



# The influence of mindfulness meditation on the attributions we make about situations

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## **Abstract**

**Title:** The influence of mindfulness meditation on the attributions we make about situations

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Meditation mindfulness is gaining ground in psychology study and practice due to the effectiveness of mindfulness-based interventions. This practice promotes the acceptance of your thoughts through nonjudgmental awareness of the present moment. This study focuses on the influence that mindfulness meditation has on the attributions that we make about situations. In this study, two independent variables were manipulated: The state of mindfulness and the belief of effectiveness of mindfulness. There were 14 dependent variables measured: Situational attribution (context, task, and bad luck), dispositional attribution (personality), prediction of future performance, prediction of successful delivery of report, perceived controllability, perceptions of motivation, perceptions of capability, attribution of blame, attribution of punishment, attribution of responsibility, mental state, awareness, non-judging, and observation. To answer the research question, a survey was conducted. The results show that the belief of effectiveness of mindfulness and the state of mindfulness influence the attributions we make about situations. Through the cultivation of nonjudgmental attention, people focus on the information that is available in the present moment, through re-perceiving, which enables to take a step back from the situation, see it in other perspective and make unbiased attributions.

**Keywords:** State of mindfulness, attributions, belief of effectiveness, nonjudgmental, present moment, awareness

## Sumário

**Título:** A influência da meditação mindfulness nas atribuições que fazemos sobre situações

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A meditação mindfulness está a ganhar espaço na prática e no estudo da psicologia devido à eficácia das intervenções de mindfulness. Esta prática promove a aceitação dos seus pensamentos por meio da consciência sem julgamento do momento presente. Este estudo foca-se na influência que a meditação mindfulness tem sobre as atribuições que fazemos sobre as situações. Neste estudo, foram manipuladas duas variáveis independentes: o estado de mindfulness e a crença na eficácia de mindfulness. Foram medidas 14 variáveis dependentes: atribuição situacional (contexto, tarefa e má sorte), atribuição disposicional (personalidade), previsão de desempenho futuro, previsão de entrega bem-sucedida de um relatório, controlabilidade percebida, percepções de motivação, percepções de capacidade, atribuição de culpa, atribuição de punição, atribuição de responsabilidade, estado mental, consciência, não julgamento e observação. Para responder à questão de investigação, foi realizado um inquérito. Os resultados mostram que, a crença na eficácia de mindfulness e o estado de mindfulness influenciam as atribuições que fazemos sobre as situações. Por meio do cultivo da atenção sem julgamento, as pessoas focam-se na informação disponível no presente, por meio da reperição, o que permite dar um passo atrás na situação, vê-la de outra perspetiva e fazer atribuições imparciais.

**Palavras-chave:** estado de mindfulness, atribuições, crenças na eficácia, sem julgamento, momento presente, consciência

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## 1. Introduction

Mindfulness meditation is a type of meditation that involves concentrating on the present and being unbiased in one's awareness of thoughts, feelings, and surroundings. In recent years, mindfulness meditation has gained popularity as a way to reduce stress and improve mental health (Keng, Smoski, & Robins, 2011). Research has also begun to explore the impact of mindfulness practice on different cognitive functions, such as attention, memory, and decision-making (Zeidan, Johnson, Diamond, David, & Goolkasian, 2010).

In this study, we will investigate the influence of mindfulness meditation on attributions, which are the explanations that individuals make for the causes of events in their lives. Previous research has shown that people who engage in mindfulness meditation tend to have a more positive outlook on life (Chiesa & Serretti, 2011). We will specifically examine whether mindfulness meditation is associated with more internal, stable, and controllable attributions for positive and negative events. This research builds on previous studies by examining the effects of mindfulness meditation on attributions, which has not been previously studied in depth.

Regarding empathy and body awareness, it has been proposed that internal knowledge of one's own experience is a crucial prerequisite for empathic responses. For the right comprehension of others, one must make accurate observations of oneself (Decety & Jackson, 2004). Self-report studies offer evidence for the reality of this connection. Higher levels of mindful observation, as measured by the Observe scale of the Kentucky Inventory of Mindfulness Skills (Baer, Smith, & Allen, 2004), have been connected to higher levels of empathy engagement, as measured by the Interpersonal Reactivity Index (Dekeyser, Raes, Leijssen, Leysen, & Dewulf, 2008). (Davis, 1980). (Britta K. Hölzel, Sara W. Lazar, Tim Gard, Zev Schuman-Olivier, David R. Vago, and Ulrich Ott, 2011)

Thus, this study will focus on the influence that mindfulness meditation has on the attributions that we make. To contribute to filling in this gap, I propose to answer the following research question:

How is mindfulness meditation influencing the attributions made about situations?

People that are into mindfulness meditation will be the primary beneficiaries of this study as this thesis offers theoretical knowledge and practical recommendations for those interested in embracing mindfulness meditation in their daily attributions. To answer the



research question, we conducted a survey that collected responses from 136 participants. In total, there are nine chapters in this dissertation. Starting with the introduction, which takes a broad perspective to the subject, identifies the gap, and presents the research question. Then, the literature review where we present information about the relevance of a research on mindfulness meditation, causal attribution, perceived controllability, perceptions of motivation and capability, attribution of responsibility, blame and punishment, mindfulness, and the general hypothesis. The methodology part is then divided into three sections: materials, procedure, and design. Moreover, the results of all the relevant information gathered from the survey that addressed our research question are presented, followed by a list of figures and tables that support our findings. Then, we proceed with the discussion part in which we offer a summary of the findings and several theoretical and practical recommendations, where we compared our results with those of the papers from the literature review. Finally, we present the limitations, future research, conclusion, and, last but not least, the bibliography.

## **2. Literature Review**

The following literature review reveals that some research has been done on how a mindfulness meditation is influencing the attributions made about situations. Even though mindfulness meditation has been a more discreet topic, the subject has grown through time and gained more popularity. People are now expecting that mindfulness will change the way they think, how to be more relaxed and empathetic. This research directly tests these beliefs that people have about the effects of mindfulness on how we make judgments about others. In this literature review, several topics will be discussed by the following order: Firstly, the relevance of a research on mindfulness meditation, secondly, causal attribution, then, perceived controllability, perceptions of motivation and capability, moreover, attribution of responsibility, blame and punishment, then, mindfulness, and finally the general hypothesis.

### **2.1 The relevance of a research on mindfulness meditation**

Buddhism was the first philosophical discipline to examine mindfulness in general ways that are new to most readers today. Due in large part to the effectiveness of standardized mindfulness-based interventions, the concept of mindfulness has rapidly gained ground in Western psychology study and practice (Hofmann, S. G., & Gómez, A. F. (2017)).

The term "mindfulness" refers to a practice that promotes openness, curiosity, and acceptance while fostering nonjudgmental awareness of the present moment experience, including the person's sensations, thoughts, physiological states, consciousness, and environment (Hofmann, S. G., & Gómez, A. F. (2017)).

In recent years, the amount of research on mindfulness-based therapies (MBIs) has expanded quickly. Despite the widespread use of these interventions, there is still a lack of well-established data, in part due to the prevalence of cross-sectional research, waitlist-controlled trials, and other methodological flaws that weaken the conclusions that can be derived from these studies. Given these flaws, clinical researchers have increasingly used a more rigorous technique to study MBIs, allowing just a few relevant conclusions to be taken from the body of existing research (Hofmann, S. G., & Gómez, A. F. (2017)).

The last ten years have seen an unparalleled increase in scientific curiosity about the benefits of mindfulness and meditation. An increasing body of research is attesting to the advantages of mindfulness techniques across a wide range of psychologically pertinent topics (Grossman et al., 2004; Chiesa and Serretti, 2009, 2011). Research is now focusing on more specific questions about the underlying mechanisms that contribute to the observed

improvements after an early period of demonstrating general advantages (Adam Moore, Thomas Gruber, Jennifer DeRose, and Peter Malinowski, 2012).

## **2.2 Causal Attribution**

The expectations that people acquire from their environment and their influence on it will certainly depend on their beliefs about causality. Research focused on the link between attributions and beliefs suggest that the attribution of pleasure tends to be directed at the environment (LESLIE ANN McArthur, 1972; Heider, 1972).

Then, Jones, Rock, Shaver, Goethals, and Ward discovered that performance was frequently attributed to an individual's talent rather than the difficulty of the assignment. As a result, person attribution may be common for things describing a person's accomplishments whereas stimulus attribution is expected for items reporting a person's pleasant and unpleasant emotions (LESLIE ANN McArthur, 1972; Heider, 1972).

On the one hand, research has shown that a wide variety of behaviors depend on situational demands. On the other hand, attribution research has observed that perceivers often treat behavior as caused by personal dispositions even when the behavior is explained by immediate situational forces (Yaacov Trope, 2000).

These claims are also emphasized by Jones (1979), who suggests that it is easier to link behavior and the actor than the behavior and the situation (Yaacov Trope, 2000).

The correspondence bias describes a tendency in which people occasionally ignore the limitations of the circumstance and focus on dispositional traits when evaluating the reason for another person's actions (CB; Gawronski, 2004; Gilbert & Malone, 1995; Haney & Zimbardo, 2009; Ross, 1977). In other words, people often assume that others are like them. For instance, we could initially assume someone who steps in front of us while we are walking is "mean" rather than "rushing to the hospital." This mistake could have serious repercussions because individuals are more prone to react poorly to those they directly blame for their conduct (Alicke, 2000) (Tim Hopthrowa, Nic Hooperb, Lynsey Mahmooda, Brian P. Meierc and Ulrich Wegerd, 2017).

The CB seems to affect people differently depending on how well they can fully understand or attend to a situation. For instance, before putting participants through an attitude-attribution task, Forgas (1998) randomly allocated participants to a positive, neutral, or negative mood induction (Jones & Harris, 1967). According to the findings, the CB was decreased by the higher cognitive processing levels connected to a negative mood (as opposed to a happy or neutral mood) (Tim Hopthrowa, Nic Hooperb, Lynsey Mahmooda, Brian P. Meierc and Ulrich

Wegerd, 2017).

According to the cognitive bias (CB) theory, people tend to ignore factors that are relevant to a given scenario, and mindfulness has been proven to lessen these biases and increase attribution to the context. For instance, Weger, Hooper, Meier, and Hoptrow (2012) demonstrated that a brief mindfulness exercise reduced stereotype threat related to female mathematic performance, and Jordan, Wang, Donatoni, and Meier (2014) demonstrated that a brief mindfulness exercise and dispositions were related to less mindless or thoughtless eating. In both series of experiments, mindfulness appeared to improve participants' capacity for present-moment attention and its antecedents, which decreased errors related to anxiety over unfavorable judgment (stereotype threat) and careless eating (Tim Hoptrowa, Nic Hooperb, Lynsey Mahmooda, Brian P. Meierc and Ulrich Wegerd, 2017).

According to the integration models, situational and dispositional information are both integral parts of identifying behavior and attributional inferences. Dispositional inference starts with the identification of immediate behavior for example “John acted aggressively”. Then this model assumes that situational information is integrated into this early stage by influencing how behavior is identified. For example, having the information that the actor is being insulted may activate the associated category of aggressive behavior and implicitly bias the identification of the actor’s behavior as aggressive. Situational demands may increase rather than decrease the dispositional attributions (Yaacov Trope, 2000).

The following dispositional inference also incorporates situational information because the identified action is utilized to assess the theories that the actor possesses the relevant disposition. (“Is John an aggressive person?”) against alternative situational hypotheses (“John was forced to act aggressively”).

### **2.3 Perceived Controllability, perceptions of motivation and capability**

Human behavior is controlled mainly by perceptions of personal efficacy and social environments rather than simply by their objective properties. Thus, even in circumstances with a wealth of chances, those who feel ineffective are likely to only make a small impact. On the other hand, people who are confident in their abilities find creative and persistent ways to exert some degree of control in situations with few possibilities and numerous restrictions (Albert Bandura, 1989).

According to Locke, Frederick, Lee, and Bobko (1984), Taylor, Locke, Lee, and Gist (1984), and Wood, Bandura, and Bailey (in press), people set greater objectives for themselves and are more dedicated to achieving them the higher their perceived self-efficacy. Challenge

goals increase motivation and performance attainments, according to a considerable body of literature (Latham & Lee, 1986; Locke, Shaw, Saari, & Latham, 1981; Mento, Steel, & Karren, 1987) (Albert Bandura,1989).

The potential controllability in social situations varies. Some of them include easily available opportunity frameworks that let people build and use their own personal efficacy to achieve desired results. Others restrict the possibilities for achieving desired results through effective action. The perceived self-efficacy required to accomplish changes is stronger the more system restrictions there are (Albert Bandura,1989).

People who are led to believe that the occurrence of aversive environmental events are personally controllable display lower autonomic arousal and less performance impairment than do those who believe the aversiveness is uncontrollable, even though they are equally subjected to the painful stimulation (Geer, Davison, & Gatchel, 1970; Glass, Singer, Leonard, Krantz, & Cummings, 1973) (Albert Bandura,1989).

People are motivated to use all of their personal effectiveness when they believe they can influence the environment in ways that are important to them, which increases the likelihood that they will succeed. Success stories, in turn, offer behavioral confirmation of one's own effectiveness and the controllability of one's surroundings. People are more likely to exercise their efficacy weakly and unsuccessfully if they perceive situations as mainly unpredictable, which produces failure experiences. Failures wear down perceived self-efficacy and assumptions about the degree of environmental control that is achievable over time (Albert Bandura,1989).

#### **2.4 Attribution of responsibility, blame and punishment**

If we imagine someone begging for donations, what might determine whether a potential donor would stop by and give a donation? According to Brickman et al. (1982) one of the major factors guiding this decision is the potential donor's subjective beliefs regarding the beggar's responsibility for his/her own fate. Attributions of responsibility may involve responsibility for the problem and for finding solutions (Tehila Kogut, 2011).

The perceptions of the target's (the recipient of help) responsibility may be affected by both the target's and the potential donors' characteristics. Age, gender, and appearance, for example, are some of the recipient's characteristics while religion and beliefs are some of the helper's characteristics that may affect these perceptions (Tehila Kogut, 2011).

Studies have demonstrated that people are more generous to an identifiable victim than to an anonymous victim, even when identification conveys no meaningful information about

the victim (Small & Loewenstein, 2003; Kogut & Ritov, 2005a, b; Kogut, 2009; Small, Loewenstein, & Slovic, 2006; Slovic, 2007) (Tehila Kogut, 2011).

However, the instinctive emotional reaction toward the identified single victim may also strengthen negative perceptions and willingness to punish in situations where the target is perceived negatively (Kogut, in press; Small & Loewenstein, 2006) (Tehila Kogut, 2011).

