habits and mind-wandering throughout the movement, awareness of the temporal sequence of movements of body (and mind)

Tai Chi Theory Link: using the mind (Yi) to move the body, More complex breaking down of movement sequences in order to rebuild, fang sung while moving.

Walking meditation: Controlling weight, posture and movement. Noting and not reacting to mind wandering during the walking, observing the mental states of restlessness/agitation and dullness/boredom. Emphasis on exploring effort and ease throughout the movement, and fang sung.

The Tai Chi Exercises were predominantly drawn from the *Shibashi* (Set One) developed by Lin Housheng (http://www.linhousheng.com/) a leading Qigong practitioner.

This set combines contemporary Yang style Tai Chi movements and Qigong exercises. The ten principles of Tai Chi by Chen-fu (Wainapel & Fast, 2003) were embedded in the teaching (see Table 2). Participants are guided to attend to these aspects in an explicit and mindful way. These principles are fundamentally related to developing a deeper awareness of the body and posture during movement and stillness.

Table 2.
Ten Principles of Tai Chi Embedded in a Full Secular Way in All BMT Exercises

i)	Keep the head and neck straight
ii)	Upper and lower back kept in a straight line with the pelvis tucked under, softness in the knees
iii)	Separation of waist and hips, loosening the hips and groin
iv)	Shoulders and elbows are relaxed and down
v)	Upper and lower parts of the body move as one unit
vi)	Differentiating between a full (solid) and an empty (awareness of weight distribution)
vii)	Moving with awareness of mind intention and minimal external muscle force
viii)	Transition between movements in a smooth, continuous manner
ix)	Assure a sense of harmony between the internal and external body feeling
x)	Experience a tranquil, meditative state, breathing in a smooth, continuous manner.

Ward staff took part in many of the classes and feedback was obtained about their reactions and how they felt clients had engaged. Primarily they were surprised how engaged participants remained in the one-hour class, commented on a better understanding of "psychology in action" and observed their own need for this type of activity. The qualitative outcomes from this work indicated that for both clients and staff, BMT mindful movements provided a relaxing and engaging experience that increased self-mastery and body awareness (Russell, 2011).

Phase 2 – BMT Framework for Health Professionals

In Phase Two, BMT exercises formed the basis of workshops and short trainings for health care staff. Workshops were delivered nationally (UK) and internationally (Brazil, Barbados, Poland, Turkey) to a variety of health care workers and educators. In the UK, they were predominantly delivered to mental health multi-disciplinary team members (doctors, psychologists, nurses, health care assistance, physiotherapists, social workers and occupational therapists) providing support for those severe and enduring conditions (CMHTs, Learning Disability Services, Eating Disorders).

The BMT Framework was developed as a way to unpack Kabat-Zinn's definition of mindfulness - "the awareness that arises from paying attention, on purpose, moment by moment and non-judgementally" (Kabat-Zinn, 1982, 2003) and allow those who were curious about mindfulness but without formal training to explain mindfulness to a carer, colleague or client and begin to experiment with the principles of mindfulness in their lives (Figure 1). Using this definition and the BMT exercises as the experiential component, five key principles are explored; i) Pausing (as a means to access the present moment); ii) Intentionality (capturing the element of "on purpose"); iii) Attention (understanding what captures our attention and how we can train voluntary attention); iv) Observation (capturing the element of a different sort of relationship to experience) and v) Compassion (capturing the element of the non-judgemental attitude). See Figure 1.

The understanding of the rationale and role of the mindful movement exercises was enhanced by providing conceptual information about the key theoretical principles of mindfulness and the relevant neuroscience findings. This aspect is vital to the BMT approach, directly drawing on what we know about the brain to deliver and explain the training. Working using a neuroscience framework provides an opening to discuss mindfulness in contexts more used to working within the biomedical model (e.g.: mainstream health settings). It widens access for both staff and clients, so more people might benefit from this training.

The BMT Framework is a means for individuals to begin to explore how they could bring mindfulness into their personal and professional lives. There was an explicit intention that the BMT exercises are as necessary for these staff as they are for clients. The workshop was considered a success if staff members commented "I need this too".

Written feedback was obtained from a number of these workshops and independently audited by a qualitative researcher with experience working in the complementary health sector (Wilkinson, 2013). Using an adapted "framework" methodology (Huberman & Miles, 2002), emergent themes were derived and are shown in Table 3. Further comments can be found in Appendix 1).

Table 3.
Key Learning Outcomes from BMT Staff Training Workshops

Primary Theme:	Mindfulness skill acquisition (using the BMT Framework) and developing an empathic and compassionate approach to the work.
Secondary Themes:	- A new perspective for clinical work and improving professional practice - Incremental application of mindfulness within clinical practice - Understanding the need for sustained self-practice in preparation for clinical work - Potential application for specific client groups - Enhancing direct working with clients - BMT as a way of building on previous mindfulness training and clinical applications of mindfulness.

Note. (N=140 included in audit)

While running these workshops the core training information and exercises continued to be refined, based on the feedback and observation of what worked, what was clear, and where there was confusion. From this emerged a series of exercises and conceptual teaching materials that clearly described the principles of mindfulness using mindful movement as the main training methodology. The materials were optimized to ensure individuals from a variety of professional trainings can work with the BMT Framework across a range of clinical and non-clinical settings.

Phase 3 – BMT Five

From these workshops and the BMT Framework (Figure 1) the BMT-Five session group program emerged. This was an expansion of the principles of the BMT Framework into five 2.5 hour teaching sessions, exploring Pause, Intention, Attention, Observation and Compassion in turn. In order to provide a comprehensive learning experience with the intention of piquing curiosity and encouraging self-motivated engagement with the practices, each theme is explored via i) physical mindful movements illustrating the main learning points; ii) discussion of the underlying neuroanatomy; iii) an explanation of the rationale and iv) discussion of real life application. Each theme is associated with a visual image, two of which (Pause and Free Hugs (compassion) are given as stickers to serve as a prompt in day to day activities (Figure 1).

In BMT, homework is optional and participants invited to implement some aspect of each principle into daily life, in whatever way is helpful or appropriate for them. For example, for some the Pause might be a 20 minute body scan every day, while for others it might be taking a moment to be mindful of the soles of the feet before boarding a bus. From small steps and a more detailed conceptual understanding, the possibility for intrinsic motivation arises.

Six pilot groups with healthy individuals (including many health care staff) and individuals with bipolar illness were run in 2013, obtaining qualitative feedback. Two post-graduate dissertations will formally evaluate BMT-Five in 2014 and include measures of body awareness that evaluate mindful engagement with bodily sensations and the felt sense of emotion in the body (Mehling et al., 2012). It is anticipated that BMT-Five could provide an alternative to standard trainings, a pre- or post- MBSR or MBCT option, and/or a way for mindfulness teachers and health care providers to enhance their clinical mindfulness offering and care for themselves in their work.

Part 2 Summary

In summary, the BMT exercises have evolved from early beginnings as a method to work using mindful movement for those who are very distressed into a structured training protocol based on mindful movement. It has been through the "filter" of a large number of health care staff who recognize both their own need for these practices but also the benefits and different entry point the BMT approach might bring to their clients. This predominantly

qualitative data obtained in the development process will be augmented by future studies using quantitative methods.

Part 3: BMT in Action

Mindful Movement (MM) is defined in BMT as any movement conducted with full explicit awareness of intention, attention, and all the physical and mental sensations unfolding over time. Mindful movements are conducted with a stance of compassionate acceptance towards each and every experience including thoughts, feelings, memories and emotions but especially bodily sensations. The following section provides a description of BMT training principles and how they are applied in the clinical setting. To be clear, although BMT includes certain exercises that form the basis of the current five week protocol, it is also a set of guiding principles (Figure 1), allowing a flexible delivery that can meet the needs of the client group or setting.

Pausing and Inhibition

Pause is the first guiding principle of BMT. Various movements are explored at a progressively detailed level with curiosity in a slow and gentle manner. Not only does this reduce the possibility of injuries but also allows many more of the rich sensations from movement to enter awareness. Pacing as a general theme (in our movements, in our lives) is explored. The completion of slow MM activates motor inhibition system (fronto-basal ganglia networks) to be engaged (Dillon & Pizzagalli, 2007). As many participants state "going slow is hard." Specific brain regions are linked to motor (fronto-basal ganglia networks), cognitive (orbitofrontal cortex) and top down regulation of emotions (ventromedial prefrontal-amgydala interactions), but a common region (right ventrolateral prefrontal cortex) subserves inhibition in a domain general way (Aron, Robbins, & Poldrack, 2004).

This raises the possibility that by training the motor inhibition area through slow mindful movement, the domain general area is boosted and has a greater resource when called on by other domains. This may explain the emotion regulation benefits of Tai Chi (Hong, 2008) and rate of develop - these practitioners are not overtly training in emotion or cognitive regulation, but they are indirectly supporting these processes working through the motor domain.

Slow movements of any sort illustrate directly how we can see more of our experience by reducing the pace. A whole body or individual body part movement can be used. An example of a stationary large limb movement might be "Swimming Backwards" (a single arm movement - as if swimming backwards). Pacing could just as effectively be explored in the seated position by lifting one little finger up and down slowly. The principle rather than the precise movement is important. This makes this approach suitable for a wide range of clinical populations including those with neuro-disabilities who may have difficulties with standing and/or walking.

The Sensory Consequences of Movement

Moving the body creates psychophysiological changes (Anderson et al., 2013; Damasio, 2012). Depending on the individual, slow MMs may give rise to changes in cardiovascular or respiratory rates (Caldwell, Harrison, Adams, & Travis Triplett, 2009). Movement of the joints will provoke a change in the muscles, usually relaxation. This is important for two reasons. Firstly these physiological changes provide a concrete object for attention training and secondly, they can generate insights. BMT participants comment on increased awareness of stiffness (which can arise from medication and inactivity) and a new experience of relaxation in the neck and shoulders. This generates insights such as "I didn't realize I was so stiff" or "I need to move more". Self-efficacy arises from these exercises as participants realise they can do something themselves to alter their physical and mental state.

The Moving Body Is a Particularly Salient Attention Object

Attending to the body generally supports a present moment focus as bodily sensations cannot be experienced in the past or future. The moving body provides a greater wealth of sensations to observe (Section 3.2) and the movement itself can be the object of attention. Movements have a temporal sequence, unfolding over time in a way that supports the ability to keep attention on a constantly updated "now".

As mindfulness develops, sensitivity to the temporal aspects of the movement increases, and it becomes possible to explore separately the intention to move, the execution of the movement and the sensory consequences of the movement (Kerr et al., 2013; Tang, 2011). In BMT developing this temporal sensitivity via movement practices provides a scaffold to

learning how other experiences, including mental events (chains of thoughts) and emotions unfold over time.

Movement of the body and the resultant sensations are a strong stimulus for the attention network, making these exercises suitable for those with very busy or disturbed states of mind as mind-wandering is reduced (Tang & Posner, 2009). Additionally, busy clinicians might incorporate MM into their working life. Much can be observed about our underlying approach/avoid tendencies when we become mindful of how we move about the clinical environment.

The movement itself can be variable - a finger, one or both hand(s), a limb, the torso or head - and adapted to the individual's physical ability. This means that while there are specific movements that really work best to illuminate mindfulness principles, in fact *any* movement can be conducted mindfully following the BMT Framework.

Mindful movements also provide the opportunity to explore the experience of transitions between movement and stillness, a central training principle in Tai Chi (La Forge, 2005). Observing how our intention to terminate or create a movement unfolds illuminates how intention underpins all motoric output and indeed all our actions in the world. Learning to detect change in behaviour patterns is helpful when we are seeking to change unhelpful habits (of body or mind).

Which Body in Mind?

Neuroscience knowledge informs both the design and delivering of the BMT intervention (Russell, 2011). The neural circuitry for the body and motor system are well mapped relative to the circuits for emotion and cognition (Haggard, 2005; Meltzoff, 1990). Early sensory processing of bodily sensations takes place in the somatosensory cortex, with further refinement of the signal as it passes through sensory and motor association cortices. Sub-cortical nuclei also contribute to the experience of the body in mind (Longo, Azañón, & Haggard, 2010). The "extended body" in the brain is likely mediated by activation in the posterior parietal cortex and the "emotional body in brain" encoded in the region of the insula (Berlucchi & Aglioti, 1997; Longo et al., 2010).

The hierarchical layers of body representation in the brain are exploited in BMT. Exercises explore the difference between somatosensation (raw sensations of the body in primary somatosensory cortex); somatoperception (the conceptual body encoded in various regions including posterior parietal lobe) and somatorepresentation (Longo et al., 2010). Exercises deliberately provoke conceptual and visual images of the body and contrast these to the direct sensations or tactile representations. These exercises illustrate just how much "post production" the brain does (and how quickly and unquestioningly we believe it to be "real"). Later this is linked with how we process emotional states in the body and a call to remain curious even when we think we "know".

Thus the brain has a network of regions that progressively create a representation of the body in the brain from the raw primary sensations in somatosensory cortex to the schematic representation of the body in the mind in the parietal lobe (Azañón & Haggard, 2009). In many disorders of body image seen in the clinical setting, it likely that a reliance on processing from the schematic body underpins some of the observed difficulties (Fuchs & Schlimme, 2009). Similarly, if you are disconnected from the body, or depersonalized it is likely some aspect of this network is operating at a lower metabolic level (Simeon et al., 2000). In the neuro-disability field there may be potential for mindful movement to help those with phantom limb pain.

Maximising Learning

It's easier to pay attention if the stimulus is interesting and the signal is strong. The neuroscience of the body representation in the brain is used to support the learning in two ways. Firstly, we know that there are disproportionately large areas of the brain dedicated to processing signals from the hands and the face in the somatosensory and motor cortices (Kerr, Caputy, & Horwitz, 2005). These are therefore, particularly potent objects for mindfulness training making them suitable starting points for those who have difficulties with attention, those with very chaotic minds or for use in distracting environments. Mindfulness of the face can also support training in social skills.

Secondly, most individuals have a hand preference and use-dependent cortical plasticity impacts on sensorimotor cortical representation (Hammond, 2002; Schwenkreis et al., 2007). Thus sensations on the left and right sides (and particularly in the hands) can vary greatly. BMT

exercises use these neuroscience facts and the experiential experience of left and right to pique curiosity and help people really take a look at their experience and increase bodily awareness.

This might be particularly relevant for those with hemi-paresis or weakness on one side of the body. Using the BMT approach the clinician might guide a mindful exploration of the difference in sensations, the ability to perform a movement, and fatigue points on the left and right side, noting both the bodily sensations and the mental sensations (reactivity, judging, comparing etc).

Hand movements that activate the left and right motor cortices preferentially activate approach or avoidance behaviours (Brookshire & Casasanto, 2012). This field of research raises interesting questions about how movements might be used to change problematic approaching/avoiding in clinical populations. As described above, these approach/avoid behaviours are often linked to emotional states.

Observing Emotions

Engagement with movement and bodily sensations provides the foundation to develop curiosity and confidence in being in the body. This is later developed to support direct engagement with affect in the body. The field of affective neuroscience has uncovered how emotions are represented in the brain and the complex bidirectional nature of top-down and bottom-up processing on our emotional lives and behaviour (LeDoux, 1996; Panksepp, 1998; Vytal, Cornwell, Arkin, Letkiewicz, & Grillon, 2013; Wager, Lindquist, & Kaplan, 2007). (Damasio et al., 2000) makes a distinction between emotions (a physiological response including sensations, autonomic and somatic, muscular changes, movement etc. mostly implicit), feelings (a label that describes the summation of body states as experienced by the mind).

In the BMT the MM training intends to help differentiate the mind-body experience of emotions and feelings, learning to detect and engage with emotions as they move through the body. This experience is captured by the phrase "That really moved me" used in response to art or music. These experiences are not quite the same as the sensations experienced in the somatosensory or motor cortices when we move the body, but instead are the moving, throbbing, piercing, spiky sensations often described using metaphor and analogy. They are distinct from

feelings which are the summation of the physiological experience of the emotion and additional mental activity (drawing up memories, labelling etc).

In BMT the critical question "What is the difference between feeling sad and attending to the raw sensations of the body that you have labelled as "sad"?" Staying directly with the raw sensations increases emotional intelligence by developing sensitivity to emotional shifts and keeping the attention in the body reduces the engagement of mental avoidance strategies (body sensations are only ever in the present moment) (Fogel, 2013; Kerr et al., 2013; Tang, 2011). Working with individuals with bipolar, they became able to distinguish the subtleties of a sensation bubbling up from the stomach that was a happy feeling, as compared to on that had an underlying anxious edge, perhaps suggesting hypomania.

With practice, and indeed exposure to previously feared emotional states, confidence grows in the ability to tolerate even very strong emotions without trying to alter them or engage with them using the "thinking" mode. This type of emotional re-education may help to "re-set" maladaptive and toxic processes of coping with emotions (Kashdan, Barrios, Forsyth, & Steger, 2006; Ruths, 2011).

BMT uses predominantly moving practices as the route to the body, which makes it more suitable for those experiencing particularly distressing mental phenomena. The movement provides a moment by moment updated mental target for the attention in the form of a wealth of sensations entering in the body. This provides a safe early engagement with the body that can later be used in the exploration of emotions and emotional reactivity. Training in movement detection also increases sensitivity to how things unfold over time, vital when we then enter the mental and emotional realms. "This too will pass" is a common phrase that supports this understand but working with mindful movement provides an embodied training in this concept (Kerr et al., 2013; Tang & Posner, 2009).

The Body and Compassion

If we pay attention to the body we can notice very clearly the signals it is suffering and we can do more than we think to be kind to ourselves (Tang, 2011). The mild range sensations of pain and/or discomfort that naturally emerge from the movement training posits us a challenge that provides a real chance to observe how we react in the mental/emotional domains.

BMT exercises explore this, using the concrete signals of the body and alertness to mental reactivity to illustrate what happens when we meet an experience we don't like and want to change or avoid. In a single movement there might be a chance to experience the sensations of (and reaction to) pleasant, unpleasant or neutral experiences. In those with disabilities, there is an invitation to attempt the movement (or adapted movement) as best as is possible, noting whatever mental or physical sensations arise, including those related to struggle, non-acceptance and the desire for things to be different (as they were before, like others, or how they might be in some imagined future etc.).

