Dispositional Mindfulness and its relationship with health anxiety and illness anxiety: A perspective from Self-Determination Theory's basic psychological needs

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Abstract

Past research has shown strong relations between dispositional mindfulness and well-being. Few studies have examined dispositional mindfulness with health and illness anxiety. Far less research has examined the underlying mechanisms of this relationship. Self-Determination theory, a meta theory on human motivation that promotes the existence of three psychological needs (autonomy, competence, and relatedness) that are essential for human flourishing growth and well-being. We measured self-reported dispositional mindfulness, health anxiety, illness anxiety and basic psychological needs satisfaction in a heterogenous sample of 111 people (67.6% female and 31.5% male 0.9% Transman) aged between 19 and 66 years old. We hypothesized that higher dispositional mindfulness would result in lower anxiety scores and that the satisfaction of basic psychological needs will be a mediator in the relationship between dispositional mindfulness, health anxiety, and illness anxiety. Analyses revealed that self-reported mindfulness is inversely related to health anxiety and illness anxiety. Need satisfaction significantly mediated the relationship between dispositional mindfulness and health anxiety but was not a mediator between dispositional mindfulness and illness anxiety. This research may develop new insights into possible underlying mechanisms playing a role in the relationship between mindfulness and anxiety and creating a pathway for basic psychological needs to help improve efficacy of counselling settings and approaches in reducing psychological distress in clients.

Keywords: Dispositional Mindfulness, Health Anxiety, Self-Determination Theory, Basic Psychological Needs, Illness Anxiety.

Over the last couple of decades, it has been well documented that dispositional mindfulness is strongly related to well-being, the reduction of anxiety and depression (Brown, Creswell, Ryan, 2016). Despite the expanding body of literature much less research has examined the underlying mechanism that may lie underneath the relationship between mindfulness and anxiety. This present study looks to investigate the relationship between dispositional mindfulness on one hand, and anxiety, specifically health anxiety and illness anxiety on the other. Furthermore, we will be taking a closer look at what may explain the robust relationship between dispositional mindfulness and anxiety, examining in particular the role played by basic psychological needs.

Health and illness anxiety are characterized by the preoccupation with and fear of acquiring health problems and illnesses as well as the misinterpretation of symptoms. Illness anxiety and health anxiety formerly known in the DSM-IV as somatization disorder and hypochondriasis, respectively, have been relocated in the DSM-5 from Anxiety to Somatic Symptom and related disorders (American Psychiatric Association, 2013). As a group, anxiety and related disorders are characterized by one's response to interpretation of threat within themselves and their environment, by being rigid, narrowminded and quick to jump to conclusions, without being non-judgmentally aware of their internal and external situations (Roermer & Orsillo, 2009). A recent meta-analytic review of the quality of life of patients with anxiety and related disorders were found to have significant lower quality of life ratings compared to control samples. (Olatunji, Cisler & Tolin, 2007). In another study which investigated cognitive aspects of health and illness anxiety found that patients who suffer from both health and illness anxiety have cognitive distortions regarding a self-concept of being weak and unable to tolerate stress (Rief, Hiller, & Margraf, 1998). Furthermore, a meta-analysis conducted about the efficacy of cognitive behavioral therapies found that CBT was an efficacious method of treating anxiety disorders when it is compared to placebo (Carpenter,

Andrews, Witchcraft, Powers et al., 2018). Lastly, a study conducted by Ravensteijn (2016) investigated mindfulness based cognitive therapy for patients with somatoform disorders like health and illness anxiety and found a meaningful improvement in mental functioning. Preliminary findings suggest that health and illness anxiety are identified through ill-being, cognitive distortions and lower quality of life. It is known that lower levels of mindfulness are also associated with Generalized Anxiety Disorder and worry (Roemer., et al., 2009). This posits the question that higher levels of dispositional mindfulness may be related to lower levels of anxiety, in this case specifically health and illness anxiety.