Furthermore, the same target might arouse sympathy when perceived to be innocent as opposed to blame when perceived to be responsible for his/her difficulty (Tehila Kogut, 2011).

According to the Just World Hypothesis (Lerner, 1970, 1980) the propensity to blame someone and perceive him/her as responsible for misfortune derives from people's desire to believe that the world is just, and people get what they deserve, helping people to maintain their feeling that the world is stable, orderly, and safe (Lerner & Miller, 1978) (Tehila Kogut, 2011).

However, people prefer to reduce their anxiety by believing that no injustice has occurred, by blaming the victim and perceiving him/her responsible. Thus, they create a greater psychological distance between them and the misfortune which helps them feel safer (Lerner & Simmonds, 1966; Lerner, 1980) (Tehila Kogut, 2011).

The process of justifying the victim's neediness involves focusing on the victims' characteristics (for example, it is easier to justify an adult's misfortune than to justify the suffering of a baby) (Tehila Kogut, 2011).

## **2.5 Mindfulness (mental state, awareness, non-judging, and observation)**

What is Mindfulness? The term "mindfulness" refers to a practice that promotes openness, curiosity, and acceptance while fostering nonjudgmental awareness of the present moment experience, including the person's sensations, thoughts, physiological states, consciousness, and environment. Bishop and colleagues (2004) separated two aspects of mindfulness: one that requires the ability to control one's attention, and the other that involves a present-focused orientation marked by openness, curiosity, and acceptance (Hofmann & Gómez, 2017).

Through the deliberate cultivation of nonjudgmental attention, connection, self-regulation, and ultimately greater order and health can be attained. We have the ability to pay attention to the information present in each moment through the process of re-perceiving. Particular emotions and thoughts that arise grow less powerful over us, and as a result, we are less inclined to reflexively react to them in our regular ways. Re-perceiving enables us to take a step back from the fear and clearly perceive it as just a feeling that is arising and will eventually pass away. Therefore, having an increased level of tolerance for unpleasant internal states is

made possible by knowing that all mental occurrences are transient. We enhance our "degrees of freedom" in response to emotional states like fear by learning how to step back and observe them, which effectively frees us from automatic behavioral patterns. Reperceiving might also assist individuals in realizing what matters to them and what they actually value. Because values are frequently shaped by family, culture, and society, we might not be aware of whose beliefs are actually guiding our decisions in life. Instead of being the one who observes the value, we become the value. However, we have the chance to rediscover and select values that may be truer for us when we are able to withdraw from (observe) our values and reflect on them with greater objectivity. In other words, we get the ability to consciously choose something that was previously automatically adopted or conditioned. A recent study discovered that people act in ways that are more consistent with their true values and interests when they are "acting consciously," as measured by the Mindful Attention Awareness Scale (MAAS) state measure (2003) Brown & Ryan (Shauna L. Shapiro, 2006).

Practicing mindfulness through meditation entails focusing one's consciousness and attention on the present moment while adopting a spirit of acceptance devoid of judgment (Kabat-Zinn, Lipworth, & Burney, 1985). Prior to treating other clinical illnesses such as major depression (Teasdale et al., 2000), anxiety (Kabat-Zinn et al., 1992), and substance misuse, meditation-oriented mindfulness first showed promise in the treatment of chronic pain (Kabat-Zinn, 1982). (e.g., Bowen et al., 2006; Brewer et al., 2000)) (Yoona Kang, 2013).

Though reappraisal has been suggested as one strategy for emotion regulation during mindfulness, people's perceptions of the situations also changed as a result of mindfulness. Conscious emotion modulation, according to Garland et al. (2011), is the adaptive process through which stressful situations are reinterpreted as pleasant, beneficial, or benign (e.g., thinking that one will learn something from a difficult situation). According to a fairly recent self-report study, mindfulness practice raises positive reappraisal, and these raises in turn influence a reduction in stress (Garland et al., 2011) (Britta K. Hölzel, Sara W. Lazar, Tim Gard, Zev Schuman-Olivier, David R. Vago, and Ulrich Ott, 2011).

Being aware means being aware of one's experience, including physical sensations, thoughts, and emotions, as well as any external events like sights and sounds (e.g., Brown & Ryan, 2003). It also means being aware of the surrounding events and other's experiences. For example, automated mental responses, which frequently take place without conscious awareness, are contrasted with awareness. Stereotyping that is implied. A person who practices mindfulness may be better able to identify instances of implicit stereotyping because they are accurate in their understanding of the bias (Yoona King, 2013).

Focusing on the continuous stream of internal and exterior stimuli requires sustained attention. When someone is mindful, they focus on the object of observation. Attention is gently but firmly brought back to the original subject of focus when the mind wanders or becomes distracted. This aspect of prolonged attention has been linked to improvements in mental health, such as decreased anxiety and ruminative processes (Chambers, Lo, & Allen, 2008) (Wells, 2002) but also to changes in the individuals' judgements about their contexts and about others (Yoona Kang, 2013). People frequently behave and make decisions "on autopilot." Automatized brain processes, however, might potentially have detrimental effects on one's health. Rapid and instinctive responses could give the impression that you are not in control. Helplessness, or a loss of perceived control, is frequently linked to a variety of mental health issues, including anxiety disorders, depression, and addiction (Abramson, Seligman, & Teasdale, 1978) (Forsyth, Parker, & Finlay, 2003) (Yoona Kang, 2013).

By paying attention to the internal and external events taking place at each moment of consciousness, one can focus on the present moment (e.g., Baer, 2003). It contrasts with mental states where the mind is concerned with memories, plans, or dreams from the past or the future (Yoona Kang, 2013).

Experiencing thoughts, feelings, and experiences in the present moment without categorizing them as good or bad, desirable, or unwanted, significant, or trivial, entails practicing nonjudgmental acceptance about the self (Germer, Siegel, & Fulton, 2005). Less is known about the acceptance of others' behaviors. Acceptance is the act of letting all experiences—pleasurable, unpleasant, or neutral—arise without attempting to alter, manage, or avoid them. Both physical (such as sensory discomfort) and abstract (such as sentiments of rejection) experiences can be accepted. Acceptance enables people to enjoy the event even when they have self-deprecating thoughts (like "I am a failure"). When these assessments do happen, acceptance enables people to accept them without repression or distorting them (for example, "I am currently feeling as though I am a failure") (Yoona Kang, 2013).

Stereotyping is frequently seen as an inevitable and necessary outcome of the categorization process because the cognitive processes that lead to it happen automatically and implicitly (Devine, 1989; Pratto & Bargh, 1991) (Bargh, 1989). However, modern models of stereotype reduction contend that when people are conscious of their own bias, stereotyping can be reduced (Yoona Kang, 2013).

According to Caas, Quesada, Antol, and Fajardo (2003), cognitive flexibility is the capacity to modify information processing processes to deal with fresh and unexpected information. This enables people to change their behavioral responses in response to the



changing circumstances of the scenario. Being mindful enables flexible attention allocation to the constantly evolving panorama of current knowledge (Langer, 1989). Training in mindfulness can thus improve cognitive flexibility and the capacity to break bad habits of information processing automatically (Yoona Kang, 2013).

## 2.6 Hypothesis

In this study we have 16 hypotheses:

- High state of mindfulness and high belief of effectiveness of mindfulness leads to higher attribution to the context than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to higher attribution to the task than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to lower attribution to the bad luck than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to lower dispositional attribution than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to prediction of higher future performance than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to prediction of higher successful delivery of report than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to higher perceived controllability than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to perceptions of higher motivation than low state of mindfulness and low belief of effectiveness of mindfulness.

- High state of mindfulness and high belief of effectiveness of mindfulness leads to perceptions of higher capability than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to lower attribution of blame than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to lower attribution of punishment than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to higher attribution of responsibility than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to higher mental state than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to higher awareness than a low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to higher non-judging than low state of mindfulness and low belief of effectiveness of mindfulness.
- High state of mindfulness and high belief of effectiveness of mindfulness leads to higher observation than low state of mindfulness and low belief of effectiveness of mindfulness.

### **3. Methodology**

This study follows an experimental design, and, in this chapter, the methodology used to answer the research question will be discussed.

#### **3.1 Participants**

One hundred and thirty-six people participated in this study. The survey's link was distributed to several WhatsApp groups, among them family, friends, and faculty's groups. Thus, all the participants in this study were volunteers. There were no age or gender restrictions as the study did not require such restrictions.

#### **3.2 Materials**

##### **3.2.1 Independent variables**

Regarding the materials, there were two independent variables: The state of mindfulness and the belief of effectiveness of mindfulness.

##### **3.2.2 The state of mindfulness**

There were two conditions of the state of mindfulness. The condition of the low state of mindfulness presented participants with a soup of letters and the task was to find the three words hidden. In the condition of the high state of mindfulness participants were presented with a breath control task. Training in attentional skills and the development of an impartial, non-judgmental attitude toward one's own experiences, toward sensations, thoughts, and feelings, where arising experiences are acknowledged without elaboration or reaction, are thought to be at least two central components of mindfulness meditation practices (e.g., Kabat-Zinn, 1990, 2003; Bishop et al., 2004; Malinowski, 2008). (Adam Moore, Thomas Gruber, Jennifer DeRose, and Peter Malinowski, 2012).

A meditation technique that is utilized in various types of mindfulness training was selected in order to fulfill our goal of examining fundamental components of mindfulness meditation. For instance, the mindful breath technique used here is an essential component of MBSR (Kabat-Zinn, 1990) and MBCT (Segal et al., 2002), and is the foundation of modern meditation programs like Alan Wallace's shamatha training or Gunaratana's mindfulness practice (1992). It is also a fundamental element of various traditional Buddhist meditation techniques, from early Buddhist texts like the Anap anasati Sutta or the Satipatth ana Sutta (Bhikkhu Bodhi, 1995) through traditional Tibetan Buddhist teachings (Karmapa Wangchug Dorje, 2009). As a result, the mindfulness techniques and approaches used in this study apply

to a wide range of mindful approaches and activities (Adam Moore, Thomas Gruber, Jennifer DeRose, and Peter Malinowski, 2012).

### **3.2.3 The belief of effectiveness of mindfulness**

There were two conditions of the belief of effectiveness of mindfulness. The condition of the low belief of effectiveness of mindfulness presented participants with some data about the nonexistence of evidence of the effectiveness of mindfulness, reinforced with the Behavioral findings of the paper “How Does Mindfulness Meditation Work? Proposing Mechanisms of Action From a Conceptual and Neural Perspective” by Britta K. Hölzel, Sara W. Lazar, Tim Gard, Zev Schuman-Olivier, David R. Vago, and Ulrich Ott, a paper that was cited by 3301 times. In the condition of the high belief of effectiveness of mindfulness participants were presented with some data about the effectiveness of mindfulness, reinforced with the findings of scientific studies described in a meta-analysis. The paper has the name of “The neuroscience of mindfulness meditation” by Yi Yuan Tang, Britta K. Hölzel and Michael I. Posner, and was cited by 2398 times.

### **3.2.4 Organizational scenario and task**

On the first set of dependent variables, we introduced a scenario in an organizational context where the participants would have to imagine a situation where their co-worker would fail to deliver the team’s annual sales report, which was one of the most important deliverables of the team to establish the amount of the annual prizes. In addition, they were asked some questions to assess the attributions they made about this situation. These attributions included causal attribution, prediction of future performance and prediction of successful delivery of report, perceived controllability, perceptions on motivation and capability, attribution to responsibility, blame and punishment. On the second set of dependent variables, participants were asked some questions about the breath control task or the soup letter task, depending on the condition they were inserted in. These questions were based on the mindful state, awareness, non-judging, and observation of participants.

### **3.2.5 Control variables**

Participants were asked about their level and frequency of practice of mindfulness meditation, their focus in daily life and the benefits they believed mindfulness meditation had on wellbeing and life satisfaction to control for the role of mindfulness. In addition, they were asked about their belief on the shift of personality over time to control for the role of future performance of the co-worker.

### **3.2.6 Manipulation checks**

Participants were asked about which text they read in the beginning of the survey, as a manipulation check for their attention when reading the text for the high or low condition of the belief of effectiveness of mindfulness, to check if the text presented was efficient. They were also asked about which task they performed, as a manipulation check for their attention when performing the task for the high or low state of mindfulness, to check if the task presented was efficient.

### **3.2.7 Dependent variables**

Then there were 14 dependent variables. Since we are studying behavioral intentions and psychological constructs, we measured them on rating scales, for example from 1 – not likely at all to 9 – extremely likely. Thus, this rating scale was chosen since it is comprehensive and easy to understand, analyze and study.

### **3.2.8 First set of dependent variables**

The first set of dependent variables regards to the organizational scenario that was explained above. The first variable is causal attribution, and here we wanted to study if people were keener on doing dispositional attributions (personality) or situational attributions (context, task, or bad luck). Thus, to measure causal attribution inference we asked participants to use the rating scale from 1 – not likely at all to 9 – extremely likely regarding the cause that would explain the co-worker's failure. This variable was subdivided into two dependent variables: situational attribution (context, task, and bad luck) and dispositional attribution (personality). Here we asked if the participants attributed the failure of delivering the report to the personality of the co-worker, to the context of the co-worker, to the difficulty of the task or just to bad luck. Then we measured predictions of future performance, and, in addition, the likelihood of a next successful report delivery, to analyze the judgments and expectations of the participants on the future performance of the co-worker, using the rating scale from 1 – not likely at all to 9 – extremely likely. Moreover, the perceived controllability was analyzed to assess the confidence that participants recognize in their co-worker's abilities, using the rating scale from 1 – Not controllable at all to 9 – extremely controllable. Then we measured the perceptions of participants on co-worker's motivation and capabilities, that are, in a way, related to the perceived controllability, since their capabilities are related to the goals people set and how well

they can accomplish those goals. Thus, motivation translates on the willingness to reach those goals, which in a way will affect the controllability one's have on their path to reach those goals. Thus, co-worker's motivation was measured using the rating scale from 1 – not motivated at all to 9 – extremely motivated, and co-worker's capabilities was measured using the rating scale from 1 – not capable at all to 9 – extremely capable. Moreover, the attributions on co-worker's blame were analyzed to assess participant's propensity to blame someone and perceive him/her as responsible for misfortune. Thus, attributions on co-worker's punishment were also assessed to analyze the level of consequences that participants assume the co-worker should face, and these perceptions of punishment can highly be influenced by the attributions of blame. Both perceptions of blame and punishment were measured using the rating scale from 1 – not likely at all to 9 – extremely likely. Finally, attributions to co-worker's responsibility were measured, and participants were given the information that the co-worker had a reputation of delivering everything on time and was very hardworking and motivated. The goal here was to measure the participant's sensibility on the addition of information, since in the first question of this set of dependent variables, causal attribution was measured and participants were not given any information about the co-worker, but now in this question to measure the responsibility of the co-worker, participants were given extra information about the co-worker's characteristics. This way that enabled to measure the attributions of responsibility, both with and without information about the characteristics of the co-worker, as well as the participant's sensibility to new information. Here it was used a rating scale from 1 – not likely at all to 9 – extremely likely.