A key principle of BMT training (and in mindfulness generally) is an invitation to try what is currently possible and mindfully explore the limits of one's ability. Observing, with curiosity and compassion what arises (in moments of "success" or "failure") both at the level of physical sensations and mental reactivity. Meeting fatigue (either mental or physical) is part of the training process. Observing mental reactivity and the psychological style when meeting limits is integral to therapeutic work moving client's towards acceptance of injury or illness.

Learning how we cope when things are not as we wish them to be is also highly relevant for staff (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Being compassionate in our work is difficult if we deny, supress, avoid, or cut off from our own emotional experience and struggle. Training in mindfulness can increase self-compassion (Germer, 2009; Gilbert & Procter, 2006; Pace et al., 2012) and this training is as vital for staff (Shapiro, Brown, & Biegel, 2007) as it is for our clients (Van Dam, Sheppard, Forsyth, & Earleywine, 2011). Some programs such as the Mindful Self-Compassion Program prioritize this compassion aspect (Neff & Germer, 2013). Appendix II provides some guidelines as to how elements of the BMT Framework can be used by therapists in their work to support this process.

Imaging studies with experienced meditation practitioners have shown that when engaging in compassionate meditation, and are provoked by (negative) emotional stimuli, there is greater activity in the insular cortex, amygdala, temporal parietal junction and posterior parietal cortex relative to controls (Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008). This suggests that the experience of the emotion may be enhanced when in a compassionate state. The ability to stay with the experience of strong emotions without reacting may be the signature of true compassion – both for our own or another's pain.

Increases in cortical gyrification have been observe in the right anterior insula (Luders et al., 2012), in a manner related to duration of practice and the right insular cortex becomes thicker (Lazar et al., 2005) and denser (Holzel et al., 2007)) after meditation practice. The insular cortex codes interoceptive information related to the felt sense (including in the body) of emotion (Craig, 2005; Longo et al., 2010). It is ideally placed and connected to structures that allow it to monitor the internal state of the organism and co-ordinate other regions to allocate attention, evaluate the context and plan appropriate approach or avoidance actions.

The right insula is a brain region enhanced by mindfulness practice and involved in experiencing and regulating felt emotions in the body. Similar findings have been observed in those who have undergone shorter mindfulness trainings (Farb et al., 2007; Gard et al., 2012). Mindfulness training may therefore serve to enhance our emotion regulation abilities but paradoxically this is by allowing us to feel more, representing increased bottom-up processing of the stimulus (Holzel et al., 2011).

Moving the body and mindful engagement with the movement of emotion in/through the body thus provide us with the possibility of developing compassionate states of mind. Compassion is linked to the ability to fully be present and open to all aspects of emotion, including the bodily component of the experience.

Article Summary and Conclusions

In this paper a preliminary framework for a new MBI has been presented. The BMT approach blends neuroscience with the principles of mindfulness and is presented as a framework that can be used by a range of clinical staff members across a range of clinical populations. Using this brain-based approach, clinicians with experience in their specialist areas and who have tried out the exercise themselves, should be able to create thoughtful adaptations allowing them to work with mindful movement with a range of clients. The choice of movement and the depth of work can be informed by the clinician's experience and collaborative exploration with the client. The development work shows that staff from a variety of backgrounds can work with this approach both for themselves and with clients. Both staff and service users indicated that they found the addition of the basic neuroscience understanding informative and motivating. This is pivotal tool to enhance curiosity and encourage people to explore their experience in this more embodied way. As with all MBIs, the practice and

experience of the clinician offering the training is important so those will to try this way of working are strongly encourage to engage as much as they can with their own body in mind. Some materials to support this are provided in Appendix 2. It is hoped these ideas may stimulate debate and further research into this relatively new and exciting area.

When can you slow down, or pause? How will you remind yourself to do that? Can you pause during events that are pleasant, unpleasant or neutral – what do you notice?

What can you do to be more aware of intention? When and where can you check in with your intentions? How can you really take a look at what is occurring right now in your experience?

How can you remind yourself to notice where your attention is? What draws it away? How does it come back? Is the focus narrow or wide?

What would it be like to really observe and study mental and physical phenomena – like a scientist?

How can you be kinder to yourself and/or others and more at ease?

Figure 1. Body in mind training framework.

Appendix 1: Selected Staff comments from participants on the BMT Module 1 Mindfulness Training for Health Care Professionals

"A new perspective for my work"

"This training will change my practice"

"Now I feel better able to explore different aspects of mindfulness for myself and my clients"

"I liked this different approach to the mindfulness training working so much with the body"

"This should be mandatory for all staff"

"I feel I can bring some "mini" practices into my working day and feel more confident now about using it working with others"

"The workshop was very engaging and the exercises were pitched at the right level. A really useful introduction to mindfulness"

"I loved the playful and humorous attitude – this made me more confident to experiment with mindfulness for myself."

"I was really shocked at how much I could noticed when I slowed down."

Appendix II Suggestions for using the BMT Framework as Therapist

This framework can be used on a moment by moment basis within the session in order to ensure, as far as possible, that mindfulness is maintained and embodied by the therapist. Some illustrative applications are provided in the Table below. The Framework also provides a helpful reflective tool post session or for supervision, checking in with each aspect and reflecting on whether this was apparent in the session and thinking about where it might be enhanced or noticed in future interactions.

BMT Framework for therapists in the session.

Pause	• pausing before replying or interpreting a client's comment • allowing silences and in that time noting any bodily reactions • transitioning between clients or clinical tasks • reflected on during times when we notice we want to "do more" both in body and mind for a client - often a signal that we are seeking to reassure our own anxieties rather than theirs
Intention	• extremely helpful with complex clients, checking in with your intention prior to a session (as a mindfulness therapist the default intention becomes "be in the body"). • checking your intention as you report on a client to a colleague (asking "What is my intention in sharing this information?" for example).
Attention	• Could include Freud's suggestion for "evenly hovering attention" • Being alert to the ways in which our attention to the client might be enhanced or diminished, • Attending to our own mental and physical reactions during the interaction • Noticing any widening or narrowing of attention, moments when vividness becomes dullness.
Observation	• reminds us to keep asking questions and maintain our curiosity

	• repeated sampling of the phenomena or interest (don't just take the first answer!) • listen and engage with "beginner's mind" or the eyes of a child
Compassion	• alert to moments when we can connect with our client's at the level of our common humanity – specifically how this unfolds in our body • compassionate to ourselves in our work - acknowledging and accepting all the feelings our clients and colleagues evoke • alert to and accepting of moments when compassion is lost

References

Anderson, D. I., Campos, J. J., Witherington, D. C., Dahl, A., Rivera, M., He, M., … Barbu-Roth, M. (2013). The role of locomotion in psychological development. *Frontiers in Psychology*, *4*.

Aron, A. R., Robbins, T. W., & Poldrack, R. A. (2004). Inhibition and the right inferior frontal cortex. *Trends in Cognitive Sciences*, *8*(4), 170–177.

Azañón, E., & Haggard, P. (2009). Somatosensory processing and body representation. *Cortex; a Journal Devoted to the Study of the Nervous System and Behavior*, *45*(9), 1078–1084.

Baer, R. A. (2005). *Mindfulness-Based Treatment Approaches: Clinician's Guide to Evidence Base and Applications*. Amsterdam; Boston: Academic Press.

Bazzano, M. (2015). Before and after mindfulness. *Self & Society*, *43*(1), 3–5. http://doi.org/10.1080/03060497.2015.1018683.

Beck, J. S., & Beck, J. S. (2011). *Cognitive behavior therapy: basics and beyond*. New York: Guilford Press.

Berking, M., Wupperman, P., Reichardt, A., Pejic, T., Dippel, A., & Znoj, H. (2008). Emotion-regulation skills as a treatment target in psychotherapy. *Behaviour Research and Therapy*, *46*(11), 1230–1237.

Berlucchi, G., & Aglioti, S. (1997). The body in the brain: neural bases of corporeal awareness. *Trends in Neurosciences*, *20*(12), 560–564.

Bodhi, N., & Bodhi. (2012). *The numerical discourses of the Buddha: a complete translation of the Anguttara Nikaya teachings of the Buddha*. Somerville, Mass.; Enfield: Wisdom; Publishers Group UK [distributor].

Bohannon, J. (2010). Why Do Scientists Dance? *Science*, *330*(6005), 752–752.

Bresler, L. (2004). *Knowing bodies, moving minds: towards embodied teaching and learning*. Dordrecht [Netherlands]; Boston: Kluwer Academic Publishers.

Brewer, J. A., Worhunsky, P. D., Gray, J. R., Tang, Y.-Y., Weber, J., & Kober, H. (2011). Meditation experience is associated with differences in default mode network activity and connectivity. *Proceedings of the National Academy of Sciences*, *108*(50), 20254–20259.

Brookshire, G., & Casasanto, D. (2012). Motivation and Motor Control: Hemispheric Specialization for Approach Motivation Reverses with Handedness. *PLoS ONE*, *7*(4), e36036.

Buffart, L. M., Uffelen, J. G. van, Riphagen, I. I., Brug, J., Mechelen, W. van, Brown, W. J., & Chinapaw, M. J. (2012). Physical and psychosocial benefits of yoga in cancer patients and survivors, a systematic review and meta-analysis of randomized controlled trials. *BMC Cancer*, *12*(1), 559.

Cabral, P., Meyer, H. B., & Ames, D. (2011). Effectiveness of yoga therapy as a complementary treatment for major psychiatric disorders: a meta-analysis. *The Primary Care Companion to CNS Disorders*, *13*(4).

Caldwell, K., Harrison, M., Adams, M., & Travis Triplett, N. (2009). Effect of Pilates and taiji quan training on self-efficacy, sleep quality, mood, and physical performance of college students. *Journal of Bodywork and Movement Therapies*, *13*(2), 155–163.

Candidi, M., Aglioti, S. M., & Haggard, P. (2012). Embodying Bodies and Worlds. *Review of Philosophy and Psychology*, *3*(1), 109–123.

Carlson, L. E. (2012). Mindfulness-Based Interventions for Physical Conditions: A Narrative Review Evaluating Levels of Evidence. *ISRN Psychiatry*, *2012*, 1–21. Carmody, J., & Baer, R. A. (2008). Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program. *Journal of Behavioral Medicine*, *31*(1), 23–33.

Chaddock, L., Hillman, C. H., Pontifex, M. B., Johnson, C. R., Raine, L. B., & Kramer, A. F. (2012). Childhood aerobic fitness predicts cognitive performance one year later. *Journal of Sports Sciences*, *30*(5), 421–430.

Chapman, S. B., Aslan, S., Spence, J. S., DeFina, L. F., Keebler, M. W., Didehbani, N., & Lu, H. (2013). Shorter term aerobic exercise improves brain, cognition, and cardiovascular fitness in aging. *Frontiers in Aging Neuroscience*, *5*.

Chiesa, A., Serretti, A., & Jakobsen, J. C. (2013). Mindfulness: top-down or bottom-up emotion regulation strategy? *Clinical Psychology Review*, *33*(1), 82–96.

Cicchetti, D., Ackerman, B. P., & Izard, C. E. (1995). Emotions and emotion regulation in developmental psychopathology. *Development and Psychopathology*, *7*(01), 1–10.

Cloninger, C. R., Svrakic, D. M., & Przybeck, T. R. (1993). A psychobiological model of temperament and character. *Archives of General Psychiatry*, *50*(12), 975–990.

Craig, A. D. (Bud). (2005). Forebrain emotional asymmetry: a neuroanatomical basis? *Trends in Cognitive Sciences*, *9*(12), 566–571.

Cummings, J. L. (1992). Depression and Parkinson's disease: a review. *The American Journal of Psychiatry*, *149*(4), 443–454.

Damasio, A. R. (2012). *Self comes to mind: constructing the conscious brain*. New York: Vintage Books.

Damasio, A. R., Grabowski, T. J., Bechara, A., Damasio, H., Ponto, L. L. B., Parvizi, J., & Hichwa, R. D. (2000). Subcortical and cortical brain activity during the feeling of self-generated emotions. *Nature Neuroscience*, *3*(10), 1049–1056.

Davidson, R. J. (1992). Emotion and Affective Style: Hemispheric Substrates. *Psychological Science*, *3*(1), 39–43.

Davis, C. M. (2009). *Complementary Therapies in Rehabilitation: Evidence for Efficacy in Therapy, Prevention, and Wellness*. SLACK Incorporated.

Dehaene, S., & Naccache, L. (2001). Towards a cognitive neuroscience of consciousness: basic evidence and a workspace framework. *Cognition*, *79*(1–2), 1–37. Dillon, D. G., & Pizzagalli, D. A. (2007). Inhibition of Action, Thought, and Emotion: A Selective Neurobiological Review. *Applied & preventive psychology : journal of the American Association of Applied and Preventive Psychology*, *12*(3), 99–114.

Dusek, J. A., & Benson, H. (2009). Mind-body medicine: a model of the comparative clinical impact of the acute stress and relaxation responses. *Minnesota Medicine*, *92*(5), 47–50.

Eberth, J., & Sedlmeier, P. (2012). The Effects of Mindfulness Meditation: A Meta-Analysis. *Mindfulness*, *3*(3), 174–189.

Ekman, P. (1992). An argument for basic emotions. *Cognition & Emotion*, *6*(3-4), 169–200.

Farb, N. A. S., Segal, Z. V., Mayberg, H., Bean, J., McKeon, D., Fatima, Z., & Anderson, A. K. (2007). Attending to the present: mindfulness meditation reveals distinct neural modes of self-reference. *Social Cognitive and Affective Neuroscience*, *2*(4), 313–322.

Fogel, A. (2013). *Body sense: the science and practice of embodied self-awareness*.

Fuchs, T., & Schlimme, J. E. (2009). Embodiment and psychopathology: a phenomenological perspective. *Current Opinion in Psychiatry*, *22*(6), 570–575.

Gallagher, S. (2006). *How the Body Shapes the Mind* (New Ed edition.). Oxford University Press, USA.

Gard, T., Holzel, B. K., Sack, A. T., Hempel, H., Lazar, S. W., Vaitl, D., & Ott, U. (2012). Pain Attenuation through Mindfulness is Associated with Decreased Cognitive Control and Increased Sensory Processing in the Brain. *Cerebral Cortex*, *22*(11), 2692–2702.

Gardini, S., Cloninger, C. R., & Venneri, A. (2009). Individual differences in personality traits reflect structural variance in specific brain regions. *Brain Research Bulletin*, *79*(5), 265–270.

Germer, C. K. (2009). *The Mindful Path to Self-Compassion: Freeing Yourself from Destructive Thoughts and Emotions*. Guilford Press.

Gibbs, R. W. (2006). *Embodiment and cognitive science*. Cambridge; New York: Cambridge University Press.

Gilbert, P., & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: overview and pilot study of a group therapy approach. *Clinical Psychology & Psychotherapy*, *13*(6), 353–379.

Gray, J. A., & McNaughton, N. (2000). *The neuropsychology of anxiety: an enquiry into the functions of the septo-hippocampal system*. Oxford; New York: Oxford University Press.

Greeson, J. M., Webber, D. M., Smoski, M. J., Brantley, J. G., Ekblad, A. G., Suarez, E. C., & Wolever, R. Q. (2011). Changes in spirituality partly explain health-related quality of life outcomes after Mindfulness-Based Stress Reduction. *Journal of Behavioral Medicine*, *34*(6), 508–518. http://doi.org/10.1007/s10865-011-9332-x

Gross, J. J. (2001). Emotion Regulation in Adulthood: Timing Is Everything. *Current Directions in Psychological Science*, *10*(6), 214–219.

Haggard, P. (2005). Conscious intention and motor cognition. *Trends in Cognitive Sciences*, *9*(6), 290–295.

Hammond, G. (2002). Correlates of human handedness in primary motor cortex: a review and hypothesis. *Neuroscience & Biobehavioral Reviews*, *26*(3), 285–292.

Hayes, N. A., & Broadbent, D. E. (1988). Two modes of learning for interactive tasks. *Cognition*, *28*(3), 249–276.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experimental avoidance and behavioral disorders: a functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology*, *64*(6), 1152–1168.

Hill, R., Ryan, P., Hardy, P., Anczewska, M., Kurek, A., Dawson, I., … Turner, C. (2006). Situational levels of burnout among staff in six European inpatient and community mental health teams. *Journal of Mental Health Training, Education and Practice, The*, *1*(1), 12–21.

Hillman, C. H., Erickson, K. I., & Kramer, A. F. (2008). Be smart, exercise your heart: exercise effects on brain and cognition. *Nature Reviews Neuroscience*, *9*(1), 58–65.

Holzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2011). How Does Mindfulness Meditation Work? Proposing Mechanisms of Action From a Conceptual and Neural Perspective. *Perspectives on Psychological Science*, *6*(6), 537–559.

Holzel, B. K., Ott, U., Gard, T., Hempel, H., Weygandt, M., Morgen, K., & Vaitl, D. (2007). Investigation of mindfulness meditation practitioners with voxel-based morphometry. *Social Cognitive and Affective Neuroscience*, *3*(1), 55–61.

Hong, Y. (2008). *Tai Chi Chuan: State of the Art in International Research*. Karger Medical and Scientific Publishers.

Huberman, M., & Miles, M. B. (2002). *The Qualitative Researcher's Companion*. SAGE.

Ives, J. C. (2003). Comments on "The Feldenkrais Method®: A Dynamic Approach to Changing Motor Behavior". *Research Quarterly for Exercise and Sport*, *74*(2), 116–123.

Jahnke, R., Larkey, L., Rogers, C., Etnier, J., & Lin, F. (2010). A Comprehensive Review of Health Benefits of Qigong and Tai Chi. *American journal of health promotion : AJHP*, *24*(6), e1–e25.

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.

Kabat-Zinn, J. (2003). Mindfulness-Based Interventions in Context: Past, Present, and Future. *Clinical Psychology: Science and Practice*, *10*(2), 144–156.

Kabat-Zinn, J., & Chapman-Waldrop, A. (1988). Compliance with an outpatient stress reduction program: rates and predictors of program completion. *Journal of Behavioral Medicine*, *11*(4), 333–352.

Kashdan, T. B., Barrios, V., Forsyth, J. P., & Steger, M. F. (2006). Experiential avoidance as a generalized psychological vulnerability: Comparisons with coping and emotion regulation strategies. *Behaviour Research and Therapy*, *44*(9), 1301–1320.