Mindfulness is a term that is used frequently in research as well as daily life. However, there is a big debate over how mindfulness is to be defined. Mindfulness is defined by Brown and Ryan (2004, p.245) as the "open or receptive attention to and awareness of ongoing events and experience." That means to be open and nonjudgmental of the things that you are experiencing externally and internally in the present moment. We have opted to use the definition above however it is important to keep in mind that mindfulness is a concept that has yet to be clearly defined in one universal way. Two examples that have been cited frequently are: "Mindfulness means paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 1994, p. 4) and "A kind of nonelaborative, nonjudgmental, present-centered awareness in which each thought, feeling, or sensation that arises in the attentional field is acknowledged and accepted as it is" (Bishop et al., 2004, p.232). It stems from Buddhism and a strict singular definition of mindfulness cannot be found in any Buddhist canonical texts. (Analayo, 2013; Dreyfus 2011).

Mindfulness is in the spotlight when it comes to research about the positive connections it evidently has with physical and mental health. Hill and Updegraff (2012) investigated dispositional mindfulness and lower emotional lability and dysregulation in daily life and found that mindfulness predicted improvement in emotional regulation and regulation

of daily life. Further studies found that that mindfulness based cognitive training programs reduce anxiety by teaching an 'open hearted', open awareness, nonjudgmental moment to moment awareness, mindful state of mind that should decrease the anxiety responses (Kabat-Zinn, 2005). In other investigations the connection between mindfulness and healthy functioning was investigated and they found that students who practiced and used mindful thinking were acting and behaving in more healthy ways, such as sleeping a healthy amount, eating well and exercising well compared to those who did not perform mindful thinking (Gilbert & Waltz, 2010; Murphy et al., 2012; Robert & Danoffburg, 2010). Moreover, in a meta-analysis of mindfulness-based therapy, regarding mindfulness-based stress reduction among others found improvements in anxiety and depression (Hofmann, Sawyer, Witt & Oh, 2010). In another study conducted by Davidson and colleagues (2003) found that among healthy adult's mindfulness training reduced trait anxiety and other negative emotions. Previously mentioned evidence suggests that mindfulness is playing a role in reducing anxiety and increasing overall well-being psychologically and mentally, thus we will examine whether dispositional mindfulness is also related to health and illness anxiety specifically.

Self-Determination Theory (SDT, Ryan & Deci, 2000, 2017) is a meta theory of human motivation, healthy behavioral, psychological and physical well-being. At the heart of this theory is the process of basic psychological need satisfaction, essential to leading a life of psychological health and well-being and need frustration leads to psychopathology (Deci & Ryan, 2012; Ryan & Deci, 2000, 2017; Ryan, Deci, & Vansteenkiste, 2016). Basic psychological needs satisfaction is a framework provided by SDT and states that the deeply rooted psychological needs for autonomy, competence, and relatedness are deemed essential for optimal functioning. Autonomy revolves around behaving with a sense of volition and self-affirmation; competence involves feeling you are successful in reaching desired outcomes and goals, and relatedness consists of caring for and feeling cared for by others. However, a low