### **3.2.9 Second set of dependent variables**

The second set of dependent variables regards to the breath control task that participants performed. For the same reasons as the first set of the dependent variables, we measured the second set on rating scales, but in this part, we measured from 1 – Never True to 7 – Always True, following the FFMQ rating scale, except the question regarding the mental state where the rating scale used was from 1 – Not mindful at all 7 – Extremely mindful. Firstly, to measure the mental state participants were asked to use a rating scale from 1 – Not mindful at all to 7 – Extremely mindful regarding their mental state after doing the exercise, so that we could assess if the task was efficient. Then we measured the awareness, to assess how much were the participants able to pay attention to one's current activities, or if they were acting robotically while one's attention is distracted elsewhere, using a rating scale from 1 – Never true to 9 –

Always true. Moreover, the non-judgment variable was measured in a sense that participants were asked if they made judgments about whether their thoughts were good or bad. Finally, the observation variable was measured through 3 questions by using a rating scale from 1 –Never true to 7 –Always true. This variable was important to study since it is a direct way to assess the level of mindfulness of an individual, so participants were asked if, during the breath control task, they had paid attention to the surrounding sounds, such as birds singing or people talking, if they had noticed the smells and aromas around them, and if they had noticed the colors, shapes, and textures, on their environment. Thus, these 3 senses were measured: sound, sight, and smell.

### **3.3 Procedure**

Participants were told they would be participating in a study where their participation would be completely anonymous and volunteer. Participants were told that it was a subjective topic, there were no right or wrong answers, and their participation should take approximately 7 minutes. Participants were then randomly assigned to one of these conditions: High state of mindfulness with high belief of effectiveness of mindfulness, high state of mindfulness with low belief of effectiveness of mindfulness, low state of mindfulness with low belief of effectiveness of mindfulness, low state of mindfulness with high belief of effectiveness of mindfulness. They were first asked to read a short paragraph describing scientific data on the effectiveness or no effectiveness of mindfulness (depending on the condition that they were attributed to) and then they were asked to do a breath control task or a soup letter task (depending on the condition that they were assigned to). Afterwards the dependent variables were measured, and participants were asked to use the rating scales that were described above. Then questions regarding control subjects and manipulation checks were asked, as previously discussed, then the demographics were collected and finally we thanked for the participant's presence in the study.

### **3.4 Design**

The experiment had 2 states (The high state of mindfulness, The low state of mindfulness) x 2 The belief of effectiveness of mindfulness (The high belief of effectiveness of mindfulness, The low belief of effectiveness of mindfulness) between subject's design.

## 4. Results

For all the dependent variables, an ANOVA 2 State of mindfulness (High state vs low state) x 2 Belief of effectiveness of mindfulness (High belief vs low belief), with a design between subjects was conducted.

### 4.1 Causal attribution – Dispositional attribution (Personality)

The analysis revealed a significant main effect of state of mindfulness ( $F(62) = 76.55$ ,  $p < .001$ ) indicating that the high state of mindfulness leads to higher dispositional attribution ( $M = 4.24$ ,  $SD = 1.86$ ), than the low state of mindfulness ( $M = 1.40$ ,  $SD = 1.95$ ).

The analysis also revealed a significant main effect of belief of the effectiveness of mindfulness ( $F(63) = 5.89$ ,  $p = .017$ ) indicating that the high belief of effectiveness of mindfulness leads to lower of dispositional attribution ( $M = 2.39$ ,  $SD = 2.18$ ), than the belief of effectiveness of mindfulness ( $M = 3.15$ ,  $SD = 2.50$ ).

We found a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(129) = 5.63$ ,  $p = .019$ ). While in the low state of mindfulness there are no differences between having a high or low belief in the effectiveness of mindfulness, when there is a high state of mindfulness, having a high belief in the effectiveness of mindfulness leads to lower dispositional inferences. See table 1 for means. See figure 1.

### 4.2 Causal attribution - Situational attribution (Task)

The analysis revealed a significant main effect of state of mindfulness ( $F(62) = 12.62$ ,  $p < .001$ ) indicating that the high state of mindfulness leads to higher of attribution to the task difficulty ( $M = 6.22$ ,  $SD = 1.58$ ), than the low state of mindfulness ( $M = 5.36$ ,  $SD = 1.62$ ).

We did not find a significant main effect of belief of effectiveness of mindfulness ( $M$  high belief of effectiveness of mindfulness = 5.70,  $SD$  high belief of effectiveness of mindfulness = 1.71;  $M$  low belief of effectiveness of mindfulness = 5.86,  $SD$  low belief of effectiveness of mindfulness = 1.61;  $F(62) = 0.30$ ,  $p = .586$ ).

Yet, we found a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(129) = 34.53$ ,  $p < .001$ ). While in high state of mindfulness having a high belief of effectiveness of mindfulness rather than a low belief leads to higher attribution to the difficulty of the task, when there is a low state of mindfulness, having a low belief of effectiveness of mindfulness rather than a high belief leads to higher attribution to the difficulty of the task. See table 2 for means. See figure 2.



### 4.3 Causal attribution - Situational attribution (Context)

We did not find a significant main effect of state of mindfulness ( $M$  high state of mindfulness = 5.52,  $SD$  high state of mindfulness = 1.69;  $M$  low state of mindfulness = 5.77,  $SD$  low state of mindfulness = 1.45;  $F(62) = 0.79, p = .376$ ).

We did not find a significant main effect of belief of effectiveness of mindfulness ( $M$  high belief of effectiveness of mindfulness = 5.89,  $SD$  high belief of effectiveness of mindfulness = 1.60;  $M$  low belief of effectiveness of mindfulness = 5.42,  $SD$  low belief of effectiveness of mindfulness = 1.53;  $F(62) = 2.97, p = .087$ ). However, the results follow the expected direction (high belief of effectiveness of mindfulness leads to higher attribution to context).

We didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(129) = 1.50, p = .224$ ). See table 3 for means. See figure 3.

### 4.4 Causal Attribution – Situational attribution (Bad luck)

The analysis revealed a significant main effect of state of mindfulness ( $F(62) = 20.08, p < .001$ ) indicating that the high state of mindfulness leads to lower attribution to bad luck ( $M = 3.68, SD = 1.98$ ), than the low state of mindfulness ( $M = 5.05, SD = 1.48$ ).

We did not find a significant main effect of belief of effectiveness of mindfulness ( $M$  high belief of effectiveness of mindfulness = 4.56,  $SD$  high belief of effectiveness of mindfulness = 2.05;  $M$  low belief of effectiveness of mindfulness = 4.21,  $SD$  low belief of effectiveness of mindfulness = 1.68;  $F(62) = 1.27, p = .262$ ).

We didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(129) = 1.34, p = .249$ ). See table 4 for means. See figure 4.

### 4.5 Prediction Better Future Performance

The analysis revealed a significant main effect of state of mindfulness ( $F(62) = 100.29, p < .001$ ) indicating that the high state of mindfulness leads to predictions of higher future performance ( $M = 6.14, SD = 1.54$ ), than the low state of mindfulness ( $M = 3.38, SD = 1.67$ ).

The analysis also revealed a significant main effect of belief of effectiveness of mindfulness ( $F(62) = 7.10, p < .009$ ) indicating that the high belief of effectiveness of mindfulness leads to prediction of higher future performance ( $M = 5.11, SD = 2.27$ ), than the low belief of effectiveness of mindfulness ( $M = 4.36, SD = 1.92$ ). Yet,

we didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(129) = 1.89, p = .172$ ). See table 5 for means. See figure 5.

#### **4.6 Prediction Successful Delivery of Report**

We did not find a significant main effect of state of mindfulness ( $M$  high state of mindfulness = 5.10,  $SD$  high state of mindfulness = 1.64;  $M$  low state of mindfulness = 5.45,  $SD$  low state of mindfulness = 1.49;  $F(62) = 2.00, p = .159$ ).

The analysis also revealed a significant main effect of belief of effectiveness of mindfulness ( $F(62) = 16.73, p < .001$ ) indicating that the high belief of effectiveness of mindfulness leads to prediction of higher successful delivery of report ( $M = 5.83, SD = 1.45$ ), than the low belief of effectiveness of mindfulness ( $M = 4.76, SD = 1.51$ ).

Yet, we didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(129) = 0.19, p = .668$ ). See table 6 for means. See figure 6.

#### **4.7 Perceived Controllability**

The analysis revealed a significant main effect of state of mindfulness ( $F(62) = 35.30, p < .001$ ) indicating that the high state of mindfulness leads to higher perceived controllability ( $M = 5.81, SD = 1.28$ ), than the low state of mindfulness ( $M = 4.36, SD = 1.67$ ).

The analysis also revealed a significant main effect of belief of effectiveness of mindfulness ( $F(62) = 25.35, p < .001$ ) indicating that the high belief of effectiveness of mindfulness leads to higher perceived controllability ( $M = 5.70, SD = 1.36$ ), than the low belief of effectiveness of mindfulness ( $M = 4.47, SD = 1.69$ ).

Yet, we didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(129) = 0.34, p = .559$ ). See table 7 for means. See figure 7.

#### **4.8 Perceptions of motivation**

We did not find a significant main effect of state of mindfulness ( $M$  high state of mindfulness = 4.98,  $SD$  high state of mindfulness = 1.48;  $M$  low state of mindfulness = 5.30,  $SD$  low state of mindfulness = 1.32;  $F(62) = 2.00, p = 0.160$ ). However, the results follow the expected direction (high state of mindfulness leads to perceptions of higher motivation).

The analysis revealed a significant main effect of belief of effectiveness of mindfulness ( $F(62) = 19.32, p < .001$ ) indicating that the high belief of effectiveness of mindfulness leads

to perceptions of higher motivation ( $M = 5.67, SD = 1.30$ ), than the low belief of effectiveness of mindfulness ( $M = 4.65, SD = 1.33$ ).

Yet, we didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(129) = 0.02, p = .887$ ). See table 8 for means. See figure 8.

#### **4.9 Perceptions of capability**

The analysis revealed a significant main effect of state of mindfulness ( $F(60) = 41.86, p < .001$ ) indicating that the high state of mindfulness leads to perceptions of higher capability ( $M = 5.95, SD = 1.96$ ), than the low state of mindfulness ( $M = 4.11, SD = 1.37$ ).

The analysis also revealed a significant main effect of belief of effectiveness of mindfulness ( $F(62) = 17.60, p < .001$ ) indicating that the high belief of effectiveness of mindfulness leads to perceptions of higher capability ( $M = 5.60, SD = 2.02$ ), than the low belief of effectiveness of mindfulness ( $M = 4.39, SD = 1.60$ ).

Yet, we didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(126) = 17.60, p = .410$ ). See table 9 for means. See figure 9.

#### **4.10 Attribution of blame**

We did not find a significant main effect of state of mindfulness ( $M$  high state of mindfulness = 4.70,  $SD$  high state of mindfulness = 1.59;  $M$  low state of mindfulness = 5.06,  $SD$  low state of mindfulness = 1.68;  $F(62) = 2.37, p = .126$ ). However, the results follow the expected direction (high state of mindfulness leads to lower attributions of blame).

We did not find a significant main effect of belief of effectiveness of mindfulness ( $M$  high belief of effectiveness of mindfulness = 4.87,  $SD$  high belief of effectiveness of mindfulness = 1.67;  $M$  low belief of effectiveness of mindfulness = 4.89,  $SD$  low belief of effectiveness of mindfulness = 1.63;  $F(62) = 0.04, p = .837$ ). However, the results follow the expected direction (high belief of effectiveness of mindfulness leads to lower attributions of blame).

Yet, we found a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(128) = 34.46, p < .001$ ). While in the low state of mindfulness having a low belief in effectiveness of mindfulness leads to lower attribution of blame, when there is a high state of mindfulness, having a high belief in the effectiveness of mindfulness leads to lower attribution of blame. See table 10 for means. See figure 10.

#### **4.11 Attribution of punishment**

The analysis revealed a significant main effect of state of mindfulness ( $F(62) = 40.37$ ,  $p < .001$ ) indicating that the high state of mindfulness leads to lower attribution of punishment ( $M = 3.48$ ,  $SD = 1.95$ ), than the low state of mindfulness ( $M = 5.35$ ,  $SD = 1.62$ ).

The analysis also revealed a significant main effect of belief of effectiveness of mindfulness ( $F(62) = 21.62$ ,  $p < .001$ ) indicating that the high belief of effectiveness of mindfulness leads to lower attribution of punishment ( $M = 3.73$ ,  $SD = 2.05$ ), than the low belief of effectiveness of mindfulness ( $M = 5.11$ ,  $SD = 1.75$ ).

Yet, we didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(128) = 0.08$ ,  $p = .782$ ). See table 11 for means. See figure 11.

#### **4.12 Attribution of responsibility**

We did not find a significant main effect of state of mindfulness ( $M$  high state of mindfulness = 4.44,  $SD$  high state of mindfulness = 1.66;  $M$  low state of mindfulness = 4.29,  $SD$  low state of mindfulness = 2.05;  $F(62) = 0.33$ ,  $p = .568$ ). However, the results follow the expected direction (high state of mindfulness leads to higher attributions of responsibility).

We did not find a significant main effect of belief of effectiveness of mindfulness ( $M$  high belief of effectiveness of mindfulness = 4.13,  $SD$  high belief of effectiveness of mindfulness = 1.94;  $M$  low belief of effectiveness of mindfulness = 4.59,  $SD$  low belief of effectiveness of mindfulness = 1.78;  $F(62) = 1.94$ ,  $p = .167$ ).

Yet, we found a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(128) = 9.19$ ,  $p = .003$ ). While in the low state of mindfulness having a low belief of effectiveness of mindfulness leads to higher attribution of responsibility, when there is a high state of mindfulness, having a high belief in the effectiveness of mindfulness leads to higher attribution of responsibility. See table 12 for means. See figure 12.

#### **4.13 Mental State**

The analysis revealed a significant main effect of state of mindfulness ( $F(62) = 22.19$ ,  $p < .001$ ) indicating that the high state of mindfulness leads to higher mental state ( $M = 5.48$ ,  $SD = 1.35$ ), than the low state of mindfulness ( $M = 4.17$ ,  $SD = 1.79$ ).