Kerr, C. E., Sacchet, M. D., Lazar, S. W., Moore, C. I., & Jones, S. R. (2013). Mindfulness starts with the body: somatosensory attention and top-down modulation of cortical alpha rhythms in mindfulness meditation. *Frontiers in Human Neuroscience*, *7*, 12.

Kerr, P. B., Caputy, A. J., & Horwitz, N. H. (2005). A history of cerebral localization. *Neurosurgical Focus*, *18*(4), e1.

Labelle, L. E., Lawlor-Savage, L., Campbell, T. S., Faris, P., & Carlson, L. E. (2015). Does self-report mindfulness mediate the effect of Mindfulness-Based Stress Reduction (MBSR) on spirituality and posttraumatic growth in cancer patients? *The Journal of Positive Psychology*, *10*(2), 153–166. http://doi.org/10.1080/17439760.2014.927902

La Forge, R. (2005). Aligning Mind and Body: Exploring the Disciplines of Mindful Exercise. *ACSM's Health & Fitness Journal*, *9*(5), 7–14.

Lan, C., Chen, S.-Y., Lai, J.-S., & Wong, A. M.-K. (2013). Tai Chi Chuan in Medicine and Health Promotion. *Evidence-Based Complementary and Alternative Medicine: eCAM*, *2013*, 502131.

Lazar, S. W., Kerr, C. E., Wasserman, R. H., Gray, J. R., Greve, D. N., Treadway, M. T., … Fischl, B. (2005). Meditation experience is associated with increased cortical thickness. *Neuroreport*, *16*(17), 1893–1897.

Leahy, R. L. (2006). *Contemporary Cognitive Therapy: Theory, Research, and Practice* (New edition edition.). New York: The Guilford Press.

Leahy, R. L., Tirch, D. D., & Napolitano. (2011). *Emotion regulation in psychotherapy: a practitioner's guide*. New York: Guilford Press.

LeDoux, J. E. (1996). *The emotional brain: the mysterious underpinnings of emotional life*. New York: Simon & Schuster.

Liao, C. M., & Masters, R. S. (2001). Analogy learning: a means to implicit motor learning. *Journal of Sports Sciences*, *19*(5), 307–319.

Liao, W. (2000). *T'ai chi classics*. Boston: Shambhala.

Liu, J., Li, B., & Shnider, R. (2010). Effects of Tai Chi Training on Improving Physical Function in Patients With Coronary Heart Diseases. *Journal of Exercise Science & Fitness*, *8*(2), 78–84.

Longo, M. R., Azañón, E., & Haggard, P. (2010). More than skin deep: body representation beyond primary somatosensory cortex. *Neuropsychologia*, *48*(3), 655–668.

Luders, E., Kurth, F., Mayer, E. A., Toga, A. W., Narr, K. L., & Gaser, C. (2012). The Unique Brain Anatomy of Meditation Practitioners: Alterations in Cortical Gyrification. *Frontiers in Human Neuroscience*, *6*.

Lutz, A., Brefczynski-Lewis, J., Johnstone, T., & Davidson, R. J. (2008). Regulation of the Neural Circuitry of Emotion by Compassion Meditation: Effects of Meditative Expertise. *PLoS ONE*, *3*(3), e1897.

Lutz, A., Jha, A. P., Dunne, J. D., & Saron, C. D. (2015). Investigating the phenomenological matrix of mindfulness-related practices from a neurocognitive perspective. *American Psychologist*, *70*(7), 632–658. http://doi.org/10.1037/a0039585

Lynch, D., Laws, K. R., & McKenna, P. J. (2010). Cognitive behavioural therapy for major psychiatric disorder: does it really work? A meta-analytical review of well-controlled trials. *Psychological Medicine*, *40*(01), 9–24.

Mace, C. (2007). *Mindfulness and Mental Health: Therapy, Theory and Science* (New Ed edition.). Hove, East Sussex England; New York, NY: Routledge.

Maiese, M. (2011). *Embodiment, emotion, and cognition*. Basingstoke, Hampshire; New York, NY: Palgrave Macmillan.

McIver, S., O'Halloran, P., & McGartland, M. (2009). Yoga as a treatment for binge eating disorder: A preliminary study. *Complementary Therapies in Medicine*, *17*(4), 196–202.

Mehling, W. E., Price, C., Daubenmier, J. J., Acree, M., Bartmess, E., & Stewart, A. (2012). The Multidimensional Assessment of Interoceptive Awareness (MAIA). *PLoS ONE*, *7*(11), e48230. Mehling, W. E., Wrubel, J., Daubenmier, J. J., Price, C. J., Kerr, C. E., Silow, T., … Stewart, A. L. (2011). Body Awareness: a phenomenological inquiry into the common ground of mind-body therapies. *Philosophy, Ethics, and Humanities in Medicine*, *6*(1), 6.

Meltzoff, A. N. (1990). Towards a Developmental Cognitive Science. *Annals of the New York Academy of Sciences*, *608*(1), 1–37.

Meyer, T. D., & Hautzinger, M. (2012). Cognitive behaviour therapy and supportive therapy for bipolar disorders: relapse rates for treatment period and 2-year follow-up. *Psychological Medicine*, *42*(7), 1429–1439.

Middleton, F. A., & Strick, P. L. (2002). Basal-ganglia "Projections" to the Prefrontal Cortex of the Primate. *Cerebral Cortex*, *12*(9), 926–935.

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.

Niedenthal, P. M. (2007). Embodying Emotion. *Science*, *316*(5827), 1002–1005. doi:10.1126/science.1136930

Nietzsche, F. (2009). *Thus Spoke Zarathustra (A Thrifty Book): A Book for All and None*. Thrifty Books.

Nithianantharajah, J., & Hannan, A. J. (2009). The neurobiology of brain and cognitive reserve: mental and physical activity as modulators of brain disorders. *Progress in Neurobiology*, *89*(4), 369–382.

Noggle, C. A., & Dean, R. (2012). *The Neuropsychology of Psychopathology*. Springer Publishing Company.

Pace, T., Negi, L., Donaldson-Lavelle, B., Silva, B. O., Reddy, S., Cole, S., … Raison, C. (2012). P02.119. Cognitively-Based Compassion Training reduces peripheral inflammation in adolescents in foster care with high rates of early life adversity. *BMC Complementary and Alternative Medicine*, *12*(Suppl 1), P175.

Panksepp, J. (1998). *Affective Neuroscience: The Foundations of Human and Animal Emotions*. Oxford University Press.

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. http://doi.org/10.1007/s12671-014-0373-4

Roth, A., & Fonagy, P. (2005). *What works for whom?: a critical review of psychotherapy research*. New York: Guilford Press.

Russell, T. A. (2011). Body in mind training: mindful movement for severe and enduring mental illness. *British Journal of Wellbeing*, *2*(4), 13–16.

Russell, T. A. (2015). *Body in Mind: Unlocking the Secrets of Mindfulness Through Movement*. London: Duncan-Baird/Watkins.

Ruths, F. (2011). Mindfulness and Acceptance Based Behavioral Therapies in Practice Lizabeth Roemer and Susan M. Orsillo New York: The Guilford Press, 2009. pp. 244. £24.00 (hb). ISBN: 978-1-59385-997-8. *Behavioural and Cognitive Psychotherapy*, *39*(01), 123–124.

Sandell, R., Blomberg, J., & Lazar, A. (1997). When Reality Doesn't Fit the Blueprint: Doing Research on Psychoanalysis and Long-Term Psychotherapy in a Public Health Service Program. *Psychotherapy Research*, *7*(4), 333–344.

Schore, A. N. (2011). The Right Brain Implicit Self Lies at the Core of Psychoanalysis. *Psychoanalytic Dialogues*, *21*(1), 75–100.

Schwenkreis, P., El Tom, S., Ragert, P., Pleger, B., Tegenthoff, M., & Dinse, H. R. (2007). Assessment of sensorimotor cortical representation asymmetries and motor skills in violin players. *The European Journal of Neuroscience*, *26*(11), 3291–3302.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-Based Cognitive Therapy for Depression: A New Approach to Preventing Relapse*. Guilford Publication.

Shapiro, S. L., Brown, K. W., & Biegel, G. M. (2007). Teaching self-care to caregivers: Effects of mindfulness-based stress reduction on the mental health of therapists in training. *Training and Education in Professional Psychology*, *1*(2), 105–115.

Sieh, R., & Ralston, P. (1993). *T'ai Chi Ch'uan: The Internal Tradition*. Berkeley, Calif: Blue Snake Books.

Simeon, D., Guralnik, O., Hazlett, E. A., Spiegel-Cohen, J., Hollander, E., & Buchsbaum, M. S. (2000). Feeling unreal: a PET study of depersonalization disorder. *The American Journal of Psychiatry*, *157*(11), 1782–1788.

Tang, Y.-Y. (2011). Mechanism of integrative body-mind training. *Neuroscience Bulletin*, *27*(6), 383–388.

Tang, Y.-Y., Lu, Q., Fan, M., Yang, Y., & Posner, M. I. (2012). Mechanisms of white matter changes induced by meditation. *Proceedings of the National Academy of Sciences of the United States of America*, *109*(26), 10570–10574.

Tang, Y.-Y., & Posner, M. I. (2009). Attention training and attention state training. *Trends in Cognitive Sciences*, *13*(5), 222–227.

Thayer, J. F., & Lane, R. D. (2000). A model of neurovisceral integration in emotion regulation and dysregulation. *Journal of Affective Disorders*, *61*(3), 201–216.

Tomkins, S. S. (2008). *Affect imagery consciousness the complete edition*. New York: Springer Pub.

Totton, N. (2005). *New dimensions in body psychotherapy*. Maidenhead, England; New York: Open University Press.

Van Dam, N. T., Sheppard, S. C., Forsyth, J. P., & Earleywine, M. (2011). Self-compassion is a better predictor than mindfulness of symptom severity and quality of life in mixed anxiety and depression. *Journal of Anxiety Disorders*, *25*(1), 123–130.

Vytal, K. E., Cornwell, B. R., Arkin, N. E., Letkiewicz, A. M., & Grillon, C. (2013). The complex interaction between anxiety and cognition: insight from spatial and verbal working memory. *Frontiers in Human Neuroscience*, *7*, 93.

Wager, T. D., Lindquist, M., & Kaplan, L. (2007). Meta-analysis of functional neuroimaging data: current and future directions. *Social cognitive and affective neuroscience*, *2*(2), 150–158.

Wainapel, S. F., & Fast, A. (2003). Alternative Medicine and Rehabilitation. Text. Recuperado 27 de abril de 2014, de http://www.ncbi.nlm.nih.gov/books/NBK11183/

Wang, C., Bannuru, R., Ramel, J., Kupelnick, B., Scott, T., & Schmid, C. H. (2010). Tai Chi on psychological well-being: systematic review and meta-analysis. *BMC Complementary and Alternative Medicine*, *10*(1), 23.

Williams, J. M. G., & Penman, D. (2012). *Mindfulness: an eight-week plan for finding peace in a frantic world*. [Emmaus, Pa.]: Rodale Books.

Wolpert, D. M., Diedrichsen, J., & Flanagan, J. R. (2011). Principles of sensorimotor learning. *Nature Reviews Neuroscience*, *12*(12), 739–751.

Worsfold, K. E. (2009). The body in clinical cognitive theory: from beck to mindfulness. *Contemporary Buddhism*, *10*(2), 220–240.

TRANSIÇÃO ENTRE AS SEÇÕES TEÓRICA E EMPÍRICA DA TESE

Os estudos teóricos apresentados na seção anterior da tese procuram demonstrar a necessidade do desevolvimento de maior clareza conceitual no campo de estudos conhecido como Mindfulness. Apesar das mais de três décadas de estudos, teóricos e empíricos, até o momento desta tese, devido à grande proliferação de pesquisas neste campo, ainda não tivemos a apresentação de resumos concisos capazes de sumarizar de maneira eficiente o grande arcabouço teórico-conceitual presente. Ao longo dos capítulos 1 e 2 reconhecemos e apresentamos ao leitor, sumariamente, as dissonâncias e possíveis acordos entre os entendimentos religiosos, *quasi*-religiosos e estritamente seculares do mindfulness. Através desta apresentação o leitor poderá compreender as múltiplas e legítimas manifestações do mindfulness na história, na religião e no desenvolvimento científico. Em particular no capítulo 2 os autores desenvolveram uma tabela capaz de localizar de maneira ainda mais peculiar as idiossincrasias presentes nas duas principais manifestações de mindfulness na contemporaneidade. Isto permite com que o pesquisador envolvido com este campo de estudo consiga ter clareza a respeito de suas intenções e motivações com a pesquisa e prática profissional de mindfulness. É este esforço de clarificação que permite o esforço do desenvolvimento de protocolos de intervenção de mindfulness menos "sujos", ou seja, mais lúcidos em relação às suas bases teórico-conceituais e propósitos. Esta clareza tem profundas implicações no desenho e execução de pesquisas de intervenção, em particular no controle de variáveis que afetem os desfechos pesquisados. Por exemplo, se um protocolo que se apresenta como secular utilizar aspectos *quasi*-religiosos em sua intervenção, talvez seja necessário mensurar aspectos religiosos e espirituais dos participantes (*coping* religioso). No entanto, para isso, é necessário ter o discernimento destes mesmos aspectos. Este foi o esforço apresentado no capítulo 3, quando os autores desenvolveram o modelo de intervenção do Body In Mind Training que procura se restringir às características neurocognitivas do mindfulness, tanto na sua base conceitual quanto na mensuração dos efeitos.

O segundo passo segue na direção do desenvolvimento de pesquisas experimentais com o modelo, a fim de verificar sua viabilidade e efeitos. Assim, na seção experimental da tese procuramos verificar os efeitos do Body In Mind Training em um programa de 5 semanas oferecido a estudantes universitários de uma universidade federal. Os principais desfechos

pesquisados foram a capacidade de regular emoções e o senso de auto-eficácia generalizada. Para tanto, os autores desenharam um estudo *quasi*-experimental, com dois grupos (experimental e lista de espera), sendo que apenas o grupo experimental recebeu a intervenção mindfulness. Uma novidade deste estudo foi a tentativa de incluir uma breve investigação qualitativa que, somada aos dados quantitativos, pudessem informar de maneira mais eficiente os reais efeitos do treinamento, mesmo com amostras menores. Os resultados são apresentados no capítulo a seguir.

SEÇÃO II: ESTUDO EMPÍRICO

CAPÍTULO 4

Effects of a 5-Week Neurocognitive Mindfulness-Based Intervention for Brazilian Healthy College Students: A Mixed-Method Pilot Study

To be submitted to British Journal of Psychology

EFFECTS OF A MINDFULNESS-BASED INTERVENTION FOR BRAZILIAN HEALTHY COLLEGE STUDENTS: A MIXED-METHOD PILOT STUDY

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William Barbosa Gomes

For more than three decades Mindfulness-Based Interventions (MBIs) showed success as protocols to improve quality of life, stress management and reduce suffering along a wide range of individuals (Brown, Creswell, & Ryan, 2016). Results from quantitative data, including several meta-analysis and RCTs, indicate that MBIs are an efficacious and effective intervention for different health conditions, including clinical and non-clinical populations (Abbott et al., 2014; Chiesa & Serretti, 2009; Eberth & Sedlmeier, 2012; Hofmann, Sawyer, Witt, & Oh, 2010; Piet & Hougaard, 2011).

Most of results come from quantitative data and just recently some studies investigated a qualitative or mixed-methods approach (Cohen-Katz, Wiley, Capuano, Baker, & Shapiro, 2004; Keyworth et al., 2014; Leydon, Eyles, & Lewith, 2012). Although data form neuroscientific and physiological findings improved the level of quantitative research, most of the available outcomes derives from self-report measures (Mars & Abbey, 2010). Reliance on self-report measures is highly problematic, since the very concept of mindfulness is still under debate (Baer, 2011; Belzer et al., 2013; Chiesa, 2013). Moreover, several reviews alerted about the poor methodological quality of the studies, calling for more rigorous study design, execution, analysis, and reporting of results (Davidson, 2010; Davidson & Kaszniak, 2015; Ospina et al., 2008).

The few well-designed studies confirms the general benefits from MBIs but point out the need to recognise the underlying mechanisms responsible for the improvement of health and cognitive outcomes (Kuyken et al., 2015; Malinowski, 2013; Vago & Silbersweig, 2012). Beyond the progressive enhancement of quantitative research on MBIs, the employment of new research tools developed to explore first-person perspective and lived experience of participants, such as focus group and in-depth interviews, are some of the useful resources to explore these key mechanisms of change in mindfulness (Cohen-Katz et al., 2004; Marich & Howell, 2015; Morone,

Lynch, Greco, Tindle, & Weiner, 2008; Schoultz, Macaden, & Hubbard, 2016). In this scenario, using mixed-methods research, employing both quantitative and qualitative approaches, could be a useful strategy to better comprehend the effects of MBIs.

Another possible limitation is the cultural bias of the MBIs results. Most results derive from studies investigating North American and European samples and less is known about the effects of MBIs on Latin American and other populations (Demarzo et al., 2014; Manotas, Segura, Eraso, Oggins, & McGovern, 2014).

Even stating it´s secular nature, MBIs as Mindfulness Based Stress Reduction (MBSR) are strongly influenced by Buddhist teachings and meditative room setting (zen cushions and mats) (Purser, 2015). Brazilian culture, as in some other Latin American countries, is rooted on syncretic religious tradition so that a fully secular intervention, could improve the adherence and main purpose of the training. Despite this possible religious bias, attentional training and development of psychological acceptance skills are among the key elements of mindfulness training (Hölzel et al., 2011; Shapiro, Carlson, Astin, & Freedman, 2006). The intervention employed in our study, Body In Mind Training (Russell, 2014; Russell & Tatton-Ramos, 2014), is a full secular, 5-week neurocognitive-based MBI, built upon the most recent neurocognitive findings, and could be an alternative to be tested for these populations.

We have consequently undertaken an exploratory study using mixed methods to investigate the effects of Body In Mind Training on self-consciousness measures, well-being and performance. We hypothesize that: (1) a mixed-method design will be more sensitive to capture any clinical significance of the intervention; (2) Body In Mind Training will be a feasible intervention; (3) Body In Mind Training will improve mindfulness, self-compassion and private body consciousness, boosting general self-efficacy (performance) and improving emotional regulation (well-being).