We did not find a significant main effect of belief of effectiveness of mindfulness ( $M$  high belief of effectiveness of mindfulness = 5.08,  $SD$  high belief of effectiveness of mindfulness = 1.64;  $M$  low belief of effectiveness of mindfulness = 4.55,  $SD$  low belief of

effectiveness of mindfulness = 1.76;  $F(62) = 3.63, p = .059$ ). However, the results follow the expected direction (high belief of effectiveness of mindfulness leads to higher mental state).

We didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(128) = 0.79, p = .377$ ). See table 13 for means. See figure 13.

#### **4.14 Awareness**

The analysis revealed a significant main effect of state of mindfulness ( $F(62) = 16.23, p < .001$ ) indicating that the high state of mindfulness leads to higher awareness ( $M = 4.02, SD = 1.29$ ), than the low state of mindfulness ( $M = 3.05, SD = 1.45$ ).

The analysis also revealed a significant main effect of belief of effectiveness of mindfulness ( $F(62) = 4.24, p = .041$ ) indicating that the high belief of effectiveness of mindfulness leads to higher awareness ( $M = 3.78, SD = 1.52$ ), than the low belief of effectiveness of mindfulness ( $M = 3.27, SD = 1.35$ ).

Yet, we didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(128) = 1.94, p = .167$ ). See table 14 for means. See figure 14.

#### **4.15 Non-judging**

We did not find a significant main effect of state of mindfulness ( $M$  high state of mindfulness = 3.34,  $SD$  high state of mindfulness = 1.47;  $M$  low state of mindfulness = 3.33,  $SD$  low state of mindfulness = 1.52;  $F(62) = 0.18, p = .672$ ). However, the results follow the expected direction (high state of mindfulness leads to higher non-judging).

We did not find a significant main effect of belief of effectiveness of mindfulness ( $M$  high belief of effectiveness of mindfulness = 3.51,  $SD$  high belief of effectiveness of mindfulness = 1.55;  $M$  low belief of effectiveness of mindfulness = 3.27,  $SD$  low belief of effectiveness of mindfulness = 1.33;  $F(62) = 0.83, p = .363$ ). However, the results follow the expected direction (high belief of effectiveness of mindfulness leads to higher non-judging).

We didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(128) = .01, p = .910$ ). See table 15 for means. See figure 15.

#### **4.16 Observation – Sense of sound**

The analysis revealed a significant main effect of state of mindfulness ( $F(62) = 169.38, p < .001$ ) indicating that the high state of mindfulness leads to higher observation (Sense of sound) ( $M = 5.41, SD = 1.38$ ), than the low state of mindfulness ( $M = 2.26, SD = 1.36$ ).

We did not find a significant main effect of belief of effectiveness of mindfulness ( $M$  high belief of effectiveness of mindfulness = 3.92,  $SD$  high belief of effectiveness of mindfulness = 2.13;  $M$  low belief of effectiveness of mindfulness = 3.68,  $SD$  low belief of effectiveness of mindfulness = 2.05;  $F(62) = 0.79, p = .375$ ). However, the results follow the expected direction (high belief of effectiveness of mindfulness leads to higher observation regarding the sense of sound).

We didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(128) = 0.003, p = .960$ ). See table 16 for means. See figure 16.

#### **4.17 Observation – Sense of smell**

The analysis revealed a significant main effect of state of mindfulness ( $F(62) = 99.50, p < .001$ ) indicating that the high state of mindfulness leads to higher observation (sense of smell) ( $M = 5.94, SD = 1.19$ ), than the low state of mindfulness ( $M = 3.42, SD = 1.65$ ).

The analysis also revealed a significant main effect of belief of effectiveness of mindfulness ( $F(62) = 4.58, p = .034$ ) indicating that the high belief of effectiveness of mindfulness leads to higher observation (sense of smell) ( $M = 4.94, SD = 1.94$ ), than the low belief of effectiveness of mindfulness ( $M = 4.38, SD = 1.85$ ).

Yet, we didn't find a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(128) = 0.14, p = .706$ ). See table 17 for means. See figure 17.

#### **4.18 Observation – Sense of sight**

The analysis revealed a significant main effect of state of mindfulness ( $F(62) = 47.50, p < .001$ ) indicating that the high state of mindfulness leads to higher observation (sense of sight) ( $M = 4.71, SD = 1.43$ ), than the low state of mindfulness ( $M = 2.80, SD = 1.81$ ).

The analysis also revealed a significant main effect of belief of effectiveness of mindfulness ( $F(62) = 9.11, p = .003$ ) indicating that the high belief of effectiveness of mindfulness leads to higher observation (sense of sight) ( $M = 4.17, SD = 2.04$ ), than the low belief of effectiveness of mindfulness ( $M = 3.32, SD = 1.65$ ).

We found a significant interaction between state of mindfulness and belief of effectiveness of mindfulness ( $F(128) = 5.55, p = .020$ ). Both high and low states of mindfulness, having a high belief in the effectiveness of mindfulness lead to higher observation regarding the sense of sight. See table 18 for means. See figure 18.

#### 4.19 Control variables

As expected, we found significant differences between the high state of mindfulness ( $M = 1.60$ ,  $SD = 0.85$ ) and the low state of mindfulness ( $M = 1.89$ ,  $SD = 1.11$ ) groups for the control variable level of practice of mindfulness ( $t(127) = -1.66$ ,  $p = .029$ ). No significant differences were found between the high belief of effectiveness of mindfulness ( $M = 1.97$ ,  $SD = 1.08$ ) and low belief of effectiveness of mindfulness ( $M = 1.55$ ,  $SD = 0.88$ ) groups for the control variable level of practice of mindfulness ( $t(127) = 2.45$ ,  $p = .143$ ). This suggests that the variable level of practice of mindfulness plays a role on the effect of the state of mindfulness on the main dependent variables but doesn't play a role on the effect of the belief of effectiveness of mindfulness on the main dependent variables.

As expected, we found significant differences between the high state of mindfulness ( $M = 1.83$ ,  $SD = 1.24$ ) and the low state of mindfulness ( $M = 1.45$ ,  $SD = 0.71$ ) groups for the control variable frequency of practice of mindfulness ( $t(127) = 2.10$ ,  $p < .001$ ). As expected, we found significant differences between the high belief of effectiveness of mindfulness ( $M = 1.84$ ,  $SD = 1.19$ ) and the low belief of effectiveness of mindfulness ( $M = 1.44$ ,  $SD = 0.78$ ) groups for the control variable frequency of practice of mindfulness ( $t(127) = 2.29$ ,  $p = .011$ ). This suggests that the variable frequency of practice of mindfulness plays a role on the effect of the state of mindfulness on the main dependent variables as well as a role on the effect of the belief of effectiveness of mindfulness on the main dependent variables.

As expected, we found significant differences between the high state of mindfulness ( $M = 3.75$ ,  $SD = 1.28$ ) and the low state of mindfulness ( $M = 1.53$ ,  $SD = 0.92$ ) groups for the control variable mind ( $t(127) = 11.34$ ,  $p = .01$ ). No significant differences were found between the high belief of effectiveness of mindfulness ( $M = 2.71$ ,  $SD = 1.61$ ) and low belief of effectiveness of mindfulness ( $M = 2.52$ ,  $SD = 1.53$ ) groups for the control variable mind ( $t(127) = 0.72$ ,  $p = .991$ ). This suggests that the variable mind plays a role on the effect of the state of mindfulness on the main dependent variables but doesn't play a role on the effect of the belief of effectiveness of mindfulness on the main dependent variables.

As expected, we found significant differences between the high state of mindfulness ( $M = 6.57$ ,  $SD = 1.71$ ) and the low state of mindfulness ( $M = 3.94$ ,  $SD = 1.21$ ) groups for the control variable personality ( $t(127) = 10.12$ ,  $p = .024$ ). No significant differences were found between the high belief of effectiveness of mindfulness ( $M = 5.41$ ,  $SD = 2.08$ ) and low belief of effectiveness of mindfulness ( $M = 5.05$ ,  $SD = 1.48$ ) groups for the control variable personality ( $t(127) = 1.06$ ,  $p = .139$ ). This suggests that the variable personality plays a role on the effect of the state of mindfulness on the main dependent variables but doesn't play a role

on the effect of the belief of effectiveness of mindfulness on the main dependent variables.

No significant differences were found between the high state of mindfulness ( $M = 7.59$ ,  $SD = 1.30$ ) and low state of mindfulness ( $M = 6.06$ ,  $SD = 1.51$ ) groups for the control variable wellbeing ( $t(127) = 6.14$ ,  $p = .601$ ). As expected, we found significant differences between the high belief of effectiveness of mindfulness ( $M = 7.24$ ,  $SD = 1.79$ ) and the low belief of effectiveness of mindfulness ( $M = 6.39$ ,  $SD = 1.28$ ) groups for the control variable wellbeing ( $t(127) = 3.09$ ,  $p = .006$ ). This suggests that the variable wellbeing plays a role on the effect of the belief of effectiveness of mindfulness on the main dependent variables but doesn't play a role on the effect of the state of mindfulness on the main dependent variables.

#### **4.20 Manipulation checks – Belief of effectiveness of mindfulness and state of mindfulness**

As expected, we found significant differences between the high state of mindfulness ( $M = 3.52$ ,  $SD = 1.51$ ) and the low state of mindfulness ( $M = 3.32$ ,  $SD = 1.46$ ) in the measures of the text that participants read ( $t(126) = 0.76$ ,  $p = .035$ ) indicating that the manipulation of the belief of effectiveness of mindfulness was effective. As expected, we found significant differences between the high belief of effectiveness of mindfulness ( $M = 2.14$ ,  $SD = 0.64$ ) and the low belief of effectiveness of mindfulness ( $M = 4.66$ ,  $SD = 2.89$ ) in the measures of the text that participants read ( $t(126) = -18.31$ ,  $p = .008$ ) indicating that the manipulation of the belief of effectiveness of mindfulness was effective.

As expected, we found significant differences between the high state of mindfulness ( $M = 3.00$ ,  $SD = 0.00$ ) and the low state of mindfulness ( $M = 4.77$ ,  $SD = 0.80$ ) in the measures of the task that participants performed ( $t(127) = -17.59$ ,  $p < .001$ ) indicating that the manipulation of the state of mindfulness was effective for this independent variable. No significant differences were found between the high belief of effectiveness of mindfulness ( $M = 3.87$ ,  $SD = 1.07$ ) and the low belief of effectiveness of mindfulness ( $M = 3.94$ ,  $SD = 1.05$ ) in the measures of the task that participants performed ( $t(127) = -0.35$ ,  $p = .798$ ) indicating that the manipulation of the state of mindfulness wasn't effective for this independent variable.

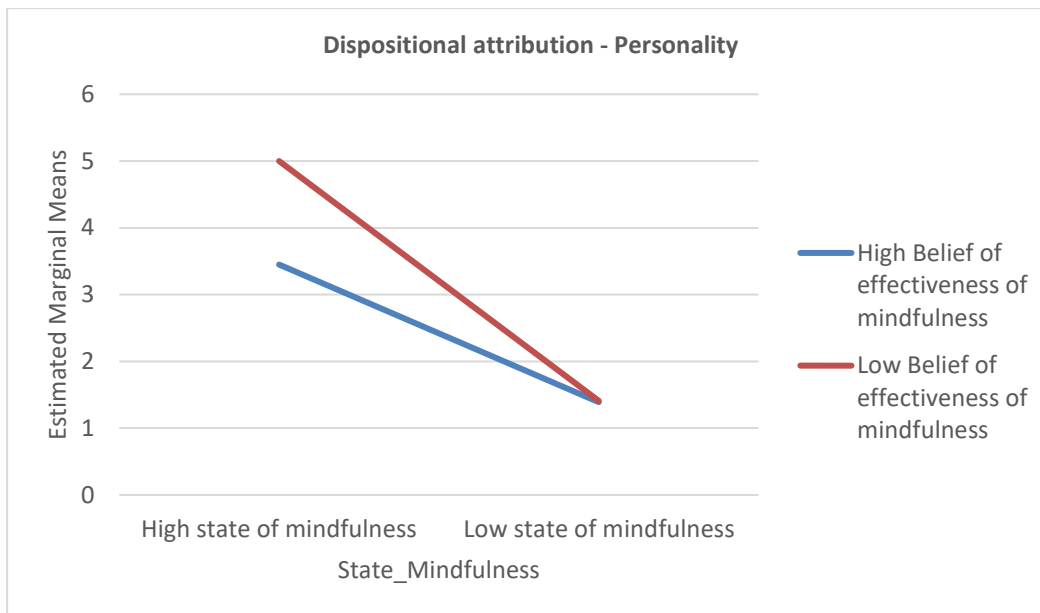


#### **4.21 Basic demographics – Age, gender and first language**

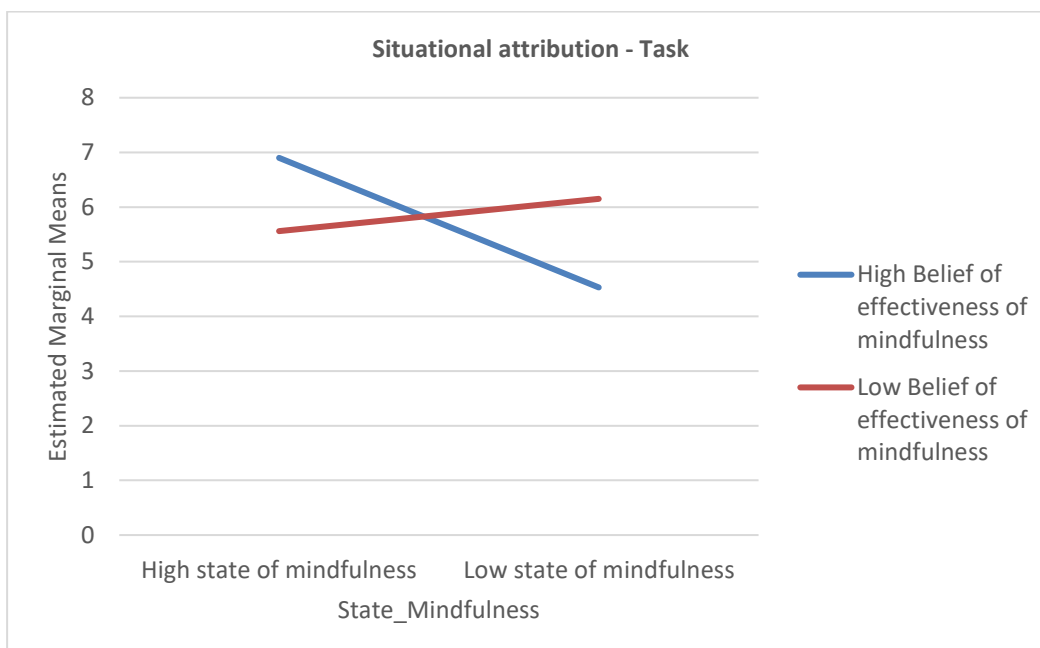
Age ( $M = 28.47$ ,  $SD = 8.42$ ), gender (49.6% females, 46.5% males, 2.3% non-binary, 1.6% prefer not to identify), first language (6.2% English, 58.9% Portuguese, 7% Spanish, 19.4% German, 7% French, 1.6% Other)

## 5. List of figures

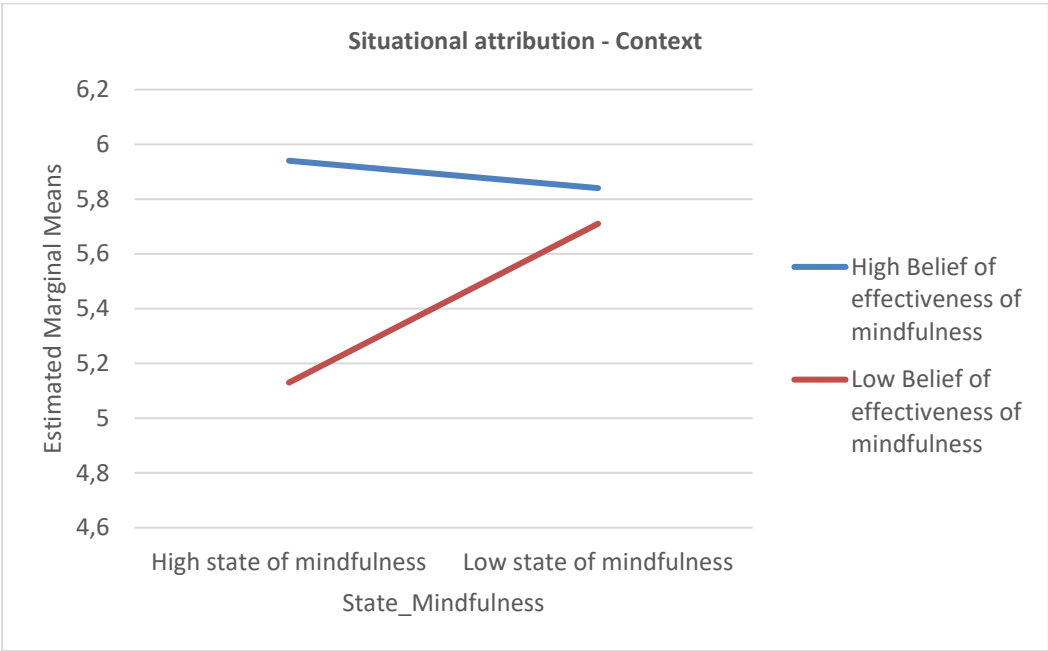
### 5.1 Figure 1: Dispositional attribution – Personality



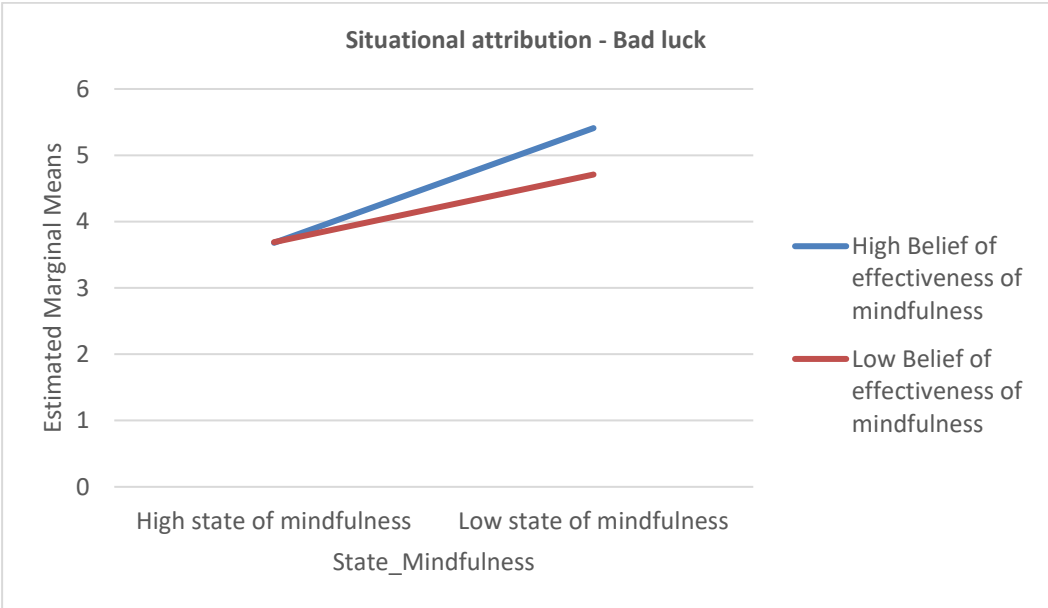
### 5.2 Figure 2: Situational attribution – Task



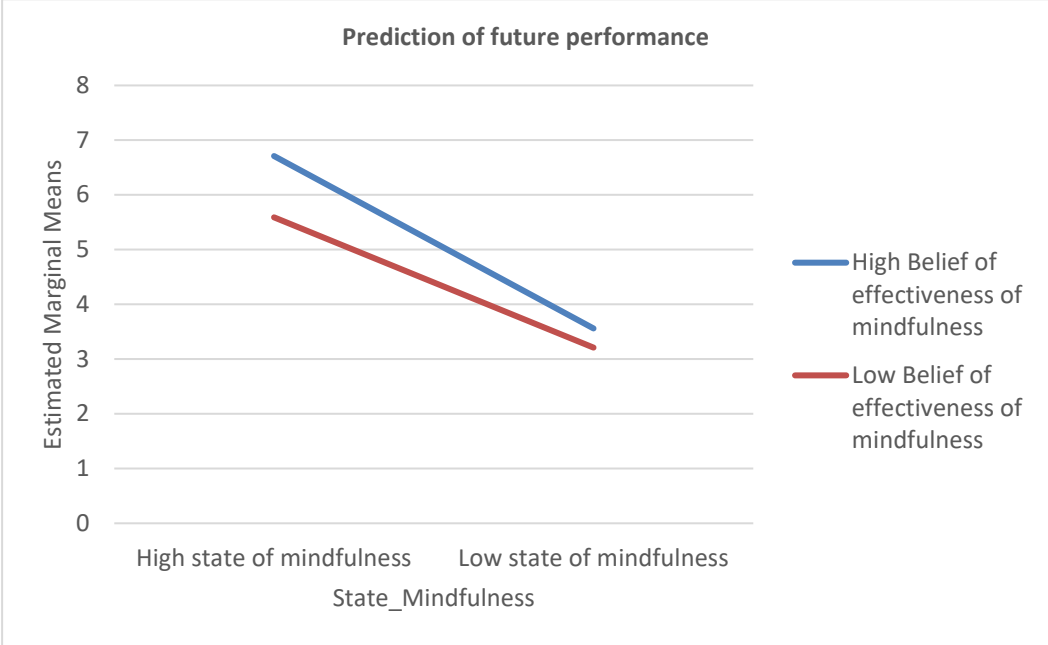
**5.3 Figure 3: Situational attribution – Context**



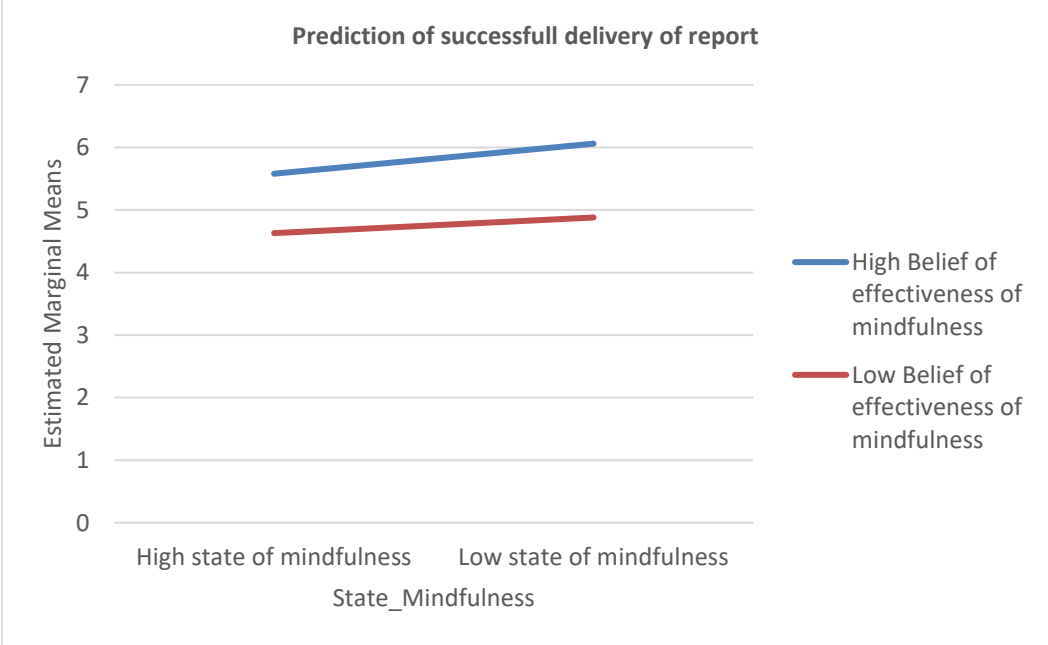
**5.4 Figure 4: Situational attribution – Bad luck**



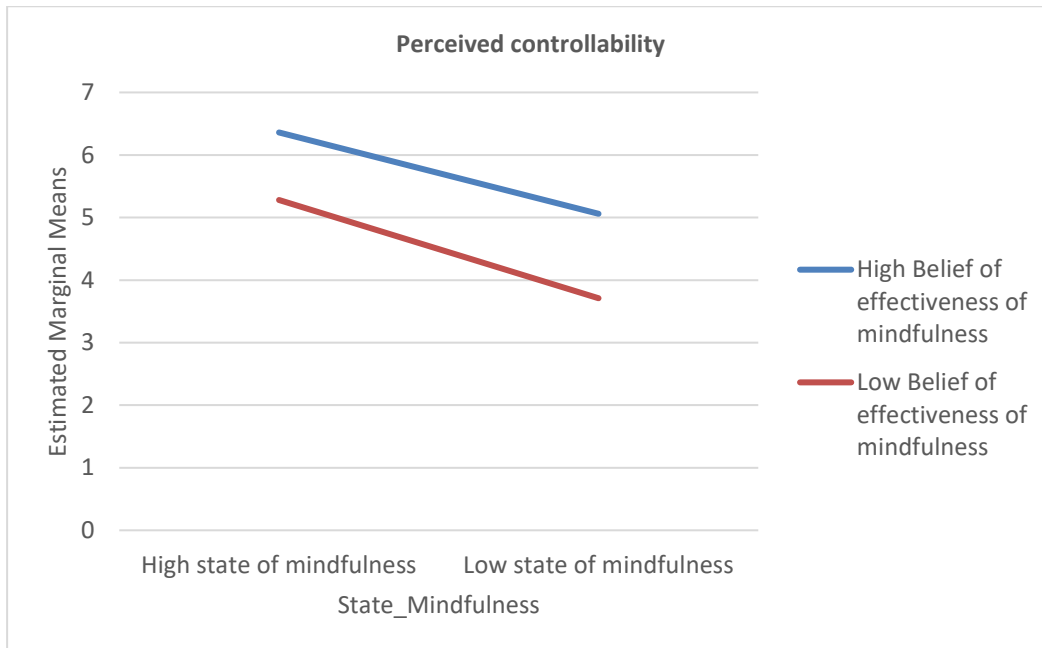
5.5 Figure 5: Prediction of future performance



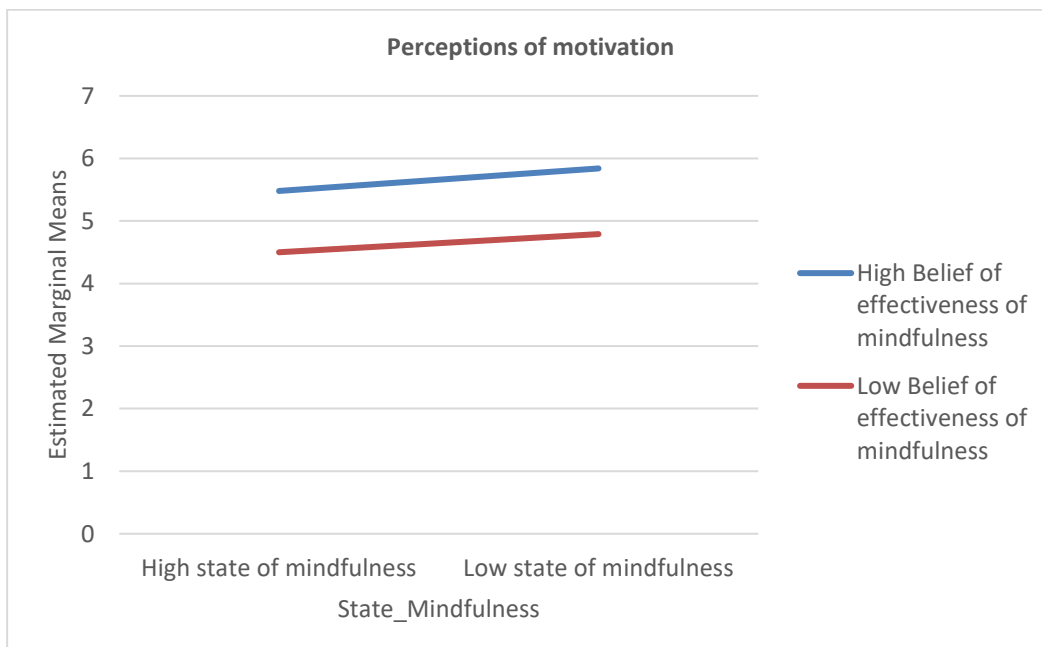
5.6 Figure 6: Prediction of successful delivery of report