Methods

Design and Objectives

This is an exploratory, quasi-experimental study, based on a concurrent triangulation design (Creswell, Plano Clark, Gutmann, & Hanson, 2003) to verify the effects of Body in Mind Training on self-consciousness measures, well-being and performance. For the quasi-experimental research, a group of participants were randomized to an experimental or waiting-list group. Experimental group received the MBI and waiting-list received no intervention. Although we applied simple

randomization, participants could not be blinded to intervention allocation. We employed mixed-methods since this study intend to corroborate results from qualitative (open questions) and quantitative sources (Likert scales).

Tariq and Woodman (2013) states that mixed-methods can address some research questions more comprehensively than by using either quantitative or qualitative methods alone. The same authors affirm that mixed-methods strengths and counterbalance the weaknesses of both approaches and can be especially powerful when addressing complex, multifaceted issues such as health services interventions.

For quantitative analysis, non-parametric statistics will be employed looking for significant differences at pre and post-test conditions for experimental and waiting list groups. Looking for significant differences between experimental group (mindfulness) and waiting list group we will employ a Mann-Whitney *U* test. Finally, descriptive and correlation statistics could be employed to deep characterize and explore the results.

At this study, we classified the quantitative data as two block of variables. First, a block of self-consciousness measures according to scores on mindfulness, self-compassion, self-absorption, private body consciousness and self-reflection and insight. As previous MBIs studies shows, we expected that the experimental group improve their scores at mindfulness and self-compassion greater than controls (waiting list group). Because the bodily emphasis of BMT we also expected greater improvement on private body consciousness scores for experimental group but not for controls.

In this first block, we want to investigate the possible effects of BMT on other traditional self-consciousness measures, as self-absorption and self-reflection and insight. Different from these measures, mindfulness is being understood as a pre-reflexive rather than a reflexive dimension of self-consciousness (DaSilveira, DeSouza, & Gomes, 2015). Higher scores on mindfulness correlates with general health improvement but higher scores on self-absorption correlates with poor adaptive outcomes. For the Self-reflection and Insight measure, we know that the Self-reflection facet, as self-absorption, correlates to maladaptive functions, but the Insight facet does correlate with adaptive mental health. Therefore, observe possible correlations and effects of mindfulness training on these variables can be important to deep comprehend the underlying mechanisms of change on MBIs.

The second block we called “well-being and performance outcomes” composed by the variables of general self-efficacy and emotional regulation capacities. The relation of general self-efficacy and academic performance is well known in literature as well as the broad benefits on improving emotional regulation. In line with literature findings, we expected improvements in both measures for the experimental group following intervention, but not for waiting list group.

Finally, participants were asked to rate their happiness, stress and self-knowledge scores by visual measures, as behavioural indicators. Happiness were measure by a “smile face” varying from sad face to “fully happy” face (5-likert scale); for stress we used a “thermometer image” (10-likert scale). Higher the thermometer higher the perceived stress; and for self-knowledge we employed a “school grade” visual scale, varying from D- to A+ (8-likert scale).

As mindfulness is characterized as an experiential procedure, a brief qualitative analysis, from a phenomenological perspective (Marich & Howell, 2015), will be conducted over experimental group participants’ descriptions for the following open questions presented before and after receiving the intervention:

1- *Do you use your body's information to better understand your thoughts and emotions?*
2- *When you are nervous what happens to your thoughts and your body? You have clearly? Describe. If you are unsure, please do not make up an answer.*
3- *When you are unoccupied, idle, what happens to your thoughts and your body? You have clearly? Describe. If you are unsure, please do not make up an answer.*

Following question was presented only after completion of the training by experimental group participants’.

4- *Now that you have completed the mindfulness training, please answer: do you think that participation in this group brought some benefit (or harm) for you? Describe. If you are unsure, please do not make up an answer.*

Questions were presented to experimental group participants only at post-test condition. Participants from waiting-list did not answer open questions at any time of the experiment.

As a way of seeking convergence between data sources, answers collected from these open questions were triangulated with the quantitative results derived from statistical procedures.

Participants and Procedures

Participants were invited to take part on study from the university intranet. Inclusion criteria were: (1) being aged between 18-30; (2) availability to attend the intervention group for once a week, along two hours; (3) being regularly enrolled at Universidade Federal do Rio Grande do Sul (UFRGS); (4) accept to take part on the Wait List group, if the case after randomization; (5) capacity to give informed consent. Exclusion criteria were: (1) filling criteria for major depression, suicide risk, hypomanic episode, dependence and abuse of alcohol/substance(s), psychotic syndrome and antisocial personality disorder in M.I.N.I (Mini International Neuropsychiatric Interview 5.0 version in Portuguese); (2) use of benzodiazepines, mood stabilizers (e.g., lithium) or antipsychotics; and (3) be regularly practicing meditation or similar practice (yoga, relaxation technics, etc), individually or in groups.

The project was submitted and approved by the Research Commission of Ethical Committee of Universidade Federal do Rio Grande do Sul Psychology Institute. Participants were informed about the objectives and functioning of the research and a free and informed consent term was provided. Confidentiality and anonymity were assured; moreover, the participations were voluntary with the possibility to withdraw at any time.

Initially, 35 students enrolled for study participation but final sample consisted of 20 healthy college students (16 females and 4 males), with a mean age of 23 years (median: 23,5 years, SD=2,6). At the time of participation, subjects were enrolled in diverse bachelor programs (psychology, medicine, veterinary medicine, social sciences, law, chemistry, education, automation engineering and letters). Fourteen participants were randomized to the experimental group but 10 received the 5-week Mindfulness-Based Intervention (Body In Mind Training); 14 participants were randomizes to a waiting-list but 10 received no intervention.

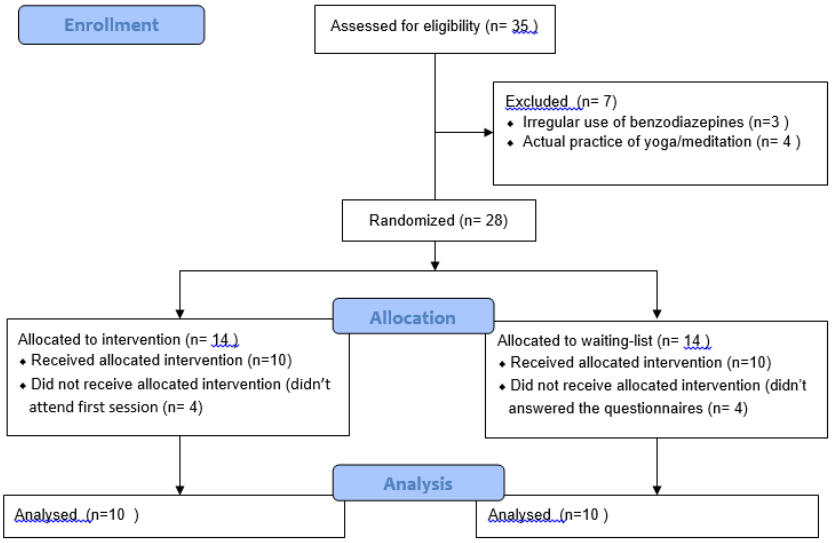

Figure 3. CONSORT flowchart.

After randomization, both groups answered the study scales through online survey (Qualtrics©). For both experimental and waiting list groups we collected qualitative and quantitative data during two separate periods: one week before intervention and one week after the intervention.

One of the authors (TTR) was the responsible to run the Experimental group. The researcher work with mindfulness in his private professional life and received formal training from Mindfulness Oxford Centre. Also, was supervised from an experienced mindfulness faculty who supports King´s College London IoPPN and personally works on development of the Body in Mind Training Intervention.

Experimental group took place in proper university building annexed to the Department of Psychology. Groups happened during Fridays afternoons, along 2-3 hours, starting around 15:00 pm, in a simple classroom, arranged in circular format. All activities and exercises in the experimental group took place in this room. Some exercises were performed in ordinary chairs and others, involving movements, in a standing position. Participants were informed about the need to sleep well in days before the meetings and inform the mindfulness teacher the occurrence of any abrupt situation that may have occurred from one week to another. Likewise, it was informed to the participants the need to be well fed and comfortably dressed at the meetings.

Analysis of results started immediately one week after the end of the last experimental session when all qualitative and quantitative data should be available to the researchers.

Intervention Description: The Body in Mind Training

Although 8 weeks is the standard length of MBIs, the effects of mindfulness practices tend to be dose-related (Carmody & Baer, 2009). Klatt, Buckworth, and Malarkey (2009) found that adults could improve their mindfulness skills and stress management, on a statistically significant way, after following a low-dose 6-week MBSR. Another study from Bergen-Cico, Possemato, and Cheon (2013) tested a 5-week MBSR for improving psychological health on undergraduate students and found statistically significant improves on mindfulness and self-compassion skills compared to a control group, but no evidence of changes on trait anxiety. Other studies also

founded evidence of benefits from brief MBIs (Canby, Cameron, Calhoun, & Buchanan, 2015; Keyworth et al., 2014; Nyklicek, Dijksman, Lenders, Fonteijn, & Koolen, 2014). A study from Zeidan, Johnson, Diamond, David, and Goolkasian (2010) found that just 4 hours of mindfulness training could improve cognitive abilities.

The Body In Mind Training (BMT) is an MBI intervention focused on developing mindfulness skills through neurocognitive psychoeducation and body-based exercises (Russell, 2011, 2014; Russell & Arcuri, 2015; Russell & Tatton-Ramos, 2014). The intervention is in continuous development as different versions of BMT are being explored at different settings. At this study we used the 5-week intervention initially developed to deliver mindfulness to those suffering from severe and enduring health problems, such as schizophrenia and some neurodisabilities (Russell, 2011; Russell & Tatton-Ramos, 2014). Adaptions included shorter duration of practices and increased using of body-based exercises, as walking and stretching. The idea of the BMT is apply bodily movement to facilitate the emergence of mindfulness skills at a slower rate and in a more controlled way. Also, during BMT intervention, participants are empowered through an explanation of the rationale behind mindfulness, including neuroanatomic features and discussion of real life application of the exercises.

Body In Mind Training happens along five weeks, structured over five main themes: I) pause; II) intention; III) attention; IV) a PhD inside me; V) compassion. Each theme is explored once a week. Traditional structure of MBIs, as group format, enquiry moments after exercises and some debate in pairs, is applied. Likewise, some traditional exercises as body scanning, mindfulness of the breath and 3-minute breathing space are included on protocol

a) Session 1 – pause – participants are taught slow movements exercises using gentle arms and neck rotation. Also, a proprioceptive/interoceptive exercise, called FOFBOC (feet on floor bum on chair) exercise is taught. A more somatic version of the 3-minute breathing space, from MBCT, is delivered as homework. Some psychoeducation of the effects of slowing down during activities in real world is debated in pairs.
b) Session 2 – intention – participants are explained about the importance of setting intention (at a macro and micro level) to practice mindfulness. An exercise of paying gentle attention to change in body postures is taught from a mini-body scan exercise. FOFBOC exercise is reviewed and re-experienced. FOFBOC and some mindful stretching and walking exercises are deployed as homework.

c) Session 3 – attention – is where participants are taught the traditional mindfulness breath exercise emphasizing the capacity to notice mind wandering and breath-body sensations. Broad and narrow attention to body and mind process is experienced through gentle *Tai Chi Chuan* movements. Rationale around attention system in the brain is deployed to participants as psychoeducational resource. Mindfulness of the breath is the main homework for this week.

d) Session 4 – a PhD inside me – is where participants could take a deep look inside the relation between their mental and motor automatisms and emotion regulation in real-world. FOFBOC and some movement exercise is reviewed. A list of different automatic mental habits (called monkey´s mind) is presented to participants in this session. Through metacognitive exercise of "watching the mind working" participants are encouraged to comprehend what happens when they try to stop and watch their own metacognition happening in "real-time". This exercise is delivered as homework for the next seven days in real-world. The question "how your body and mind automatisms influence on your emotions and decision taking process?" is delivered as homework, also.

e) Session 5 – compassion – participants are taught about the importance of self-compassionate and compassionate behaviour during mindfulness practices. Traditional self-compassion exercises are deployed as kindly-awareness and "sitting with difficulties" practices. At the end of this session, participants are invited to summarize their experiences through the 5 weeks of the intervention.

Instruments

A Sociodemographics Questionnaire assessed age, gender, race/ethnicity, employment status, educational level, among other itens. The Participant Feedback Form included 4 open-ended questions that addressed participants' experiences in the mindfulness group and was administered after the final treatment session (e.g., "What did you get out of coming to the group, if anything?"). Responses to these items provided the writing samples used to assess participants' experiences.

PMS (OR PHLMS) - Philadelphia Mindfulness Scale (Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008) consists of 20 items intended to measure two key components of mindfulness, designed as distinct constructs: present-moment awareness and acceptance. Awareness is the ongoing monitoring of internal and external experience. Acceptance refers to an

attitude that is nonjudgmental and open to experience. The awareness subscale includes open awareness of perceptions and feelings; the acceptance subscale includes only negatively formulated items about experiential avoidance. The Brazilian version used in this study was adapted by DaSilveira, DeCastro, and Gomes (2011) and showed satisfactory reliability.

SAS – The Self-Absorption Scale (McKenzie & Hoyle (2008); Brazilian adaptation by DaSilveira, DeCastro, & Gomes, 2011) - the concept of self-absorption is defined as a sustained and inflexible self-focused attention, which constitutes a psychopathological aspect of self-consciousness. Authors divide public and private aspects of self-consciousness in the SAS. The original English version of the SAS consists of 17 items, divided into two dimensions. The Brazilian version of the SAS used in this study was adapted by DaSilveira et al. (2011) and had a good reliability score ($\alpha = 0.83$), with one item excluded from the Private Self-Absorption subscale. Thus, the Brazilian version of this scale has 16 items (seven for Private Self-Absorption and nine for Public Self-Absorption).

SRIS - The Self-Reflection and Insight Scale (Grant, Franklin, & Langford, 2002 adapted to Brazilian Portuguese by DaSilveira et al., 2011) - was originally constructed to measure a state of internal understanding that one has toward one's own thoughts, feelings, and behaviors. The SRIS has 12 items for Self-reflection (for example, "I frequently take time to reflect on my thoughts") and eight items for Insight (for example, "I am often aware that I am having a feeling, but I often don't quite know what it is," which is a reversed item).

DERS-36 – Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004, Portuguese translation and adaptation by Veloso, Gouveia, & Dinis, 2011), a 36-item self-report measure used to assess six dimensions of emotion regulation: non-acceptance, goals, impulse, strategies, clarity, and awareness. This measure was developed specifically to assess difficulties with emotion regulation when distressed; thus, most items begin with "When I'm upset" before referring to an aspect of emotion dysregulation. Participants endorse how often they believe each item pertains to them on a 5-point scale from 1 ("almost never") to 5 ("almost always"). Internal consistency was good for all DERS subscales (alphas .731 to .923).

GSE - General Self-Efficacy scale (Jerusalem & Schwarzer, 1992; Portuguese version by Teixeira & Dias, 2005) - The general self-efficacy scale was developed to assess an individual's perceived sense of self-efficacy This scale has been found to be related to the ability to cope with daily stress and difficult situations and correlates positively with favorable emotions, optimism,

and work satisfaction, while negatively correlating with depression, anxiety, and physical complaints. This is a 10- statement form where patients respond on a 4-point scale ranging from 1 (not true at all) to 4 (exactly true).

SCS – Self-Compassion Scale (Neff, 2003; Portuguese translation and adaptation by Castilho & Gouveia, 2011) – The Self-compassion Scale is a self-reported, 26-item measure with responses ranging from 1 (almost never) to 5 (almost always). It contains six subscales (negative subscales are reverse-coded): selfkindness, self-judgment, common humanity, isolation, mindfulness, and overidentification. The subscales of the SCS may be examined separately, or else a total self-compassion score can be used given that a single higher-order factor of "self-compassion". The self-judgment, isolation, and overidentification subscales of the SCS are reverse-coded so that higher scores indicate higher levels of self-compassion. Internal consistency reliability for the total scale was α=.95, and ranged from .70 to .84 for the subscales.

PBCS - Private Body Consciousness Sub-Scale (PBCS) (Shields, Mallory, & Simon, 1989). This is one of the earliest, widely used and cited instrument attempting to measure body awareness. PBCS is the 5-item subscale of the Body Consciousness Questionnaire (BCQ) (Shields et al., 1989) for a "disposition to focus on internal body sensations", "being aware of interoceptive feedback", and being "sensitive to changes in bodily states". The instrument has been used in a variety of patients i.e. with chronic pain. PBCS scores do not correlate with social anxiety, hypochondriasis or emotionality. Scores were similar across different diagnostic groups and controls, supporting the construct as dispositional and not secondary i.e. to chronic pain. Validity and reliability were confirmed by multiple authors.

Results

Quantitative Data

Table 1 shows the demographic characteristics of the study sample. Mean age is around 23 years old, mostly single and unemployed students. We employed non-parametric statistics, as normality and homogeneity of variance were not assumed. A Wilcoxon signed-rank test showed a statistically significant change in mindfulness (Z=-2.803, $p<0.05$), self-reported Happiness (z=2,64, $p<0,05$) and difficulties of emotion regulation (z=2,09, $p<0,05$) between pre and post-test for the experimental group. Different from hypothesized we did not find statistical significant

increase on self-compassion, self-efficacy and private body consciousness. Self-consciousness variables of self-absorption and self-reflection and insight also didn´t reach any statistical significant change between pre and post-test for experimental group. For the waiting-list group a Wilcoxon signed-rank test showed no statistically significant change at any measure and time.

To investigate differences between groups at pre and post-test conditions we employed a Mann-Whitney U test. Independent variable was group allocation (experimental/waiting list) and dependant variables were the seven study variables. Test results revealed statistically significant difference between experimental and waiting list groups only for mindfulness (U=15, p=0,08) and Difficulties on Emotion Regulation (U=8,5, p=0,02). Changes in remaining variables did not reach statistical significance (Figure 2).

Demographics

Table 1.
Demographics

	Experimental Group (n=10)	Control Group (n=10)
Gender		
Male	2	2
Female	8	8
Mean age		
	22,7	23,8
Marital Status		
Single	10	9
Law Marriage		1
Family Income p/month		
not declared	2	1
Up to 1 minimum wage		3
Between 2-3 minimum wages	3	
between 3-4 minimum wages	1	2
More than 4 minimum wage per	4	4
Religiosity		
Not religious	5	3
Religious	2	0
Spiritual but not religious	3	7
Actually Working		
Yes	0	4

No	9	1
Leisure satisfaction		
Unsatisfied	0	1
Satisfied	4	6
Neither	6	3
Practicing physical activity more than twice a week		
Yes	2	3
No	8	7

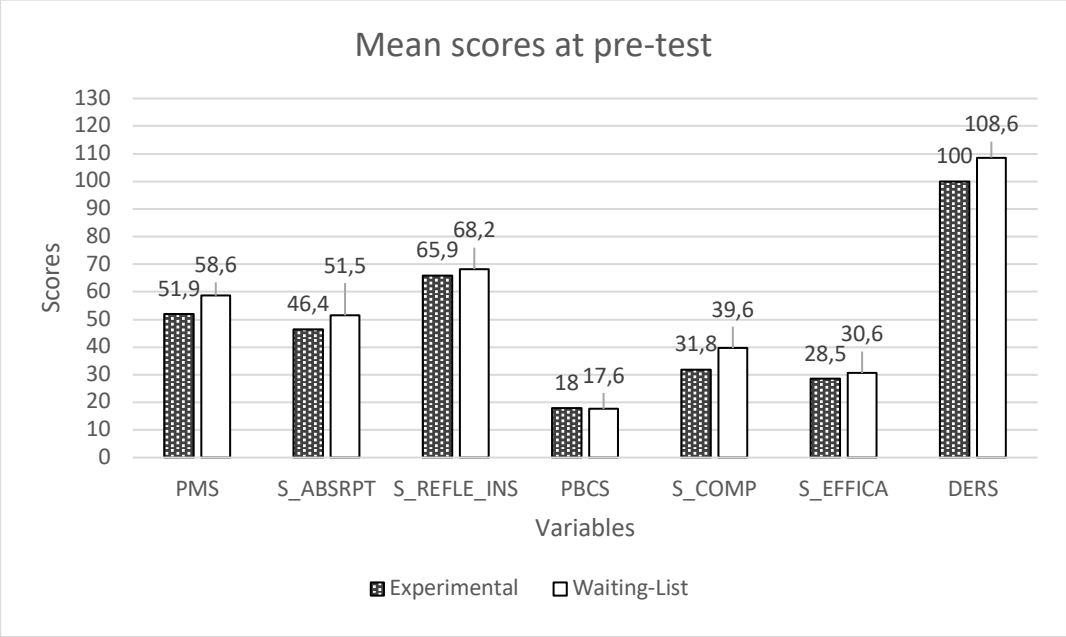

Figure 4. Differences between experimental and control groups at pre test condition. *Note.* PMS=Mindfulness; DERS=Difficulties on Emotion Regulation; S-EFFICA=general self-efficacy; S-COMP=Self-Compassion; S_ABSRPT=Self-Absorption; S_REFLE_INS=Self-Reflection and Insight; PBCS=Private Body Consciousness.

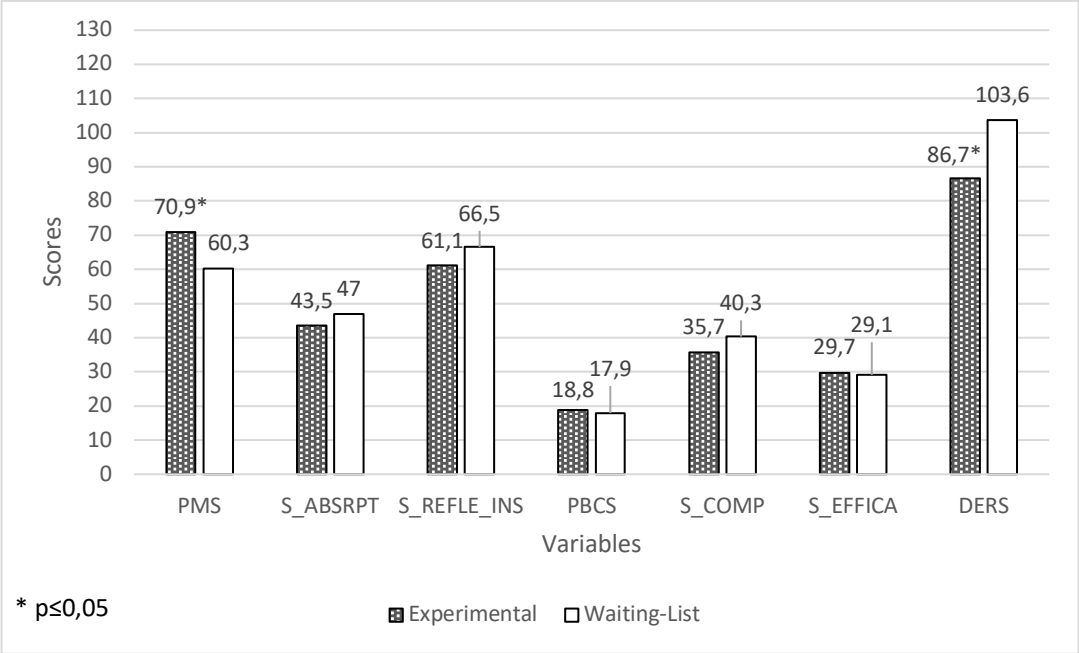

Figure 5. Mean scores at post-test. Differences between experimental and control groups at post test condition. *Note.* PMS=Mindfulness; DERS=Difficulties on Emotion Regulation; S-EFFICA=general self-efficacy; S-COMP=Self-Compassion; S_ABSRPT=Self-Absorption; S_REFLE_INS=Self-Reflection and Insight; PBCS=Private Body Consciousness.

To further explore each participant performance on study a case improvement table was developed (Table 2). The performance of each participant is grounded on the general scoring of participants' in each study variable.

Table 2.
Participants Improvement After Mindfulness Group Participation

	PMS* High is better	DERS* Low is better	S-EFFICACY High is better	S-COMPAS High is better	S-ABSOPT Low is better	SREF_INS High is better	P-BODY High is better	CASE IMPROVEMENT**
Participant 1	↑	↓	→	↓	↓	↓	↓	C
Participant 2	↑	↑	↑	↑	↑	↓	↓	B
Participant 3	↑	↓	↓	↓	↑	→	↑	C
Participant 4	↑	↓	↑	↑	↓	→	↑	A
Participant 5	↑	→	→	→	→	→	→	D
Participant 6	↑	→	→	↑	↓	↑	→	B
Participant 7	↑	↓	→	↓	↑	→	↑	C
Participant 8	↑	↓	→	↓	↓	→	→	C
Participant 9	↑	↓	→	↑	↓	↓	→	B
Participant 10	↑	↑	↑	↑	↓	→	→	B
SUMMARY	**↑**	**↓**	**→**	**↑↓**	**↓**	**→**	**→**	**C-B**

STUDY HIPOTHEYS	↑	↓	↑	↑	?	?	↑

Notes. PMS=Mindfulness; DERS=Difficulties on Emotion Regulation; S-EFFICACY=general self-efficacy; S-COMPAS=Self-Compassion; S-ABSOPT=Self-Absorption; SREF_INS=Self-Reflection and Insight; P-BODY=Private Body Consciousness;
* statically significant improvement between pre and post test (p< 0,05)
** improvement: in one variable (score D), two-three variables (score C), four-five variables (score B), six-seven variables (score A)
↑ = INCREASED score following intervention
↓ = LOWERED score following intervention
→ = almost NO DIFFERENCE following intervention
blue = greater IMPROVEMENT among participants following intervention
red = greater WORSENING among participants following interventio

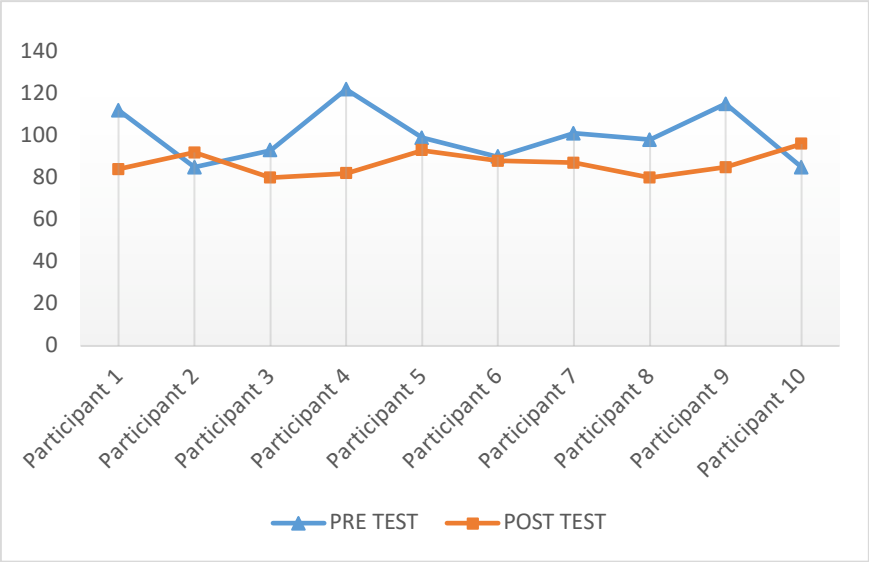

Figure 4. Difficulties on Emotion Regulation - DERS36.

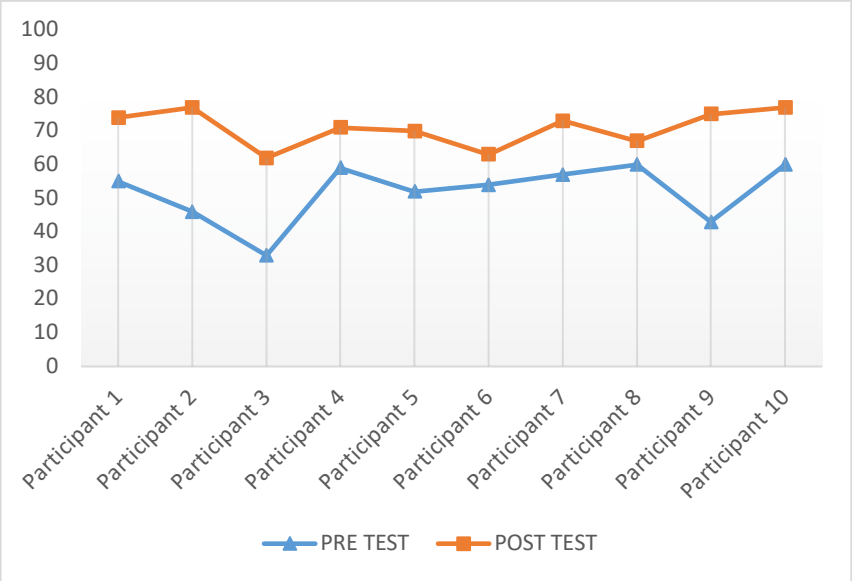

Figure 5. Mindfulness – PMS.

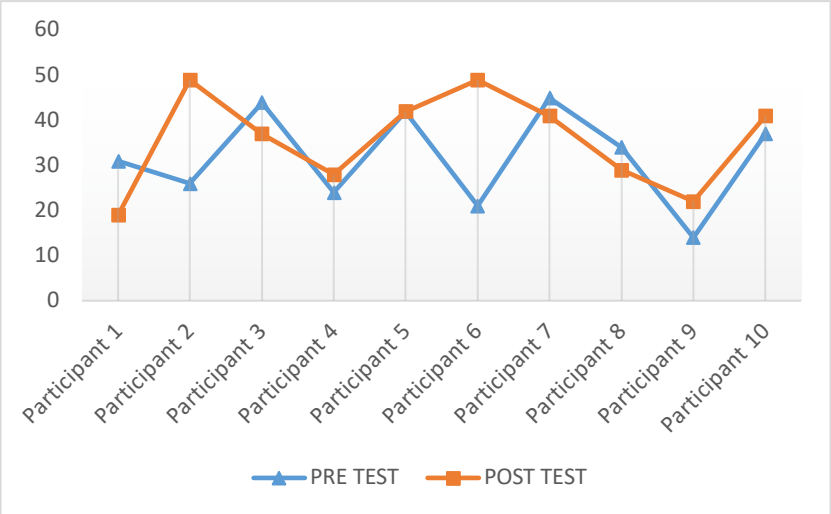

Figure 6. Self-Compassion.

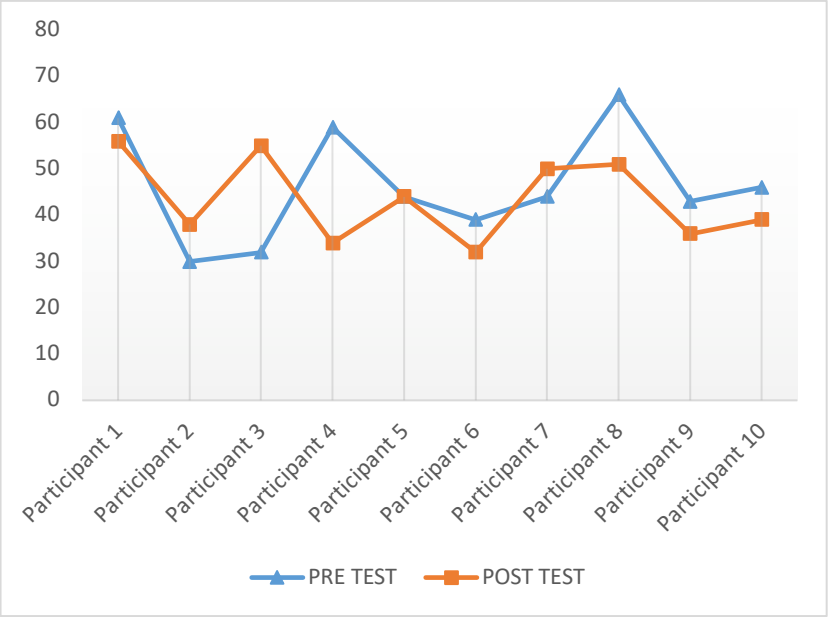

Figure 7. Self-Absorption.

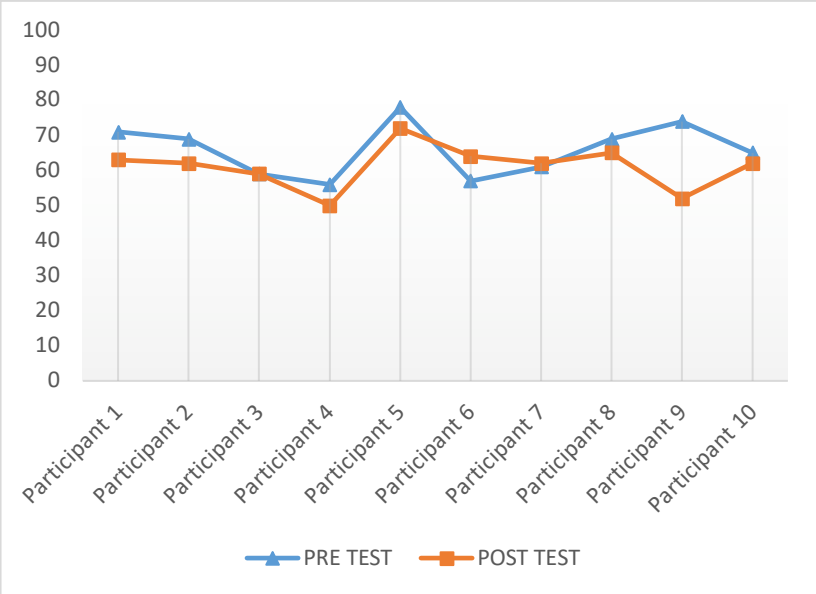

Figure 8. Self-Reflection and Insight.

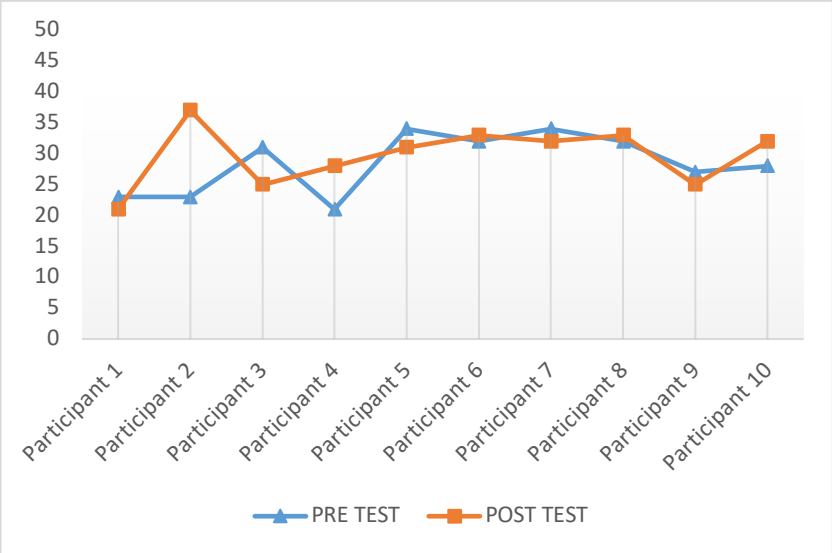

Figure 9. Self-Efficacy.

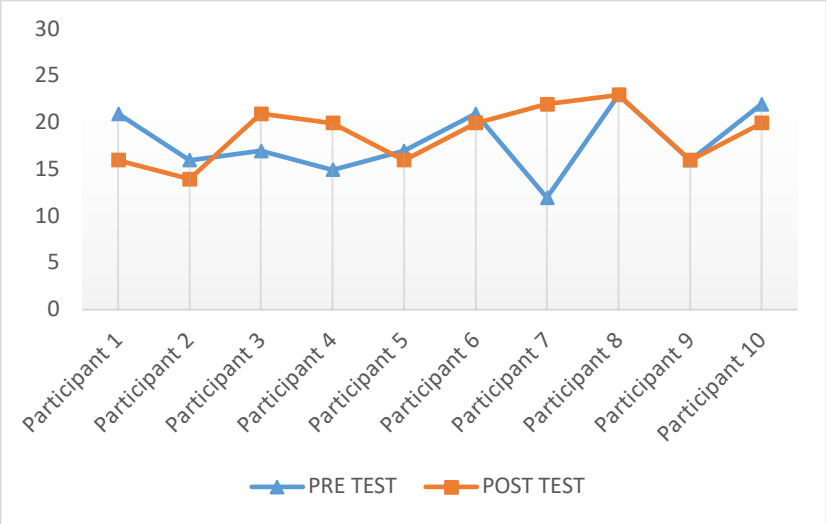

Figure 10. Private Body Consciousness.