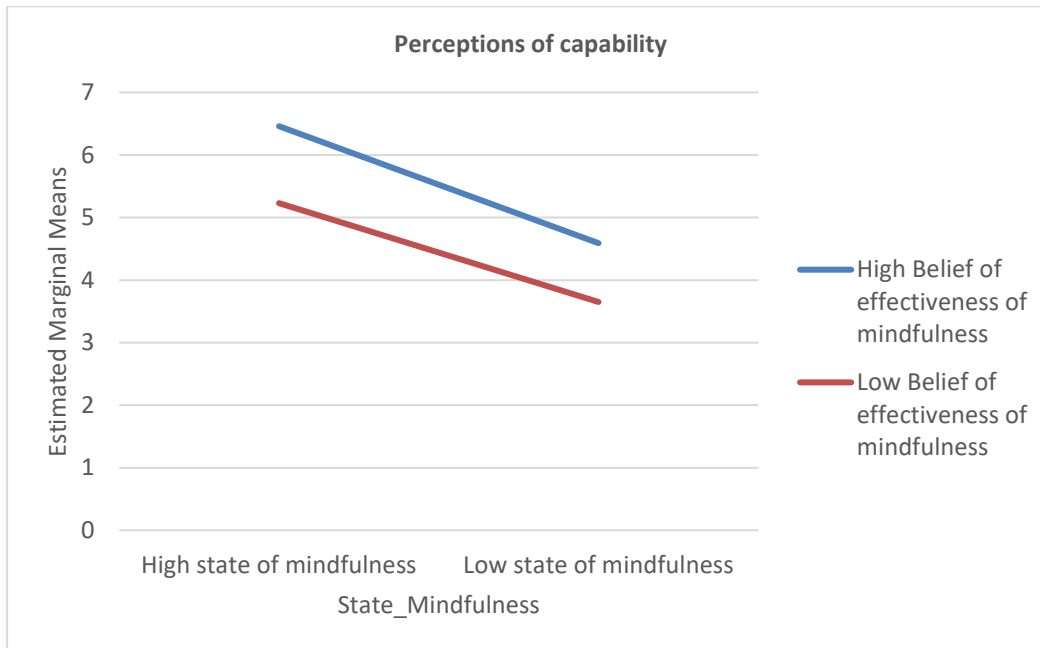
**5.7 Figure 7: Perceived controllability**



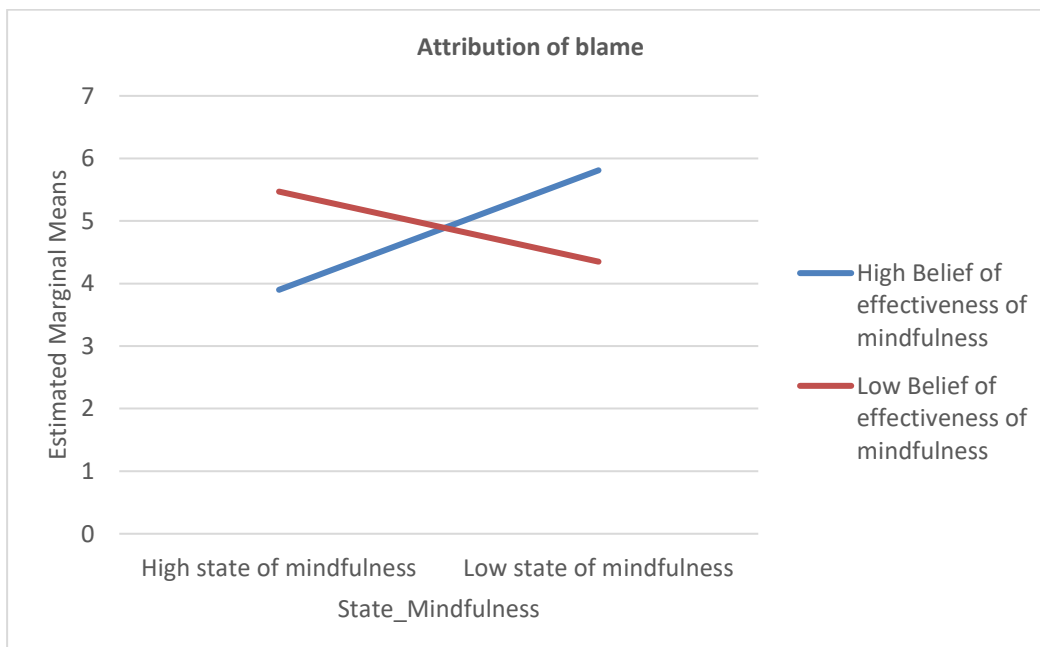
**5.8 Figure 8: Perceptions of motivation**



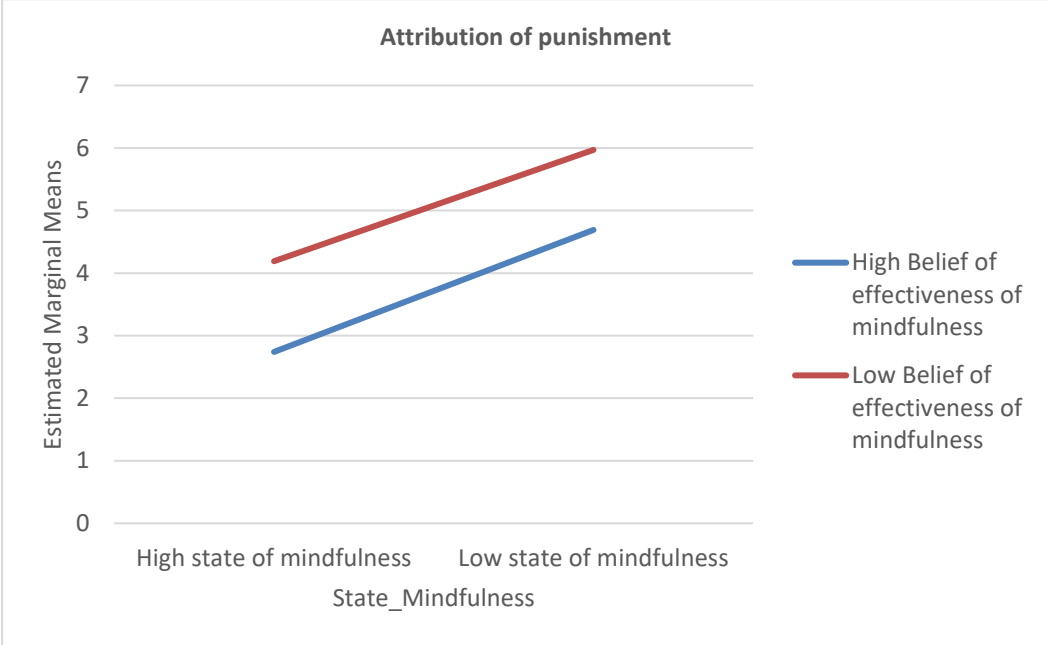
**5.9 Figure 9: Perceptions of capability**



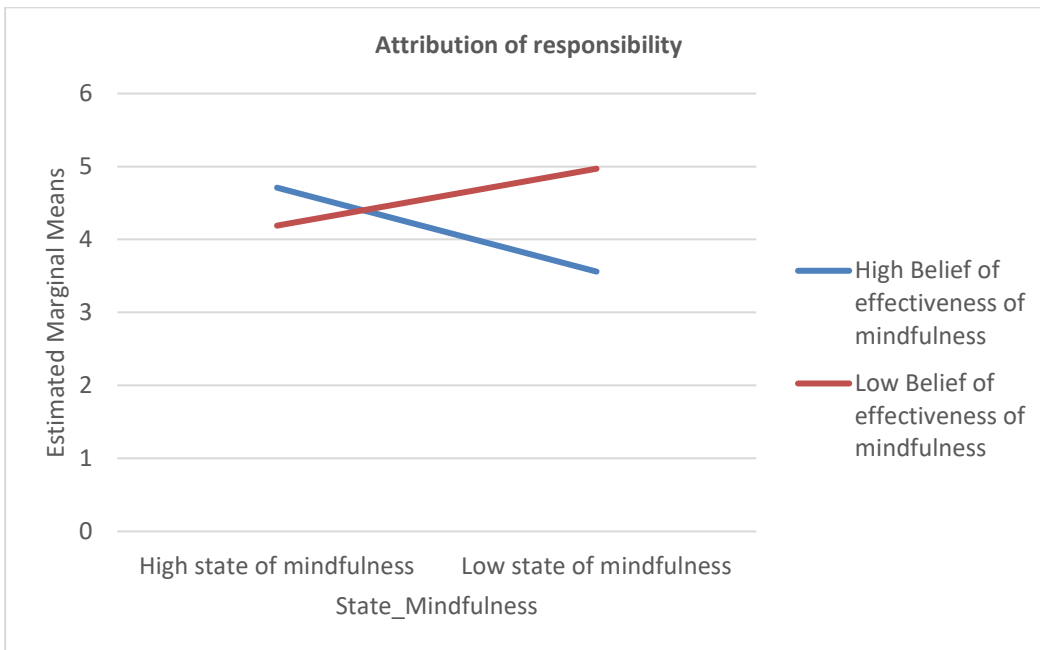
**5.10 Figure 10: Attribution of blame**



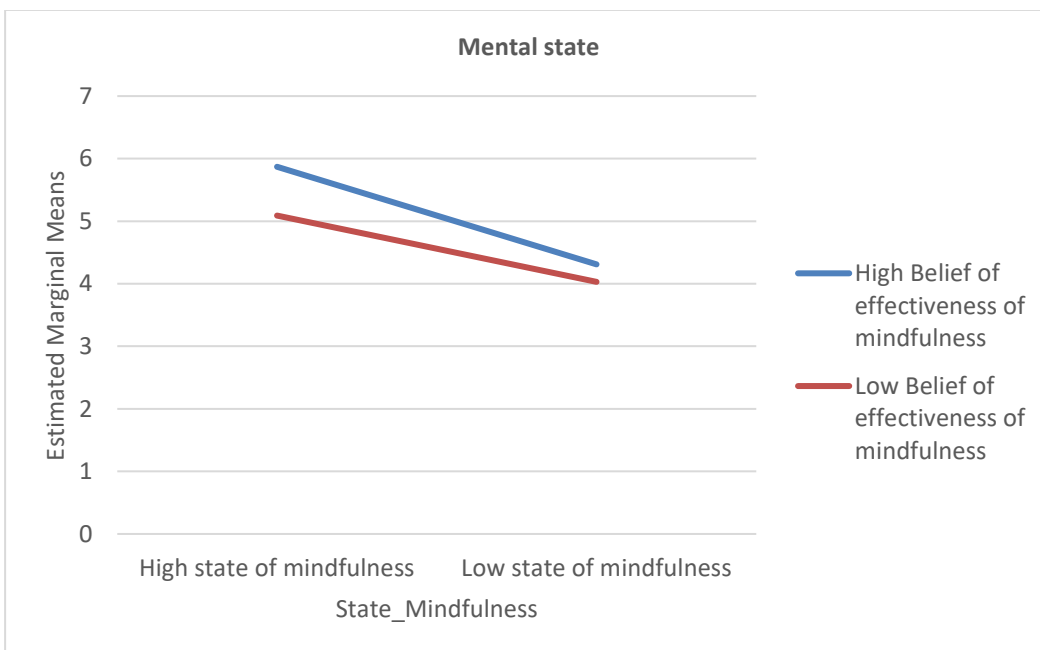
5.11 Figure 11: Attribution of punishment



**5.12 Figure 12: Attribution of responsibility**

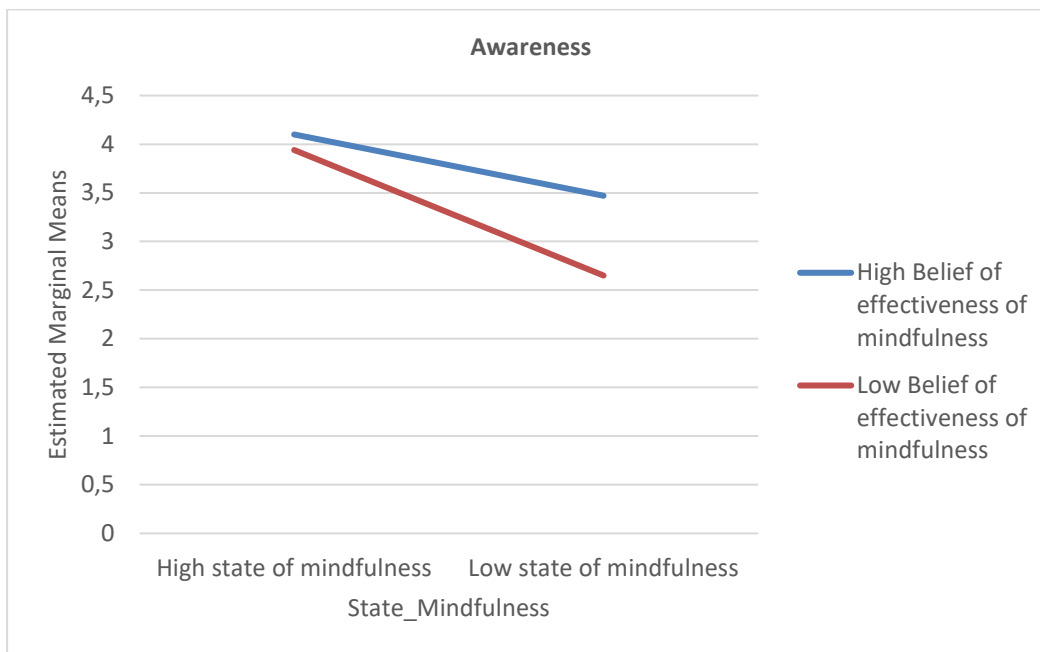


**5.13 Figure 13: Mental state**

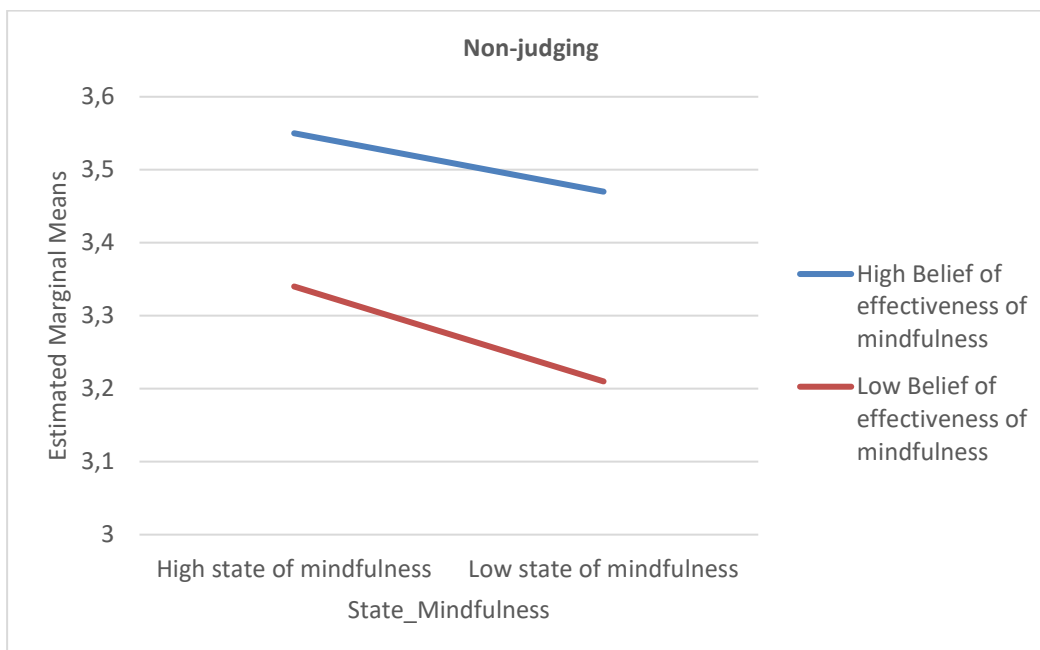




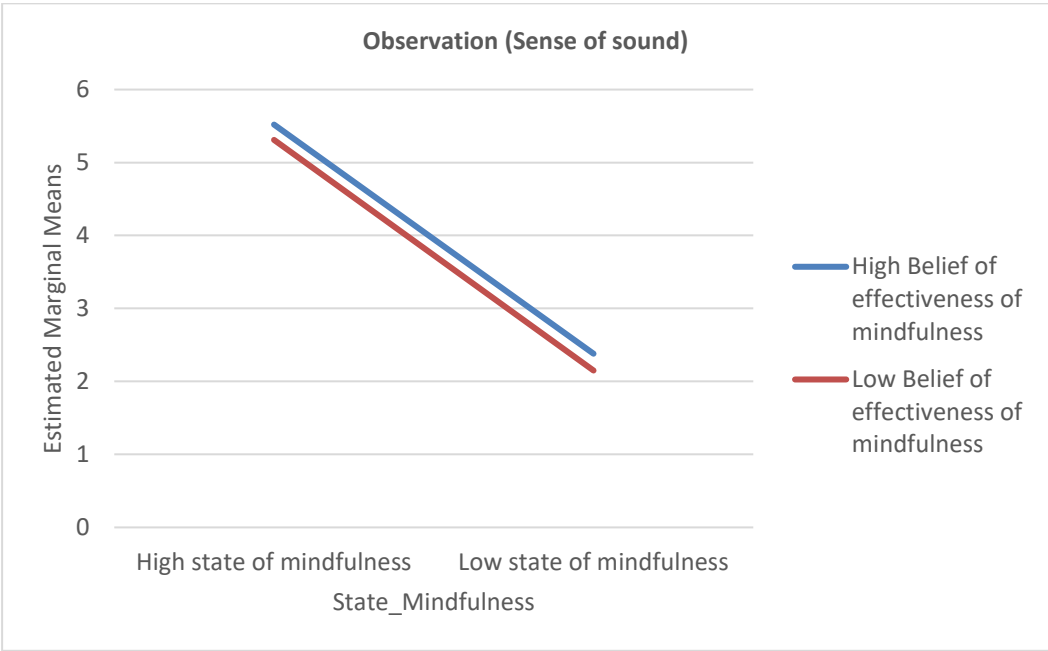
### 5.14 Figure 14: Awareness



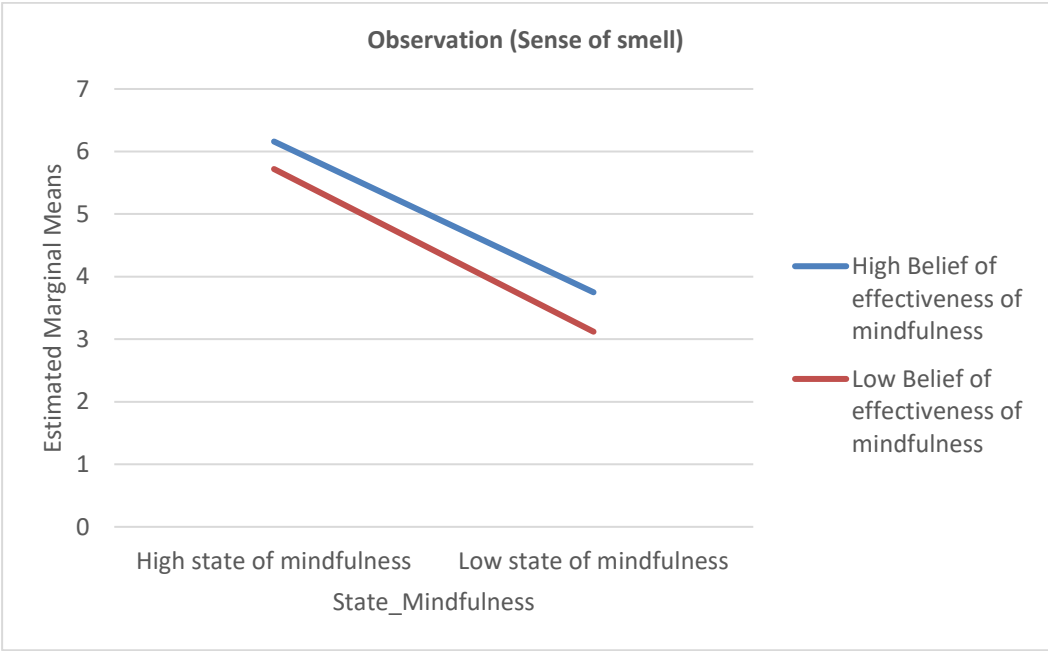
### 5.15 Figure 15: Non-judging



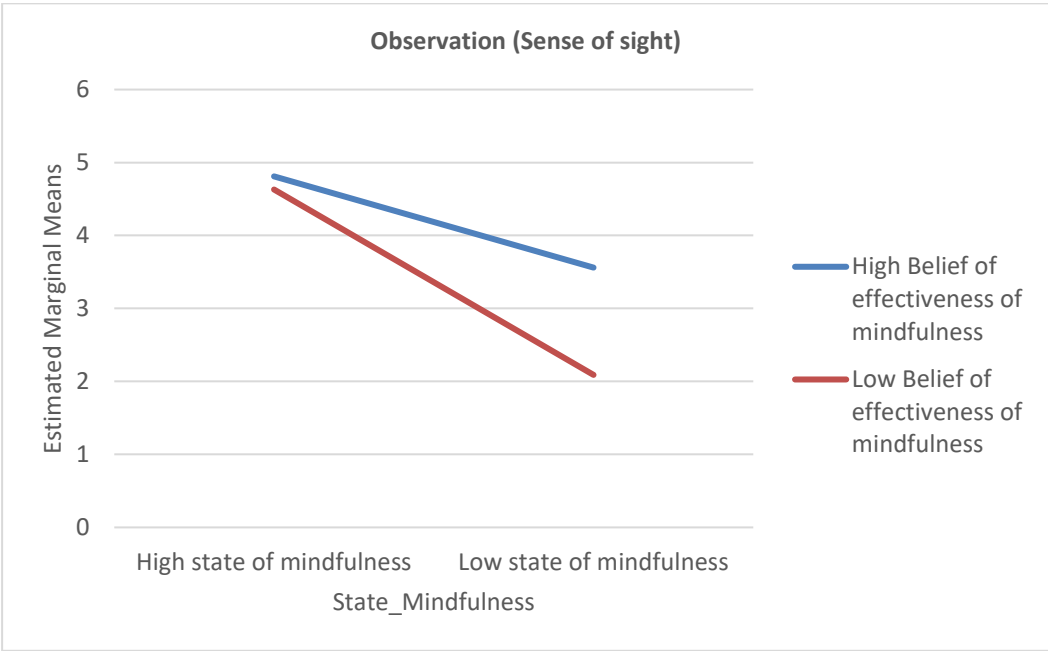
5.16 Figure 16: Observation (Sense of sound)



5.17 Figure 17: Observation (Sense of smell)



5.18 Figure 18: Observation (Sense of sight)



## 6. List of tables reporting Means and Standard Deviations

**6.1 Table 1: Dispositional attribution - Personality**

			High state mindfulness <i>M (SD)</i>	of	Low state mindfulness <i>M (SD)</i>	of	<i>M (SD)</i>
High	Belief	of	3.45 (0.33)		1.39 (0.32)		2.39 (2.18)
	effectiveness	of					
	mindfulness						
Low	Belief	of	5 (0.33)		1.41 (0.32)		3.15 (2.50)
	effectiveness	of					
	mindfulness						
<i>M (SD)</i>			4.24 (1.86)		1.40 (1.95)		

**6.2 Table 2: Situational Attribution - Task**

			High state mindfulness	of	Low state mindfulness	of	<i>M (SD)</i>
High	Belief	of	6.90 (0.26)		4.53 (0.25)		5.70 (1.71)
	effectiveness	of					
	mindfulness						
Low	Belief	of	5.56 (0.25)		6.15 (0.25)		5.86 (1.61)
	effectiveness	of					
	mindfulness						
<i>M (SD)</i>			6.22 (1.58)		5.36 (1.62)		

### 6.3 Table 3: Situational attribution - Context

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	5.94 (0.28)	5.84 (0.28)	5.89 (1.60)
	effectiveness	of			
	mindfulness				
Low	Belief	of	5.13 (0.28)	5.71 (0.27)	5.42 (1.53)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			5.52 (1.69)	5.77 (1.45)	

### 6.4 Table 4: Situational attribution – Bad luck

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	3.68 (0.31)	5.41 (0.31)	4.56 (2.05)
	effectiveness	of			
	mindfulness				
Low	Belief	of	3.69 (0.31)	4.71 (0.30)	4.21 (1.68)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			3.68 (1.98)	5.05 (1.48)	

### 6.5 Table 5: Prediction of future performance

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	6.71 (0.28)	3.56 (0.28)	5.11 (2.27)
	effectiveness	of			
	mindfulness				
Low	Belief	of	5.59 (0.28)	3.21 (0.27)	4.36 (1.92)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			6.14 (1.54)	3.38 (1.67)	

### 6.6 Table 6: Prediction of successful delivery of report

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	5.58 (0.27)	6.06 (0.26)	5.83 (1.45)
	effectiveness	of			
	mindfulness				
Low	Belief	of	4.63 (0.26)	4.88 (0.25)	4.76 (1.51)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			5.10 (1.64)	5.45 (1.49)	

### 6.7 Table 7: Perceived controllability

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	6.36 (0.25)	5.06 (0.24)	5.70 (1.36)
	effectiveness	of			
	mindfulness				
Low	Belief	of	5.28 (0.24)	3.71 (0.24)	4.47 (1.69)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			5.81 (1.28)	4.36 (1.67)	

### 6.8 Table 8: Perceptions of motivation

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	5.48 (0.24)	5.84 (0.23)	5.67 (1.30)
	effectiveness	of			
	mindfulness				
Low	Belief	of	4.5 (0.23)	4.79 (0.23)	4.65 (1.33)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			4.98 (1.48)	5.30 (1.32)	

### 6.9 Table 9: Perceptions of capability

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	6.46 (0.28)	4.59 (0.28)	5.60 (2.02)
	effectiveness	of			
	mindfulness				
Low	Belief	of	5.23 (0.29)	3.65 (0.27)	4.39 (1.60)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			5.95 (1.96)	4.11 (1.37)	

### 6.10 Table 10: Attribution of blame

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	3.90 (0.26)	5.81 (0.26)	4.87 (1.67)
	effectiveness	of			
	mindfulness				
Low	Belief	of	5.47 (0.26)	4.35 (0.25)	4.89 (1.63)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			4.70 (1.59)	5.06 (1.68)	



### 6.11 Table 11: Attribution of punishment

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	2.74 (0.30)	4.69 (0.29)	3.73 (2.05)
	effectiveness	of			
	mindfulness				
Low	Belief	of	4.19 (0.29)	5.97 (0.29)	5.11 (1.75)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			3.48 (1.95)	5.35 (1.62)	

### 6.12 Table 12: Attribution of responsibility

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	4.71 (0.33)	3.56 (0.32)	4.13 (1.94)
	effectiveness	of			
	mindfulness				
Low	Belief	of	4.19 (0.32)	4.97 (0.31)	4.59 (1.78)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			4.44 (1.66)	4.29 (2.05)	

### 6.13 Table 13: Mental state

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	5.87 (0.28)	4.31 (0.28)	5.08 (1.64)
	effectiveness	of			
	mindfulness				
Low	Belief	of	5.09 (0.28)	4.03 (0.27)	4.55 (1.76)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			5.48 (1.35)	4.17 (1.79)	

### 6.14 Table 14: Awareness

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	4.10 (0.24)	3.47 (0.24)	3.78 (1.52)
	effectiveness	of			
	mindfulness				
Low	Belief	of	3.94 (0.24)	2.65 (0.23)	3.27 (1.35)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			4.02 (1.29)	3.05 (1.45)	

### 6.15 Table 15: Non-judging

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	3.55 (0.26)	3.47 (0.26)	3.51 (1.55)
	effectiveness	of			
	mindfulness				
Low	Belief	of	3.34 (0.26)	3.21 (0.25)	3.27 (1.33)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			3.34 (1.47)	3.33 (1.52)	

### 6.16 Table 16: Observation – Sense of sound

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	5.52 (0.25)	2.38 (0.24)	3.92 (2.13)
	effectiveness	of			
	mindfulness				
Low	Belief	of	5.31 (0.24)	2.15 (0.24)	3.68 (2.05)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			5.41 (1.38)	2.26 (1.36)	

**6.17 Table 17: Observation – Sense of smell**

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	6.16 (0.26)	3.75 (0.25)	4.94 (1.94)
	effectiveness	of			
	mindfulness				
Low	Belief	of	5.72 (0.25)	3.12 (0.25)	4.38 (1.85)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			5.94 (1.19)	3.42 (1.65)	

**6.18 Table 18: Observation – Sense of sight**

			High state of mindfulness	Low state of mindfulness	<i>M (SD)</i>
High	Belief	of	4.81 (0.28)	3.56 (0.28)	4.17 (2.04)
	effectiveness	of			
	mindfulness				
Low	Belief	of	4.63 (0.28)	2.09 (0.27)	3.32 (1.65)
	effectiveness	of			
	mindfulness				
<i>M (SD)</i>			4.71 (1.43)	2.80 (1.81)	

## **7. Discussion**

This study focuses on the influence that mindfulness meditation has on the attributions that we make. Thus, the research question is the following: How is mindfulness meditation influencing the attributions made about situations? In this study, two independent variables were manipulated: The state of mindfulness and the belief of effectiveness of mindfulness. Then there were 14 dependent variables manipulated: Situational attribution (context, task, and bad luck), dispositional attribution, prediction of future performance, prediction of successful delivery of report, perceived controllability, perceptions of motivation, perceptions of capability, attribution of blame, attribution of punishment, attribution of responsibility, mental state, awareness, non-judging, and observation (sense of sound, smell, and sight).