Open Questions Analyses – Qualitative Analyses

Based on the clinical improvement table developed for this study we selected four participants to employ an illustrative, more qualitative-based, analysis. We do not intend to perform a deep qualitative analysis, as the data extracted from the open questions is limited and not appropriated enough to such analysis. The main purpose of the current analysis is to improve the validation of the outcomes adding more than only a quantitative perspective.

We chose the participant with the hypothesized higher improvement (participant 4 – score A), lower improvement (participant 5 – score D) and two other with medium improvement

(participants 2 and 6 – score B). Based on their response to the open questions after the mindfulness training (at post-test condition) we should verify any valuable reversible data with presented variable scores. Thus, seeking any conversation between qualitative and quantitative data we should improve our perception about the supposed effects of the mindfulness training on the participants.

Table 3.

Participant 4 Answers - Qualitative

PARTICIPANT 4	How do you use your body's information to better understanding your thoughts and emotions? This question makes any sense to you?	When you are nervous (a) what happens to your thoughts and your body? This question makes any sense to you? Describe. If you are unsure, please do not make up an answer.	When you are idle, without doing anything, what happens to your thoughts and your body? This question makes any sense to you? Describe. If you are unsure, please do not make up an answer
PRE TEST CONDITION	Due to anxiety, it takes some time to notice any typical sign.	I have mixed thoughts, not necessarily linked to the situation in which I find myself. The lack of clarity makes me more nervous. For my body I realize when I'm fiddling my hair and sometimes removing hair wires. About less noticeable	"My thoughts are often messy and agitated, unless I will realize it and try to calm down. Just few times I got success on doing it. My body is usually restless."

		signs I cannot answer.	
POST TEST CONDITION	"From my body's responses (stress, heat, pain) to emotions I can know more clearly what I'm feeling and how to handle it."	I feel agitated, with tense shoulders and a pressure in the stomach.	My mind gets agitated, but I can realize my thoughts clearly and pay more attention to present moment"

Table 4.

Summary of Participant 4 Performance - Quantitative

	PMS* High is better	DERS* Low is better	S-EFFICACY High is better	S-COMPAS High is better	S-ABSOPT Low is better	SREF_INS High is better	P-BODY High is better	CASE IMPROVEMENT**
Participant 4	↑	↓	↑	↑	↓	→	↑	A

Based on the qualitative data and case improvement table developed by the authors, Participant 4 supposed to improved better than other participants on most variables, especially improving uniquely on self-efficacy, self-absorption and – at a statistical significant level ($p<0,05$) – emotional regulation. Only the Self-Reflection and Insight variable not improved from pre to post-test condition, remaining at the same level along the experiment.

Participant 4 answers from open questions shown that before the training the participant wasn't able to "to notice any typical body sign" as a way to better understand thoughts and emotions. Also, before training, participant describes "lack of clarity" about what is happening in body and mind during a stressful situation as well "no success" on calming the mind, even when doing nothing, in resting state. After the mindfulness training, participant 4 declares using body signals to "know more clearly the feelings and how to handle it". It´s noticeable that participant

directly point out where in the body anger is felt (shoulders and stomach). Even using less words at post-test, participant showed the ability to go directly to the raw sensation, that is an important mindfulness skill. A similar characteristic was observed for mental phenomena as, after the mindfulness training, participant declare that, even if mind gets agitated in resting state it´s possible to notice and pay attention to processes of mental agitation.

From the perspective of the mindfulness teacher who ran the group Participant 4 was one of the most motivated and participative members of the group. Together, this information should confirm the participant improvement found at quantitative level.

Table 5.

Participant 5 Answers - Qualitative

PARTICIPANT 5	How do you use your body's information to better understanding your thoughts and emotions? This question makes any sense to you?	When you are nervous (a) what happens to your thoughts and your body? This question makes any sense to you? Describe. If you are unsure, please do not make up an answer.	When you are idle, without doing anything, what happens to your thoughts and your body? This question makes any sense to you? Describe. If you are unsure, please do not make up an answer
PRE TEST CONDITION	Body signs and symptoms can indirectly reflect our emotional and mental state. In my case, gastrointestinal symptoms or headache are closely related to my emotional state. Therefore, minor changes in my body make me think that I am not	My thoughts increase in a way somewhat uncontrollable. They are negative thoughts or neutral thoughts that run over and cause me stress. When I'm nervous, I usually sleep bad (I wake before the time) and eat poorly for feeling anxious. Also, my bowel	When I'm standing, doing nothing, my body can relax, my negative thoughts are less expressive and my thoughts slows down. But only on a few occasions I have clarity, since the thoughts are constant and sometimes prevent me from

	emotionally stable and need to breathe and relax.	movements gets impaired (constipation).	finding clarity naturally. I've been reading and watching some talks about this topic that are helping me understand these times of lack of clarity, that is, times when we identify ourselves with situations or thoughts created by our mind. So, when I realize I need to think more clearly, this insight helps me to stop, breath, and watch my thoughts and actions. This have been fundamental for the best experience of others and for my self-knowledge.
POST TEST CONDITION	I attempted to use my body information to recognize such sensations. I have not been able to understand my thoughts from my body. I have only been able to establish and recognize that there´s a link between my emotions and	Thoughts accelerate, especially the negative ones. The judgments increase, especially in relation to himself and others, and tend to be negative for both. I can clearly recognize this process, but I	When I am standing nothing changes about my thoughts and mind. The body often continues in a state of tension. I remain in the same automatic state as if I were not standing still. If I do not really pause with awareness and attention to

	thoughts with the body	cannot do anything about it.	observe, there is no clarity

Table 6.

Summary of Participant 5 Performance - Quantitative

	PMS* High is better	DERS* Low is better	S-EFFICACY High is better	S-COMPAS High is better	S-ABSOPT Low is better	SREF_INS High is better	P-BODY High is better	CASE IMPROVEMENT**
Participant 5	↑	→	→	→	→	→	→	D

Based on the qualitative data and case improvement table developed by the authors, Participant 5 supposed to have the worst improvement among all participants, particularly because between pre and post test only the mindfulness score increased. Thus, from a qualitative perspective, Participant 5 have almost no improvement from participating on mindfulness training. Excluding mindfulness, all the remaining variables remained at the same score between pre and post condition.

Participant 5 answers from open questions present a scenario that should be particularly sensitive to a qualitative analysis. Even before the training the participant was able to describe its experiences in a very rich way, using a wide range of words and detailed descriptions. Pre-test answers from Participant 5 are the longest and most detailed among all participants of the experimental group. In this case, the qualitative data highlighted the need to check back quantitative information. At pre-test, Participant 5 scores on self-reflection/insight and general self-efficacy were the highest among all participants on experimental group. This high capacity of insight, summed up with a high sense of general self-efficacy, should partially explain the capacity to richly describe in words participant experiences.

As before the training Participant 5 demonstrate a great sense of awareness maybe the 5-week training were not sufficient to promote observable changes in the outcome variables. Thus, any sensitive improvement could not be found trough the expected outcomes.

From the perspective of the mindfulness teacher who ran the group Participant 5 was one of the most motivated and participative members of the group. Although, as previously stated, the

skills of insight and self-efficacy presented by participant 5 probably moderated any positive effects of this brief mindfulness training.

Table 7.

Participant 2 Answers - Qualitative

PARTICIPANT 2	How do you use your body's information to better understanding your thoughts and emotions? This question makes any sense to you?	When you are nervous (a) what happens to your thoughts and your body? This question makes any sense to you? Describe. If you are unsure, please do not make up an answer.	When you are idle, without doing anything, what happens to your thoughts and your body? This question makes any sense to you? Describe. If you are unsure, please do not make up an answer
PRE TEST	Can´t understand the question	Regarding my thinking I don't know, do not remember, but about my body I usually sweat excessively	My thoughts flow in different directions. Sometimes I think about what I have to do, what I have done or just remember moments I lived days ago. Regarding to my body I cannot tell you
POST TEST	No	I can more easily identify the moments when I get nervous, the body signals, and then seek to focus on breathing. I could not even pay attention to the	Not yet

	thoughts, only the changes in my body	

Table 8.

Summary of Participant 2 Performance - Quantitative

	PMS* High is better	DERS* Low is better	S-EFFICACY High is better	S-COMPAS High is better	S-ABSOPT Low is better	SREF_INS High is better	P-BODY High is better	CASE IMPROVEMENT**
Participant 5	↑	↑	↑	↑	↑	↓	↓	B

Answers from participant 2 illustrates a situation where data from open questions should not be reversible with the quantitative findings. Participant 2 showed greater improvement at Mindfulness and Self-efficacy variables but qualitative data from open questions is not clear about it. The only useful information is the participant statement from second question that after mindfulness training it´s "easy to identify moments of anger through body signals". Although participant 2 confirm using of body signals no improvement was found in Private Body Consciousness variable. Together with Participant 10, Participant 2 showed no improvement in Emotion Regulation skills. Open questions answers offer no direct clue for this information.

As participant 2 descriptions were mostly short and monosyllabic no valuable information could be found for a proper qualitative analysis. It's an important example where participant's descriptions could not always be a useful resource for analysis if applied isolated from another method.

From the perspective of the mindfulness teacher who ran the group Participant 2 was motivated and participative in all five group meetings. Mindfulness teacher who led this group expected improvements for this participant.

Table 9.

Participant 6 Answers - Qualitative

PARTICIPANT 6	How do you use your body's information to	When you are nervous (a) what	When you are idle, without doing

	better understanding your thoughts and emotions? This question makes any sense to you?	happens to your thoughts and your body? This question makes any sense to you? Describe. If you are unsure, please do not make up an answer.	anything, what happens to your thoughts and your body? This question makes any sense to you? Describe. If you are unsure, please do not make up an answer
PRE TEST CONDITION	I try to identify if any behavioural and biological responses that may be present are reflections of some neuronal or psychological change. For example, irritability, stress, fatigue, insomnia, anxiety ...	When I am nervous, under strong emotions, my levels of clarity and rationality are much lower. The chance to act impulsively are much higher.	While standing, my thoughts are confused: pending tasks, missed opportunities, unresolved issues. My body is usually more relaxed, although my mind no.
POST TEST CONDITION	It is not always possible to recognize body information and relate them to my feelings and emotions. Although, when it is possible, I try to know myself better and find out how my body acts on specific situations	I realize now that when I'm nervous, my thoughts often get kind of "turbulent", without a specific focus on. I usually suffer in advance, and my body, of course, reacts anxiously. But after mindfulness training I have attention to	When I am standing, doing nothing, I realize that my thoughts run through many places and situations, mostly future. My body tends to get relaxed, breathing, relaxed muscles, etc

	this and I can correct any unnecessary attitude. Of course it is not always possible to prevent unnecessary behaviour, but I'm better able to detect and correct.	

Table 10.

Summary of Participant 6 Performance - Quantitative

	PMS* High is better	DERS* Low is better	S-EFFICACY High is better	S-COMPAS High is better	S-ABSOPT Low is better	SREF_INS High is better	P-BODY High is better	CASE IMPROVEMENT**
Participant 6	↑	→	→	↑	↓	↑	→	B

Participant 6 showed improvement on Mindfulness, Self-Reflection and Insight and the highest score in Self-Compassion among participants. No improvement was found for Emotion Regulation, Self-Efficacy, Self-Absorption and Body Consciousness.

Similar to Participant 5, Participant 6 answers from open questions present a scenario that should be particularly sensitive to a qualitative analysis. Answers are long and rich of descriptions.

Before Mindfulness Training participant demonstrated some mindfulness skills of describing and observing its own experience. Seeking for any clues about the role of self-compassion after post-test condition some useful descriptions could be found. Participant 6 declares – after training – that challenges still occur but "when it is possible, I try to…"it´s not always possible, but…" and "I suffer in advance" that could be consequences of self-compassion and non-judgment training deployed during mindfulness training. Self-compassion skills are

related on how to be more gentle, soft and flexible with oneself faults and limits. Also, to recognize suffering as part of life as a way of including errors, mistakes and faults as part of our daily life experience.

Together with mindfulness, self-absorption and self-reflection and insight improvement, the great improvement of self-compassion could explain the performance increase found on participant 6 outcomes. Although affirming the use of body signals to notice changes in mood no improvement was found in Private Body Consciousness variable. Also, even showing signals of self-regulation from open questions answers, no improvement was found on emotion regulation skills from the quantitative data.

From the perspective of the mindfulness teacher who ran the group Participant 6, although present in all meetings, was mostly a shy and quiet participant. During enquiry process after each mindfulness activity, participant 6 showed moderate and punctual participation. Mindfulness teacher who led this group expected no improvements for this participant. However, participant showed great improvement.

Strengths and Limitations of the Study

To the best of our knowledge this is the first known evaluation of a 5-week MBI in Brazilian population. Statistical significant increase on emotional regulation skills were observed mainly for 8-week MBIs (Chiesa & Serreti, 2009) but not for 5-week MBI. Most of the participants had not practiced mindfulness meditation previously, and did not have fixed ideas about what to expect. The author who led the group (TTR) had previous experience and training on running mindfulness groups and an experienced facilitator may have positive impact on the results. Using a mixed methods strategy, plus a participant-by-participant evaluation, was another strength.

There are numerous limitations to this pilot study. This was a small study with a small sample size and no active control group. The presence of a waiting list group minimizes the bias effect of directly attributed enhancements in mean mindfulness and emotion regulation to the Body In Mind Training intervention. However, only with an active control we can assure that experimental treatment is different than any other placebo group. The quantitative measures were used and data was collected at only two points, one before the beginning of the group and the second after completing the course. There was no follow up measure, thus it is not clear whether this mindfulness training produces long term changes.

Conclusion

Qualitative and Quantitative data from this study suggest that even a mindfulness short-training (5-week Mindfulness Based Intervention with no relation to Buddhist tradition, solely based on a neurocognitive basis) may be a useful strategy for increasing Mindfulness and Emotion regulation skills on university students, but not general self-efficacy. It´s not clear the impact of self-compassion on the results as the changes in this variable did not reach statistical significance. No effects of this training were observed on traditional self-consciousness measures as self-absorption and self-reflection and Insight, positing mindfulness as a probably pre-reflexive measure (DaSilveira, DeSouza, & Gomes, 2015). Different from expected no changes in body consciousness were observed for experimental group. The Private Body Consciousness Scale (PBCS) is a short 5-item subscale and should not be an sensible measure for capturing changes in body consciousness for a MBI. Also, participants pre-test mean score at PBCS were unexpected high. However, all these findings need testing in more robust randomized controlled trials with proper sample size, more appropriate instruments for some measures and active control groups.

As the sample size of the research was reduced, the development of the case improvement table plus the exploration of the qualitative data from open answer questions contributed to deep explore and triangulate the results from a mixed-methods strategy. Improvements in this research strategy should be encouraged as a possibility to overcome the limitations of the self-report instruments usually employed as the default perspective in mindfulness research field.

References

Abbott, R. A., Whear, R., Rodgers, L. R., Bethel, A., Coon, J. T., Kuyken, W., … Dickens, C. (2014). Effectiveness of mindfulness-based stress reduction and mindfulness based cognitive therapy in vascular disease: A systematic review and meta-analysis of randomised controlled trials. *Journal of Psychosomatic Research*, *76*(5), 341-351. doi: 10.1016/j.jpsychores.2014.02.012

Baer, R. A. (2011). Measuring mindfulness. *Contemporary Buddhism*, *12*(1), 241-261. doi: 10.1080/14639947.2011.564842

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. doi: 10.1007/s12671-012-0165-7

Bergen-Cico, D., Possemato, K., & Cheon, S. (2013). Examining the efficacy of a Brief Mindfulness-Based Stress Reduction (Brief MBSR) program on psychological health. *Journal of American College Health*, *61*(6), 348-360. doi: 10.1080/07448481.2013.813853

Brown, K. W., Creswell, J. D., & Ryan, R. M. (Eds.). (2016). *Handbook of mindfulness: Theory, research, and practice*. New York: The Guilford Press.

Canby, N. K., Cameron, I. M., Calhoun, A. T., & Buchanan, G. M. (2015). A brief mindfulness intervention for healthy college students and its effects on psychological distress, self-control, meta-mood, and subjective vitality. *Mindfulness*, 6(5), 1071-1081. doi: 10.1007/s12671-014-0356-5

Cardaciotto, L., 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. doi: 10.1177/1073191107311467

Carmody, J., & Baer, R. A. (2009). How long does a mindfulness-based stress reduction program need to be? A review of class contact hours and effect sizes for psychological distress. *Journal of Clinical Psychology*, *65*(6), 627-638. doi: 10.1002/jclp.20555

Castilho, P., & Gouveia, J. P. (2011). Auto-compaixão: Estudo da validação da versão portuguesa da Escala da Auto-Compaixão e da sua relação com as experiências adversas na infância, a comparação social e a psicopatologia. *Psychologica,* (54), 203-230. Retrieved from http://impactum-journals.uc.pt/psychologica/article/view/1106

Chiesa, A. (2013). The difficulty of defining mindfulness: Current thought and critical issues. *Mindfulness*, *4*(3), 255-268. doi: 10.1007/s12671-012-0123-4

Chiesa, A., & Serretti, A. (2009). Mindfulness-based stress reduction for stress management in healthy people: A review and meta-analysis. *Journal of Alternative and Complementary Medicine*, *15*(5), 593-600. doi: 10.1089/acm.2008.0495

Cohen-Katz, J., Wiley, S. D., Capuano, T., Baker, D. M., & Shapiro, S. (2004). The effects of mindfulness-based stress reduction on nurse stress and burnout: A quantitative and qualitative study. *Holistic Nursing Practice*, *18*(6), 302-308.

Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advanced mixed methods research designs. In A. Tashakkorim & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 209-240). Thousand Oaks, CA: Sage.