### **7.1 Summary of the results**

#### **7.1.1 Causal attributions**

Based on the result's section, the high belief of effectiveness of mindfulness led to lower dispositional attributions, while high state of mindfulness led to higher dispositional attributions. However, we are confident that high state of mindfulness leads to lower dispositional attributions because according to the cognitive bias theory, people tend to ignore factors that are relevant to a given scenario, and mindfulness has been proven to lessen these biases and increase attribution to the context. For instance, Weger, Hooper, Meier, and Hopthrow (2012) demonstrated that a brief mindfulness exercise reduced stereotype threat related to female mathematic performance. However, regarding attribution to context, we didn't find a significant main effect of both Independent variables, therefore we reject the hypothesis. Then, regarding attribution to the task, the high state of mindfulness led to significantly higher attributions to the task. However, we did not find a significant main effect of belief of effectiveness of mindfulness on situational attributions. Thus, for an individual to make more attributions to the task, one just needs to be in a high state of mindfulness and doesn't need to have a belief in the effectiveness of mindfulness. Finally, the high state of mindfulness led to lower attributions to bad luck, and we didn't find a significant main effect of belief of effectiveness of mindfulness on this variable.

### **7.1.2 Prediction of future performance and successful delivery report**

The high state of mindfulness led to significantly higher prediction of future performance, as well as the high belief of effectiveness of mindfulness led to significantly higher prediction of better future performance. This confirms our initial hypothesis. Then, even though we didn't find a significant main effect of state of mindfulness on this variable, the high belief of effectiveness of mindfulness led to significantly higher prediction of successful delivery of report. Thus, for an individual to make more predictions of successful delivery of the report, one just needs to have a high belief in the effectiveness of mindfulness, and it is not necessary to be in a high state of mindfulness.

### **7.1.3 Perceived Controllability, motivation, and capability**

The high state of mindfulness as well as the high belief of effectiveness of mindfulness led to significantly higher perceived controllability. This confirms our initial hypothesis. Then, even though we didn't find a significant main effect of state of mindfulness, the high belief of effectiveness of mindfulness led to significantly higher perceptions of motivation. Thus, for an individual to make more positive perceptions of motivation, one just needs to have a high belief in the effectiveness of mindfulness and doesn't need to be in a high state of mindfulness. Finally, the high state of mindfulness as well as the high belief of effectiveness of mindfulness led to significantly higher positive perceptions of capability. This confirms our initial hypothesis.

### **7.1.4 Attribution of responsibility, blame and punishment**

We didn't find a significant main effect of state of mindfulness nor belief of effectiveness of mindfulness on attribution of blame, even though both show to reduce it. Yet, we found a significant interaction between two Independent Variables. Low state of mindfulness with a low belief in effectiveness of mindfulness, and high state of mindfulness with a high belief in the effectiveness of mindfulness lead to lower attribution of blame. This shows we need both Independent Variables to lower attribution to blame. Then the high state of mindfulness as well as the high belief of effectiveness of mindfulness led to significantly lower attribution of punishment. This confirms our initial hypothesis. Finally, we didn't find a significant main effect of state of mindfulness nor the belief of effectiveness of mindfulness on attribution of responsibility. Yet, we found a significant interaction between the two Independent Variables. Low state of mindfulness with a low belief of effectiveness of mindfulness, and high state of mindfulness with a high belief in the effectiveness of mindfulness

lead to higher attribution of responsibility. This shows we need both Independent Variables to higher attribution to responsibility.

#### **7.1.5 Mental state, awareness, non-judging, and observation**

Based on the result's section, the high state of mindfulness led to higher mental state, but we didn't find a significant main effect of belief of effectiveness of mindfulness on this variable. Thus, for an individual to be in a higher mental state, one just needs to be in a high state of mindfulness, and it is not necessary to have a high belief in the effectiveness of mindfulness. Then, the high state of mindfulness as well as the high belief of effectiveness of mindfulness led to significantly higher awareness. This confirms our initial hypothesis. However, we didn't find a significant effect of state of mindfulness nor the belief of effectiveness of mindfulness on non-judging, therefore we reject the hypothesis. Then, the high state of mindfulness led to significantly higher observation (Sense of sound, smell, and sight). The high belief of effectiveness of mindfulness led to significantly higher observation (sense of smell and sight, but not sense of sound)

### **7.2 Theoretical implications**

Regarding causal attribution, the results show that participants in the condition of high mindfulness tended to have higher dispositional attributions and even though this wasn't our hypothesis, the literature can point to this tendency as it is stated by Yaacov Trope (2000) that attribution research has observed that perceivers often treat behavior as caused by personal dispositions even when the behavior is explained by immediate situational forces. Even though, according to the cognitive bias (CB) theory, mindfulness has been proven to lessen these biases and increase attribution to the context, we reported that individuals in this condition reported more dispositional attribution (Tim Hopthrowa, Nic Hooperb, Lynsey Mahmooda, Brian P. Meierc and Ulrich Wegerd, 2017). However, individuals in the condition of high belief of effectiveness of mindfulness reported less dispositional attributions, which can partially prove that mindfulness may actually lower the dispositional attributions. Moreover, in what regards the attribution to context, the results don't follow the same tendency as it is stated in the literature review. While in the results we reported that the two Independent Variables don't have a significant main effect in the attribution to the context, the literature review states that, mindfulness has been proven to increase attribution to the context, as we said earlier. However, the results point out to more attribution to the task and less attribution to bad luck, which match with our hypothesis.

Regarding prediction of future performance and successful delivery of report, these Dependent Variables have the same tendency as perceived controllability, perceptions of motivation and capability as they relate to each other. The high belief of effectiveness of mindfulness and the high state of mindfulness increase all these variables with exception for the high state of mindfulness that doesn't have a significant effect on successful delivery of report and perceptions of motivation. The results follow the same tendency of the literature review. Firstly, according to (Albert Bandura, 1989), people who are confident in their abilities find creative and persistent ways to exert some degree of control in situations with few possibilities and numerous restrictions, which shows why perceived controllability and perceptions of capability follow the same tendency in the result's section. Secondly, according to Locke, Frederick, Lee, and Bobko (1984), Taylor, Locke, Lee, and Gist (1984), and Wood, Bandura, and Bailey (in press), people set greater objectives for themselves and are more dedicated to achieving them the higher their perceived self-efficacy. Challenge goals increase motivation and performance attainments, according to a considerable body of literature (Latham & Lee, 1986; Locke, Shaw, Saari, & Latham, 1981; Mento, Steel, & Karren, 1987). This shows why the results of perceived controllability and perceptions of motivation follow the same tendency.

Regarding attribution of responsibility, blame and punishment, we reported that low state of mindfulness with a low belief in effectiveness of mindfulness, and high state of mindfulness with a high belief in the effectiveness of mindfulness lead to lower attribution of blame and to higher attribution of responsibility, and the high state of mindfulness as well as the high belief of effectiveness of mindfulness led to lower attribution of punishment. According to the literature, the same target might arouse sympathy when perceived to be innocent as opposed to blame when perceived to be responsible for his/her difficulty. This shows that when there is someone to blame, there is someone to be responsible for it. However, in the results, participants in the high state of mindfulness and high belief of effectiveness of mindfulness showed that they tend to lower the attribution to blame and higher attribution to responsibility which can be explained by the fact that even though an individual doesn't have to be blamed for something that he doesn't have fault, the individual is still responsible for the problem and for finding solutions (Tehila Kogut, 2011).

Regarding the dependent variables of mindfulness, the high state of mindfulness led to higher mental state, awareness, and observation, but didn't have a significant main effect on non-judging. The high belief of effectiveness of mindfulness didn't have a significant main effect on mental state, non-judging, and observation (sense of sound), but led to higher



awareness and higher observation (sense of smell and sight). In the literature review we saw that the term "mindfulness" refers to a practice that promotes openness, curiosity, and acceptance while fostering nonjudgmental awareness of the present moment experience, including the person's sensations, thoughts, physiological states, consciousness, and environment (Hofmann & Gómez, 2017). Therefore, the only variable that doesn't follow the same tendency as the literature review is the non-judging variable.

### **7.3 Practical implications**

There are several practical implications of how organizational dynamics can change as a result of mindfulness meditation, particularly in relation to the dependent variables studied.

Firstly, mindfulness meditation can lead to a shift in causal attributions, as individuals become more aware of their own thoughts and behaviors and the impact they have on their environment. This can lead to a greater sense of responsibility and accountability within the organization, as individuals take ownership of their actions and the outcomes they produce.

Secondly, mindfulness meditation can help individuals approach situations with a more balanced and non-judgmental perspective, which can reduce the tendency to assign blame or punishment to others. This can lead to a more collaborative and cooperative work environment, as individuals focus on finding constructive solutions rather than assigning blame.

Then, mindfulness meditation can help individuals better understand their own motivations and capabilities, as well as those of their coworkers. This can lead to a more accurate assessment of team strengths and areas for improvement, leading to more effective task allocation and goal setting within the organization.

Moreover, mindfulness meditation can help individuals develop a greater sense of control over their own thoughts and actions, leading to increased self-efficacy and a greater sense of agency within the organization.

Regarding prediction of future performance, mindfulness meditation can help individuals make more accurate predictions of their own and others' future performance by promoting greater self-awareness and focus. This can lead to more informed decision-making and goal setting within the organization.

In what regards the prediction of successful delivery of report, mindfulness meditation can help individuals approach tasks with a clear and focused mind, leading to improved planning and execution of projects and the successful delivery of reports.

Moreover, mindfulness meditation can help individuals regulate their emotions and

manage stress, leading to a more positive and productive mental state within the organization.

Finally, mindfulness meditation can help individuals develop greater awareness and observation skills, leading to improved perception and understanding of the dynamics within the organization.

## 8. Limitations

There are several potential limitations to a research study on mindfulness meditation. Firstly, there is a bias towards reporting positive experiences, which can lead to inaccurate results. This bias may have been influenced by social norms and expectations, as mindfulness meditation is often associated with positive outcomes and benefits. This bias can be particularly problematic if it leads to an overestimation of the benefits of mindfulness meditation, as it may not accurately reflect the experiences and outcomes of all participants. To overcome this limitation, we should have used multiple methods of data collection, such as interviews or observations, to triangulate the results and increase the reliability of the study.

Secondly, another limitation was the significant variability in the way that mindfulness meditation is practiced because it made it difficult to compare the results of different studies and to determine the specific factors that were responsible for any observed effects. This also made it difficult to replicate studies and to generalize the results to other populations or settings. To overcome this limitation, we focused on some papers that used brief mindfulness exercises as it was the method that we intended and was used in the survey.

Moreover, the complex terminology in meditation was also a limitation because it forced us to use simpler questions or eliminate certain potential questions out of the survey so that it would be widely understood by the general population. We adopted this simpler language so that people wouldn't feel discouraged to participate in the study or cause them to drop out. To overcome this limitation, we could have also provided clear definitions and explanations of the terms used, but we thought it would be overwhelming for the participants, so we just opted to use simpler language.

A brief meditation exercise was also a limitation because in every study we found, the exercises in practice were always practiced for weeks and days, while we had to adapt an exercise for a period of 1 minute. Meditation is a skill that requires practice and repetition in order to be effective, and a brief exercise may not provide enough exposure to the practice to produce significant changes. However, based on the result's section we reported that most of our initial hypothesis were met, even though if we had the chance to perform a meditation exercise for days or weeks, we predict that it would be more efficient and produce more effects on participants.

Finally, conducting a survey to study meditation may have had some limitations in comparison to a meditation intervention in person because a survey doesn't allow for an interaction with participants, which could provide valuable information about their experiences

and behaviors. Furthermore, with a survey we weren't able to control the environment in which the meditation practice was conducted. To overcome this limitation, we should have used a combination of survey and in-person meditation interventions.

## 9. Future Research

This section discusses potential research questions, dependent variables, and independent variables to consider in future studies on the relationship between mindfulness meditation and attributions, as well as how these results could be tested in different contexts and tasks.

There are three potential research questions that arise from this thesis. The first one is: How does the duration and frequency of mindfulness meditation practice impact attributions? The second one is: Does the type of mindfulness meditation practice influence attributions in different ways? The third one is: How does personality moderate the relationship between mindfulness meditation and attributions?

Some potential dependent variables to consider in future research include perceived stress, emotional intelligence, self-esteem, emotional regulation, work engagement, and job satisfaction. There are also several potential independent variables that could be included in future studies. These could include the specific mindfulness meditation intervention, the duration of mindfulness meditation practice, the frequency of mindfulness meditation practice, and personality.

To test these results in other contexts or organizational tasks, we could consider conducting studies in a variety of settings, such as educational institutions, healthcare organizations, or corporations. Additionally, researchers could consider using a variety of methods, including randomized controlled trials, longitudinal studies, and qualitative research, to examine the effects of mindfulness meditation on attributions and other dependent variables in these different contexts.

## **10. Conclusion**

In conclusion, the existing research suggests that the high state of mindfulness has a significant effect on attributions to personality, task, and bad luck, but not on context. It has a significant effect on prediction of future performance but not on prediction of successful delivery of report. It has a significant effect on perceived controllability and perceptions of capability, but not on perceptions of motivation. It has a significant effect on attribution of punishment, but not on attribution of blame and responsibility. It has a significant effect on mental state, awareness, and observation but not on non-judging. Then, the high belief of effectiveness of mindfulness has a significant effect on attributions to personality, but not on attribution to context, task, bad luck. It has a significant effect on prediction of future performance and prediction of successful delivery of report. It has a significant effect on perceived controllability, perceptions of motivation and perceptions of capability. It has a significant effect on attribution of punishment, but not on attribution of blame and responsibility, even though on this two Dependent Variables there is a significant interaction between the two Independent Variables. It has a significant effect on awareness and observation, but not on mental state and non-judging.

This research is important to understand the influence that mindfulness meditation has on the attributions we make in our daily lives, having the potential to change the way we perceive our situations by going more in depth in the attributions we make.

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