DaSilveira, A. C., DeCastro, T. G., & Gomes, W. B. (2011). Adaptação da Escala de Autoabsorção para adultos brasileiros. *Interação em Psicologia, 15*(1), 1-10. doi: 10.5380/psi.v15i1.17472

DaSilveira, A., DeSouza, M. L., & Gomes, W. B. (2015). Self-consciousness concept and assessment in self-report measures. *Frontiers in Psychology*, *6*(930), 1-11. doi: 10.3389/fpsyg.2015.00930

Davidson, R. J. (2010). Empirical explorations of mindfulness: Conceptual and methodological conundrums. *Emotion*, *10*(1), 8-11. doi: 10.1037/a0018480

Davidson, R. J., & Kaszniak, A. W. (2015). Conceptual and methodological issues in research on mindfulness and meditation. *American Psychologist*, *70*(7), 581-592. doi: 10.1037/a0039512

Demarzo, M. M. P., Andreoni, S., Sanches, N., Perez, S., Fortes, S., & Garcia-Campayo, J. (2014). Mindfulness-Based Stress Reduction (MBSR) in perceived stress and quality of life: An open, uncontrolled study in a Brazilian healthy sample. *Explore: The Journal of Science and Healing*, *10*(2), 118-120. doi: 10.1016/j.explore.2013.12.005

Eberth, J., & Sedlmeier, P. (2012). The effects of mindfulness meditation: A meta-analysis. *Mindfulness*, *3*(3), 174-189. doi: 10.1007/s12671-012-0101-x

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment, 26*(1), 41-54. doi: 10.1023/B:JOBA.0000007455.08539.94

Hofmann, S. G., Sawyer, A. T., Witt, A. A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, *78*(2), 169-183. doi: 10.1037/a0018555

Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science*, *6*(6), 537-559. doi: 10.1177/1745691611419671

Jerusalem, M., & Schwarzer, R. (1992). Self-efficacy as a resource factor in stress appraisal processes. In R. Schwarzer (Ed.), *Self-efficacy: Thought control of action* (pp. 195-213). New York: Routledge.

Keyworth, C., Knopp, J., Roughley, K., Dickens, C., Bold, S., & Coventry, P. (2014). A mixed-methods pilot study of the acceptability and effectiveness of a brief meditation and mindfulness intervention for people with diabetes and coronary heart disease. *Behavioral Medicine*, *40*(2), 53-64. doi: 10.1080/08964289.2013.834865

Klatt, M. D., Buckworth, J., & Malarkey, W. B. (2009). Effects of low-dose Mindfulness-Based Stress Reduction (MBSR-ld) on working adults. *Health Education & Behavior*, *36*(3), 601-614. doi: 10.1177/1090198108317627

Kuyken, W., Hayes, R., Barrett, B., Byng, R., Dalgleish, T., Kessler, D., … 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 randomised controlled trial. *The Lancet*, *386*(9988), 63-73. doi: 10.1016/S0140-6736(14)62222-4

Leydon, G. M., Eyles, C., & Lewith, G. T. (2012). A mixed methods feasibility study of mindfulness meditation for fatigue in women with metastatic breast cancer. *European Journal of Integrative Medicine*, *4*(4), e429-e435. doi: 10.1016/j.eujim.2012.05.003

Malinowski, P. (2013). Neural mechanisms of attentional control in mindfulness meditation. *Frontiers in Neuroscience*, *7*(8), 1-11. doi: 10.3389/fnins.2013.00008

Manotas, M., Segura, C., Eraso, M., Oggins, J., & McGovern, K. (2014). Association of brief mindfulness training with reductions in perceived stress and distress in Colombian health care professionals. *International Journal of Stress Management*, *21*(2), 207-225. doi: 10.1037/a0035150

Marich, J., & Howell, T. (2015). Dancing mindfulness: A phenomenological investigation of the emerging practice. *Explore: The Journal of Science and Healing*, *11*(5), 346-356. doi: 10.1016/j.explore.2015.07.001

Mars, T. S., & Abbey, H. (2010). Mindfulness meditation practise as a healthcare intervention: A systematic review. *International Journal of Osteopathic Medicine*, *13*(2), 56-66. doi: 10.1016/j.ijosm.2009.07.005

McKenzie, K. S., & Hoyle, R. H. (2008). The Self-Absorption Scale: Reliability and validity in non-clinical samples. *Personality and Individual Differences, 45*(8), 726-731. doi: 10.1016/j.paid.2008.07.020

Morone, N. E., Lynch, C. S., Greco, C. M., Tindle, H. A., & Weiner, D. K. (2008). "I felt like a new person." The Effects of mindfulness meditation on older adults with chronic pain: Qualitative narrative analysis of diary entries. *The Journal of Pain*, *9*(9), 841-848. doi: 10.1016/j.jpain.2008.04.003

Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity, 2*(3), 223-250. doi: 10.1080/15298860309027

Nyklicek, I., Dijksman, S. C., Lenders, P. J., Fonteijn, W. A., & Koolen, J. J. (2014). A brief mindfulness based intervention for increase in emotional well-being and quality of life in percutaneous coronary intervention (PCI) patients: The MindfulHeart randomized controlled trial. *Journal of Behavioral Medicine*, *37*(1), 135-144. doi: 10.1007/s10865-012-9475-4

Ospina, M. B., Bond, K., Karkhaneh, M., Buscemi, N., Dryden, D. M., Barnes, V., … Shannahoff-Khalsa, D. (2008). Clinical trials of meditation practices in health care: Characteristics and quality. *The Journal of Alternative and Complementary Medicine*, *14*(10), 1199-1213. doi: 10.1089/acm.2008.0307

Piet, J., & Hougaard, E. (2011). The effect of mindfulness-based cognitive therapy for prevention of relapse in recurrent major depressive disorder: A systematic review and meta-analysis. *Clinical Psychology Review*, *31*(6), 1032-1040. doi: 10.1016/j.cpr.2011.05.002

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. doi: 10.1007/s12671-014-0373-4

Russell, T. A. (2011). Body in mind training: Mindful movement for severe and enduring mental illness. *British Journal of Wellbeing*, *2*(4), 13-16. doi: 10.12968/bjow.2011.2.4.13

Russell, T. A. (2014). Body in mind? The need for an integrative approach to compassion in the NHS. *Journal of Holistic Healthcare*, *11*(1), 7-10.

Russell, T. A., & Arcuri, S. M. (2015). A neurophysiological and neuropsychological consideration of mindful movement: clinical and research implications. *Frontiers in Human Neuroscience,* 9(282), 1-17. doi: 10.3389/fnhum.2015.00282

Russell, T., & Tatton-Ramos, T. (2014). Body in mind training: Mindful movement for the clinical setting. *Neuro-Disability and Psychotherapy, 2*(1-2), 108-136.

Schoultz, M., Macaden, L., & Hubbard, G. (2016). Participants' perspectives on mindfulness-based cognitive therapy for inflammatory bowel disease: A qualitative study nested within a pilot randomised controlled trial. *Pilot and Feasibility Studies*, *2*(1), 1-13. doi: 10.1186/s40814-015-0041-z

Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology*, *62*(3), 373-386. doi: 10.1002/jclp.20237

Shields, S. A., Mallory, M. E., & Simon, A. (1989). The body awareness questionnaire: Reliability and validity. Journal of personality Assessment, 53(4), 802-815. doi: 10.1207/s15327752 jpa5304_16

Tariq, S. and Woodman, J. (2013) Using Mixed Methods in Health Research. Journal of the Royal Society of Medicine Short Reports, 4, 2042533313479197.

http://dx.doi.org/10.1177/2042533313479197

Teixeira, M. A. P., & Dias, A. C. G. (2005). Propriedades psicométricas da versão traduzida para o português da Escala de Autoeficácia Geral Percebida de Ralph Schwarzer. In Instituto Brasileiro de Avaliação Psicológica (Ed.), *Anais do II Congresso Brasileiro de Avaliação Psicológica*. Gramado, RS.

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), 1-30. doi: 10.3389/fnhum.2012.00296

Veloso, M., Gouveia, J. P., & Dinis, A. (2011). Estudos de validação com a versão portuguesa da Escala de Dificuldades na Regulação Emocional (EDRE). *Psychologica,* (54), 87-110. Retrieved from http://impactum-journals.uc.pt/psychologica/article/view/1102

Zeidan, F., Johnson, S. K., Diamond, B. J., David, Z., & Goolkasian, P. (2010). Mindfulness meditation improves cognition: Evidence of brief mental training. *Consciousness and Cognition*, *19*(2), 597-605. doi: 10.1016/j.concog.2010.03.014

SEÇÃO III: DISCUSSÃO

The main purpose of this work is to show and discuss epistemological issues in mindfulness research field, particularly those concerning the religion-science debate (non-secular vs. secular mindfulness). From more than three decades' researchers explored the concerns exposed along this thesis. However, as far as we know, no one has attempted to draw, in a detailed but concise way, a graphical map of mindfulness manifestations – from religion to philosophy and science (chapter 1). Also, it was the first attempt to propose an alternative epistemology, outside Buddhism, using a medical social science paradigm as an heuristic research for mindfulness (chapter 2). Lastly, this work was one of the first efforts to delineate and test a fully-secular MBI, apart from a Buddhist epistemology and background (chapters 3 and 4).

While there´s an explicit non-religious mindfulness, not only in Cognitive Sciences and Psychology but also in the History of Western Thought, most of prominent authors introduce mindfulness – theoretically and pragmatically – as necessarily rooted in Buddhism and meditative practices. It is true that mindfulness can be seen as an authentic Buddhist teaching and practice, but it´s also true the perspective of mindfulness as a cognitive capacity to distinguish novel information from the environment (Langer´s work). As stated by Hayes and the "third-wave" Cognitive-Behavioural therapists, mindfulness is also a universal cognitive feature involving psychological flexibility and acceptance. In this context, meditative practices are not the only way to foster mindfulness, as guided imagination and other traditional psychotherapeutic exercises can improve "present-moment" mental states. Thus, mindfulness should not be presented as a field generally inspired by religion (Buddhism).

Even the common definition of mindfulness developed by Brown, Ryan and Creswell (2003) as a (1) mental state, (2) a disposition and (3) a practice, relies on the dubious assumption that mindfulness is directly derived from Buddhism. But, where this "inspired-by-Buddhism" mindfulness came from?

The inaccuracy of Brown et al. (2003), followed by numerous other authors, necessarily linking mindfulness with Buddhist practices (as *shamata*) and concepts (as *sati*) is endorsed by an initial approach from what we called, in this thesis, as *quasi*-Buddhist mindfulness. Most of the authors in mindfulness field follow the initial assumptions from MBSR, the most traditional MBI, deeply rooted in Buddhism. MBSR that, although claims to be fully secular, intend to be a "new lineage" of Buddhism – an odd paradox recently exposed by Purser (2016). It`s

impossible to know how much of Buddhism is mixed in MBSR.

Beyond what could be understood as "lack of intellectual honesty" from MBSR and the quasi-Buddhist approach (just tell everyone its Buddhist-based!), we tried to warn about the absence of spiritual well-being or similar measures in researches investigating its effects in Randomized Clinical Trials (RCTs). "Spirituality" variables are usually presented within the *quasi*-Buddhist protocols, as the participants are exposed to meditative settings (zen cushions, meditation bells, etc), mindfulness teachers with a personal Buddhist background, Buddhist concepts of equanimity, the Four Noble Truths, religious poems, etc. Despite the explicit and massive presence of this "spiritual" elements, just few studies investigate the impact of these variables in the researched outcomes. Most of this confusion came from the persistence of the MBIs, as a heritage of MBSR, on affirming its "secular" nature; what we understand as not an exactly true. Even in the MBCT framework, that relies in cognitive psychology much more than MBSR, the basic "spiritual" language, setting and background is deployed during the interventions and professional trainings.

As most of MBIs are developed under the framework of MBSR ideas, language and concepts, the issue of religious vs. secular is automatically carried on and passed by. To avoid a loop-error from this misunderstanding view it`s peremptory to develop and test new MBIs, assuming – at least – its real epistemological grounds. When *quasi*-spiritual teachings and settings are presented, the influence of these variables in the theoretical debate and at the design of the experiments become evident. Otherwise – as we tried to present in chapter 3 – it`s possible to develop and test a fully-secular MBI (neurocognition, in Body In Mind Training). The benefits of employing a fully-secular MBI are numerous, starting from "really" assuming mindfulness as an universal cognitive feature of human being. Likewise, it`s possible to assume that outcomes changes (as emotional regulation) after a fully-secular MBI, are derived from cognitive training and not from quasi-spiritual teachings.

At the same time, as we tried to show along this work, both the Histories of Philosophy and Psychology are a filled with vivid but indirect examples of empirical and conceptual investigations of mindfulness states. There are assumptions of mindfulness under Husserl and Heidegger´s philosophical concepts and in the seminal works of Wundt and William James about the conscious experience. Even contemporary movements in Psychology, as Gendlin´s Focusing techniques, are examples of how "mindfulness" – under other definitions - was always present in Psychology. Thus, it sounds more reasonable to anchor a MBI in Western

philosophies and Psychologies than just replicate the quasi-Buddhist model. However, if researchers insist on replicating MBIs protocols based on a *quasi*-Buddhist epistemology, it may be necessary not only to include the spirituality variables but also to develop new research heuristics, as we try to show in Chapter 2. Our empirical study demonstrated that, even when the Buddhist background is replaced with neurocognition psychoeducation and attentional exercises, we can still achieve changes in mindfulness scores and expected outcomes (Emotion Regulation). As we delivered a real secular intervention, not sneakily including any "spirituality", no such measures were employed during any step of the intervention. It´s possible to conclude that improvements from mindfulness training should be independent from spiritual teachings.

A final concern is the historical and ethical responsibility from the researchers with the Buddhist Tradition. A mindfulness teacher in Buddhism is someone – usually an ordained monk – who fully embody the Buddhist principles and who is authorized by his superior professors to teach "mindfulness" (shamata, zazen, etc) to a group of students. In Buddhism, mindfulness is a small but important part of the Noble Eightfold Path which, in turn, is grounded in the vast Buddhist ethics (*Sila*) and metaphysics. It`s a tricky (and possible unethical) task to present Buddhist teachings and practices – by selecting only a few desirable elements or practices – without disrupting or perverting Buddhism, in a general way. However, the history of Buddhism in America is full of examples of how difficult is to acclimatize an "exotic" spiritual tradition without distorting it at service of business and/or entertainment. Maybe this is not the case with mindfulness scientific field, right now, but it may be in a few years if we are not aware of copious issues discussed in this work. To reach its maturity, mindfulness researchers must not only recognize, but cross with courage, wisdom and ethics these epistemological barriers.

ANEXOS

ANEXO A – PARECER CONSUBSTANCIADO CEP

INSTITUTO DE PSICOLOGIA - UFRGS

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Análise quali-quantitativa de uma Intervenção Baseada em Mindfulness em estudantes universitários

Pesquisador: WILLIAM BARBOSA GOMES

Área Temática:

Versão: 2

CAAE: 56901715.3.0000.5334

Instituição Proponente: Instituto de Psicologia - UFRGS

Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 1.658.653

Apresentação do Projeto:

Recentemente, um campo de pesquisas que investiga uma medida de atenção a si mesmo, chamada Mindfulness, tem apresentando resultados promissores em desfechos clínicos e cognitivos. No entanto, ainda é necessário esclarecer os mecanismos de Mindfulness que promovem estas mudanças. Além disso, sabe-se pouco acerca das relações entre

Mindfulness e medidas de autoconsciência pública e privada. Assim, o objetivo deste trabalho é verificar os efeitos das variáveis de autoconsciência (auto-absorção, insight e autorreflexão) em desfechos de autoeficácia e regulação emocional em estudantes universitários que participam de uma Intervenção Baseada em Mindfulness com duração de cinco semanas. Para tanto, será realizado um estudo quasi-experimental com método de alocação de indivíduos em dois grupos: experimental, que receberá a intervenção, e controle, formado por uma lista de espera. Será utilizada amostragem por conveniência. A fim de compreender de maneira integral os dados obtidos através desta pesquisa, os resultados serão analisados quali-quantitativamente.

Objetivo da Pesquisa:

Objetivo Primário:

Verificar a experiência viva (fenomenológica) de estudantes universitários da Universidade Federal do Rio Grande do Sul que participaram de uma Intervenção Baseada em Mindfulness com duração

Endereço: Rua Ramiro Barcelos, 2600
Bairro: Santa Cecília **CEP:** 90.035-003
UF: RS **Município:** PORTO ALEGRE
Telefone: (51)3308-5698 **Fax:** (51)3308-5698 **E-mail:** cep-psico@ufrgs.br

TCLE / Termos de Assentimento / Justificativa de Ausência	tcle_projeto_lafec_final2.docx	25/07/2016 16:57:56	WILLIAM BARBOSA GOMES	Aceito
Folha de Rosto	NOVA_folha_de_rosto.pdf	30/05/2016 14:29:35	WILLIAM BARBOSA GOMES	Aceito
Outros	ata_qualificacao_doutorado.pdf	18/05/2016 11:13:23	WILLIAM BARBOSA GOMES	Aceito

Situação do Parecer:
Aprovado

Necessita Apreciação da CONEP:
Não

PORTO ALEGRE, 02 de Agosto de 2016

Assinado por:
Milena da Rosa Silva
(Coordenador)

Endereço: Rua Ramiro Barcelos, 2600
Bairro: Santa Cecília **CEP:** 90.035-003
UF: RS **Município:** PORTO ALEGRE
Telefone: (51)3308-5698 **Fax:** (51)3308-5698 **E-mail:** cep-psico@ufrgs.br

ANEXO B – TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO – TCLE

TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO

Você está sendo convidado(a) a participar de uma pesquisa. Você precisa decidir se quer participar ou não. Por favor, não se apresse em tomar a decisão. Leia cuidadosamente o que se segue e pergunte ao responsável pelo estudo qualquer dúvida que você tiver se você aceitar participar. Assim, convidamos você para participar da pesquisa "Os efeitos da autoabsorção, autorreflexão e insight em uma Intervenção Baseada em Mindfulness com estudantes universitários"". Esta pesquisa tem por objetivo verificar o efeito de variáveis de autoconsciência em desfechos de Autoeficácia e Regulação Emocional em estudantes universitários da Universidade Federal do Rio Grande do Sul que participaram de uma Intervenção Baseada em Mindfulness com duração de cinco semanas. Muitas pesquisas indicam que as técnicas que serão utilizadas na intervenção de Mindfulness podem ter efeitos positivos na saúde física e mental do ser humano.

PROCEDIMENTOS: caso aceite participar deste estudo, em um primeiro momento será convidado(a) a responder alguns questionários. Os questionários avaliam seus níveis de Mindfulness, Insight, Autorreflexão, Consciência Corporal, Autocompaixão, Autoeficácia e regulação emocional. O tempo estimado para o preenchimento dos questionários é de 60-90 minutos. Após responder, pode ser verificado que, neste momento, você não poderá participar da pesquisa. Se você permanecer elegível após a resposta destes questionários será convidado(a) para responder uma tarefa computadorizada de avaliação cognitiva. A tarefa é rápida, simples, e não dura mais do que 10 minutos. Na tarefa você será requisitado(a) a utilizar apenas o teclado, pressionando algumas teclas. Você irá responder estes questionários e participar da tarefa computadorizada em duas ocasiões: antes do início da intervenção mindfulness e logo após o final da intervenção. Todo esse material será exclusivamente utilizado para obtenção dos dados propostos nesse projeto.

A intervenção tem duração de cinco semanas. Serão cinco encontros semanais, uma vez por semana, em grupos de 18-20 participantes, e a intervenção será conduzida pelos pesquisadores responsáveis. Os encontros acontecerão em dias da semana, no período da manhã, em sala disponibilizada pelo Instituto de Psicologia da UFRGS. As datas dos encontros serão informadas/combinadas com você caso aceite participar da pesquisa. Cada encontro do grupo terá a duração de cerca de 2 horas, onde você aprenderá teorias e técnicas para melhorar sua capacidade de regulação emocional e autoeficácia. Para isso, serão ensinados: modelos de funcionamento mental, exercícios de *mindfulness*, além de debates em grupos. Ao final de cada encontro você receberá orientações para fazer atividades em casa até o próximo encontro do grupo. Também serão fornecidas apostilas com exercícios guiados (de áudio) para utilização pelos participantes ao longo das semanas.

Lembrando que após o período inicial de cinco semanas da intervenção você realizará novamente a coleta de dados, preenchendo os mesmos questionários e realizando a tarefa computadorizada.

POSSÍVEIS BENEFÍCIOS, RISCOS E DESCONFORTOS: a participação neste programa poderá te auxiliar no aumento dos níveis de Mindfulness, Insight, Autorreflexão, Consciência Corporal, Autocompaixão, Autoeficácia e regulação emocional; e também na diminuição nos níveis de autoabsorção. Os riscos associados aos procedimentos previstos conhecidos são: 1 – desconfortos decorrentes da conscientização de características implícitas da personalidade; 2 – algum nível de tensão corporal; Profissionais capacitados para desenvolver o treinamento estarão presentes, podendo detectar e auxiliar em desconfortos quaisquer que possam ocorrer.

VOLUNTARIEDADE: a participação no estudo é totalmente voluntária e a desistência não implicará nenhum tipo de prejuízo para o participante. A participação no estudo não está associada a nenhum tipo de avaliação profissional ou de desempenho.

CUSTEIO: Não está previsto nenhum tipo de pagamento pela participação no estudo e o participante não terá nenhum custo com respeito aos procedimentos envolvidos.

DIREITO DE DESISTÊNCIA: você tem toda a liberdade de desistir de participar do presente estudo a qualquer momento.

PRIVACIDADE: os pesquisadores se comprometem em manter a confidencialidade dos dados de identificação pessoal dos participantes, sendo que todas as informações obtidas nesse estudo poderão ser publicadas com finalidade científica, com os resultados divulgados de maneira agrupada, sem a identificação dos indivíduos que participaram do estudo.

O pesquisador responsável por este projeto é o Prof. Dr. William B. Gomes, do Departamento de Psicologia da Universidade Federal do Rio Grande do Sul, que pode ser encontrado no telefone (51) 33085066.

Declaro que fui informado(a) dos objetivos da pesquisa acima de maneira clara e detalhada. Recebi informação a respeito dos procedimentos e esclareci minhas dúvidas. Sei que

em qualquer momento poderei solicitar novas informações e modificar minha decisão se assim eu o desejar. O pesquisador responsável (ou membro de sua equipe) certificou-me de que todos os dados desta pesquisa serão confidenciais e terei liberdade de retirar meu consentimento de participação na pesquisa. Também me forneceu um email para contato (projetomindfulness@gmail.com) para que eu possa tirar quaisquer dúvidas. Face estas informações, aceito participar deste estudo.

Nome do participante: _____

Assinatura _____

Nome do pesquisador: _____

Assinatura _____

Local e Data:

_____

ANEXO C – ESCALA FILADÉLFIA DE MINDFULNESS

Escala Filadélfia de *Mindfulness* – EFM (Cardaciotto et al., 2008)

EFM

Versão brasileira DaSilveira, DeCastro e Gomes (2012)

*Avalie com que frequência você experienciou cada uma das situações sugeridas nas seguintes frases ***na última semana.***

0	1	2	3	4
Nunca	**Raramente**	**Às vezes**	**Frequentemente**	**Muito Frequentemente**

1	Eu estou ciente de quais pensamentos estão passando em minha mente.	0	1	2	3	4
2.	Eu tento me distrair quando sinto emoções não prazerosas.	0	1	2	3	4
3.	Quando falo com outras pessoas, estou ciente de suas expressões corporais e faciais.	0	1	2	3	4
4.	Há aspectos sobre mim mesmo sobre os quais eu não quero pensar.	0	1	2	3	4
5.	Quando tomo banho, estou ciente de como a água corre sobre meu corpo.	0	1	2	3	4
6.	Eu tento ficar ocupado para evitar que pensamentos e sentimentos me venham à mente.	0	1	2	3	4
7.	Quando estou alarmado, percebo o que ocorre dentro de meu corpo.	0	1	2	3	4
8.	Eu gostaria de poder controlar minhas emoções mais facilmente.	0	1	2	3	4
9.	Quando ando pela rua, tenho consciência dos cheiros e do ar tocando meu rosto.	0	1	2	3	4
10.	Eu digo pra mim mesmo que não deveria ter certos pensamentos.	0	1	2	3	4
11.	Quando alguém me pergunta como estou me sentindo, posso identificar minhas emoções facilmente.	0	1	2	3	4

12.	Há coisas sobre as quais eu tento não pensar.	0	1	2	3	4
13.	Tenho consciência dos pensamentos que estou tendo quando meu humor muda.	0	1	2	3	4
14.	Eu digo a mim mesmo que não deveria me sentir triste.	0	1	2	3	4
15.	Eu percebo mudanças dentro de meu corpo, como meu coração batendo mais rápido ou meus músculos ficando tensos.	0	1	2	3	4
16.	Se há algo que não quero pensar, eu tento fazer várias coisas para tirar isso da minha mente.	0	1	2	3	4
17.	Sempre que minhas emoções mudam, imediatamente eu me torno consciente delas.	0	1	2	3	4
18.	Eu tento deixar os meus problemas fora de minha mente.	0	1	2	3	4
19.	Quando falo com outras pessoas, estou consciente das emoções que experiencio.	0	1	2	3	4
20.	Quando lembro de algo ruim, eu tento me distrair para fazer aquilo ir embora.	0	1	2	3	4

ANEXO D – ESCALA DE AUTOABSORÇÃO

Escala de Autoabsorção

Você deve avaliar o quanto cada item corresponde a uma característica sua, marcando com um "X" ou circulando o número que melhor representa a sua opinião, de acordo com a chave de respostas apresentada. Responda rapidamente, sem parar muito tempo em cada questão, e não compare as respostas de uma questão com outra. Lembre-se: não existem respostas certas ou erradas, elas apenas refletem a sua opinião.

0	1	2	3	4
Discordo totalmente	**Discordo parcialmente**	**Neutro**	**Concordo parcialmente**	**Concordo totalmente**

1. Eu me pego querendo saber o que os outros pensam de mim mesmo quando não quero.	0 1 2 3 4
2. Eu tenho dificuldades em me focar no que os outros estão falando, porque gostaria de saber o que eles estão pensando de mim.	0 1 2 3 4
3. Eu pressinto que os outros estão constantemente me avaliando quando estou com eles.	0 1 2 3 4
4. Eu penso sobre mim mais do que sobre qualquer outra coisa.	0 1 2 3 4
5. Quando tento pensar em outra coisa além de mim, não consigo.	0 1 2 3 4
6. Quando eu tenho que realizar uma tarefa, eu não a faço tão bem como deveria porque minha concentração é interrompida com pensamentos sobre mim ao invés da tarefa.	0 1 2 3 4
7. Eu gostaria que os outros não fossem tão críticos sobre mim como eles são.	0 1 2 3 4
8. Eu estou muito ciente do que os outros pensam de mim, e isso me incomoda.	0 1 2 3 4
9. Minha mente nunca se foca em algo a não ser em mim, por muito tempo.	0 1 2 3 4
10. Quando eu começo a pensar sobre como os outros me vêem, eu fico agitado.	0 1 2 3 4

11. Não consigo fazer minha cabeça parar de pensar pensamentos sobre mim mesmo.	0 1 2 3 4
12. Às vezes estou tão profundamente pensando sobre minha vida que não estou consciente de meus arredores.	0 1 2 3 4
13. Me desaponta quando a pessoas que encontro não gostam de mim.	0 1 2 3 4
14. Quando eu penso sobre a minha vida, mantenho-me pensando sobre isso por um tempo tão longo que não consigo direcionar minha atenção para tarefas que precisam ser feitas.	0 1 2 3 4
15. Quando eu estou para encontrar alguém pela primeira vez, me preocupa saber se essa pessoa vai gostar de mim.	0 1 2 3 4
16. Depois de estar entre outras pessoas, eu penso sobre o que eu deveria ter feito diferente quando eu estava com elas.	0 1 2 3 4

ANEXO E – ESCALA DE AUTORREFLEXÃO E INSIGHT

Escala de Autorreflexão e Insight

Grant, Franklin e Langford (2002), adaptada para adultos brasileiros por DaSilveira, DeCastro e Gomes (2011).

Avalie o quanto cada item corresponde a uma característica sua, circulando o número que melhor representa a sua opinião, de acordo com a chave de respostas apresentada. Responda rapidamente, sem parar muito tempo em cada questão, e não compare as respostas de uma questão com outra. Lembre-se: não existem respostas certas ou erradas, elas apenas refletem a sua opinião.

0	1	2	3	4
Discordo totalmente	**Discordo parcialmente**	**Neutro**	**Concordo parcialmente**	**Concordo totalmente**

1. Eu não penso muito frequentemente em meus pensamentos.	0 1 2 3 4
2. Eu raramente despendo tempo na reflexão sobre mim.	0 1 2 3 4
3. Eu frequentemente examino meus sentimentos.	0 1 2 3 4
4. Eu realmente não penso sobre o porquê eu me comporto da forma com que me comporto.	0 1 2 3 4
5. Eu frequentemente reservo um tempo para refletir sobre meus pensamentos.	0 1 2 3 4
6. Eu frequentemente penso sobre como me sinto sobre as coisas.	0 1 2 3 4
7. Eu realmente não estou interessado em analisar meu comportamento.	0 1 2 3 4
8. É importante para mim avaliar as coisas que faço.	0 1 2 3 4
9. Eu sou muito interessado em examinar o que eu penso.	0 1 2 3 4
10. É importante para mim tentar entender o que significam meus sentimentos.	0 1 2 3 4

11. Eu definitivamente tenho uma necessidade em entender a forma como minha mente funciona.	0 1 2 3 4
12. É importante para mim estar apto a entender como meus pensamentos surgem.	0 1 2 3 4
13. Eu normalmente estou ciente de meus pensamentos.	0 1 2 3 4
14. Eu frequentemente estou confuso sobre o modo como realmente me sinto sobre as coisas.	0 1 2 3 4
15. Eu normalmente tenho uma idéia bem clara sobre por que tenho me comportado de uma certa maneira.	0 1 2 3 4
16. Frequentemente eu estou ciente de que estou tendo um sentimento, mas não sei bem o que é.	0 1 2 3 4
17. Meu comportamento frequentemente me desafia.	0 1 2 3 4
18. Pensar sobre meus pensamentos me deixa ainda mais confuso.	0 1 2 3 4
19. Frequentemente eu acho difícil compreender a forma com que me sinto sobre as coisas.	0 1 2 3 4
20. Eu normalmente sei por que me sinto da forma com que me sinto.	0 1 2 3 4

ANEXO F – ESCALA DE AUTOCOMPAIXÃO - REDUZIDA

ESCALA DE AUTOCOMPAIXÃO –REDUZIDA - Como eu geralmente lido comigo em momentos difíceis

(Souza & Hutz, 2014)

Por favor, leia com cuidado antes de responder. Para cada frase, marque o número que mostra com que frequência você se comporta da forma descrita. Use a escala de 1 até 5 para marcar sua escolha, sendo que 1 corresponde a "quase nunca" (QN), e 5 significa "quase sempre" (QS). Não existem respostas certas ou erradas. Gostaríamos de sua opinião pessoal. Você pode escolher qualquer número de 1 até 5.

Por favor, para cada frase, marque com um "X" a sua resposta.	**QN**				**QS**
	1	**2**	**3**	**4**	**5**
1. Quando eu falho em algo importante para mim, fico totalmente consumido por sentimentos de incompetência.					
2. Tento ser compreensivo e paciente com os aspectos da minha personalidade dos quais não gosto.					
3. Quando algo doloroso acontece, tento ver a situação de forma equilibrada.					
4. Quando fico "pra baixo", sinto que a maioria das pessoas é mais feliz do que eu.					
5. Tento entender meus defeitos como parte da condição humana.					
6. Quando estou passando por um momento realmente difícil, eu me dou o apoio e o cuidado de que preciso.					
7. Quando algo me deixa aborrecido, tento buscar equilíbrio emocional.					
8. Quando eu falho em algo importante para mim, costumo me sentir muito sozinho nessa situação.					
9. Quando fico "pra baixo", não consigo parar de pensar em tudo que está errado comigo.					

10. Quando percebo que fui inadequado, tento lembrar que a maioria das pessoas também passa por isso.					
11. Sou realmente crítico e severo com meus próprios erros e defeitos.					
12. Sou intolerante e impaciente com os aspectos de que não gosto na minha personalidade.					

ANEXO G – ESCALA DE DIFICULDADES DE REGULAÇÃO EMOCIONAL – DERS

Escala de Dificuldades de Regulação Emocional (DERS)

	Nunca	Poucas Vezes	Às Vezes	Muitas Vezes	Sempre
1.Percebo com clareza os meus sentimentos.					
2.Presto atenção a como me sinto.					
3. Vivo as minhas emoções como avassaladoras e fora do controle.					
4. Não tenho nenhuma ideia de como me sinto.					
5. Tenho dificuldade em atribuir um sentido aos meus sentimentos.					
6. Estou atento aos meus sentimentos.					
7. Sei exatamente como estou me sentindo.					
8. Interesso-me com aquilo que estou sentindo.					
9. Estou confuso sobre como me sinto.					
10. Quando não estou bem, percebo as minhas emoções.					
11. Quando não estou bem, fico zangado comigo mesmo por me sentir assim.					
12. Quando não estou bem, fico envergonhado por me sentir assim.					
13. Quando não estou bem, tenho dificuldade em realizar tarefas.					
14. Quando não estou bem fico fora de controle.					
15. Quando não estou bem, penso que vou me sentir assim por muito tempo.					
16. Quando não estou bem, penso que vou acabar me sentindo muito deprimido.					

17. Quando não estou bem, acredito que os meus sentimentos são válidos e importantes.					
18. Quando não estou bem, tenho dificuldade em concentrar-me em outras coisas.					
19. Quando não estou bem, sinto-me fora de controle.					
20. Quando não estou bem, continuo a conseguir fazer coisas.					
21. Quando não estou bem, sinto-me envergonhado de mim mesmo por me sentir assim.					
22. Quando não estou bem, sei que vou conseguir encontrar uma maneira de me sentir melhor.					
23. Quando não estou bem, sinto que sou fraco.					
24. Quando não estou bem, sinto que consigo manter o controle dos meus comportamentos.					
25. Quando não estou bem, sinto-me culpado por me sentir assim.					
26. Quando não estou bem, tenho dificuldade em me concentrar.					
27. Quando não estou bem, tenho dificuldade em controlar os meus comportamentos.					
28. Quando não estou bem, acho que não há nada que eu possa fazer para me sentir melhor.					

29. Quando não estou bem, fico irritado comigo mesmo por me sentir assim.					
30. Quando não estou bem, começo a sentir-me muito mal comigo mesmo.					
31. Quando não estou bem, acho que a única coisa que eu posso fazer é afundar-me nesse estado.					
32. Quando não estou bem, eu perco o controle dos meus comportamentos.					
33. Quando não estou bem, tenho dificuldade em pensar em outra coisa qualquer.					
34. Quando não estou bem, dedico algum tempo a entender aquilo que realmente estou sentindo.					
35. Quando não estou bem, demoro muito tempo até me sentir melhor.					
36. Quando não estou bem, as minhas emoções parecem avassaladoras.					

ANEXO H – ESCALA DE AUTOEFICÁCIA GERAL PERCEBIDA

ESCALA DE AUTOEFICÁCIA GERAL PERCEBIDA

Responda os itens abaixo assinalando o número que melhor representa a sua opinião, de acordo com a chave de respostas apresentada.

1	2	3	4
Não é verdade a meu respeito	É dificilmente verdade a meu respeito	É moderadamente verdade a meu respeito	É totalmente verdade a meu respeito.

1. Se estou com problemas, geralmente encontro uma saída.	1 2 3 4
2. Mesmo que alguém se oponha eu encontro maneiras e formas de alcançar o que quero.	1 2 3 4
3. Tenho confiança para me sair bem em situações inesperadas.	1 2 3 4
4. Eu posso resolver a maioria dos problemas, se fizer o esforço necessário.	1 2 3 4
5. Quando eu enfrento um problema, geralmente consigo encontrar diversas soluções.	1 2 3 4
6. Consigo sempre resolver os problemas difíceis quando me esforço bastante.	1 2 3 4
7. Tenho facilidade para persistir em minhas intenções e alcançar meus objetivos.	1 2 3 4
8. Devido às minhas capacidades, sei como lidar com situações imprevistas.	1 2 3 4
9. Eu me mantenho calmo mesmo enfrentando dificuldades porque confio na minha capacidade de resolver problemas.	1 2 3 4
10. Eu geralmente consigo enfrentar qualquer adversidade.	1 2 3 4