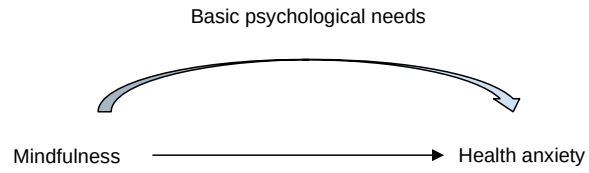
level of satisfaction is expected to impede growth. It can be harmful if these needs are frustrated, (i.e., need frustration). For instance, a colleague might feel low relatedness because they can't seem to get along with their colleagues, however, his colleagues could also be actively ostracizing him which would result in relatedness frustration or need frustration. Therefore, there is a difference between having low satisfaction of the needs compared to one having their basic psychological needs frustrated (Bartholomew et al. 2011; Vansteenkiste & Ryan, 2013). According basic psychological needs theory Deci & Ryan (2000) having one's psychological needs frustrated will eventually result in psychological dysfunction and even psychopathology such as anxiety or depression (Vansteenkiste, & Ryan, 2013). According to a study conducted by Rouse and colleagues (2019) need frustration of each of the needs exhibited significant positive relationships with symptoms of psychopathology such as anxiety, stress, and depression. Moreover, there is abundant research that has examined and found evidence for a strong relation between basic needs satisfaction and wellness with various studies showing needs satisfaction to be positively related to well-being and negatively related to ill-being such as anxiety or depression (Deci & Ryan, 2000). Given previous findings it suggests that basic psychological need satisfaction plays a key role in well-being and the reduction of symptoms of psychopathology. In addition, it is known that basic psychological needs are facilitated by higher levels of dispositional mindfulness (Deci & Ryan, 1980). It has been well documented that basic psychological needs satisfaction is related to greater performance, psychological health and well-being (Deci & Ryan, 2012, Ryan & Deci, 2000, 2017; Ryan, Deci, Vansteenkiste 2016).Therefore, we posit the assumption that there is a possibility of mediation by basic psychological needs theory among the previous mentioned possible relation between dispositional mindfulness, health anxiety and illness anxiety. We have opted to choose basic needs satisfaction as the mediator in our analyses since it is expected that people who live a life of optimal functioning and well-being (i.e lower anxiety and higher

dispositional mindfulness) generally have their basic psychological needs satisfied. Therefore, we expect that underlying the relationship of mindfulness and anxiety Basic psychological needs satisfaction is playing a role.

Present Study

Mindfulness means to be open and aware of internal and external situations and feelings without being judgmental (Brown & Ryan, 2004). In clear contrast to mindfulness, people who suffer from different kinds of anxiety have difficulty being open-minded and non-judgmentally aware of their surroundings and internal feelings and thoughts. When a person learns to be more 'open hearted' and non-judgmentally aware it reduces anxiety in general, this phenomenon posits the question whether having higher levels of dispositional mindfulness would also reduce anxiety about becoming sick or being sick and misinterpreting symptoms. In addition, if the satisfaction of a person's basic psychological needs are essential for optimal psychological functioning and well-being a question may arise. Based on their theory in order for human flourishing to take place basic psychological needs are expected to be playing a role. Hence, we propose two models to determine the relationship of dispositional mindfulness on the one hand and both health and illness anxiety on the other, examining the possible mediating effect of basic psychological need satisfaction (see Fig. 1). Hypothesis 1: We Expect higher levels of dispositional mindfulness to relate to lower scores on both health and illness anxiety, and Hypothesis 2: We expect both of these relations to be mediated by basic needs psychological satisfaction.

Model a.



Model b.

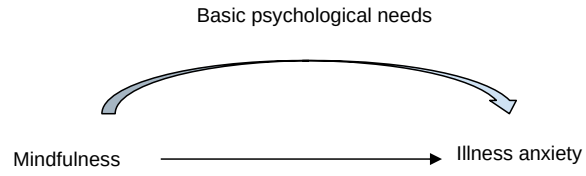


Figure 1. **Model a**. represents the relationship between mindfulness and health anxiety with basic psychological needs as a possible mediator. **Model b**. represents the relationship between mindfulness and illness anxiety with basic psychological needs as a possible mediator.

Method

Procedure

By means of a secure, safe and easily accessible online survey platform Thesis Tools people were invited to participate to fill in the anonymous questionnaire. All participation was voluntary. In the letter of consent participants have also been reassured that the information that they have given is confidential and anonymous. Participants were asked to give demographic information regarding age, gender, employment situation and the number of visits to the doctor and absences from work. Furthermore, participants were asked to fill out several scales; which are described below. The data was collected through convenience sampling.

Participants

A certain population was not specified during the course of data collection. In order to find the largest quantity of non-specific respondent's participants were recruited through social media, such as Facebook and Instagram. The only requirement being a minimum of 18 years old. 111 people took the survey for this study (67.6% female and 31.5% male 0.9% Transman) aged between 19 and 66 years old (M=25).

Measures

Dispositional Mindfulness. Mindfulness Awareness Attention Scale was be used in its English validated version. The MAAS (Brown & Ryan, 2003) is a self-report questionnaire measuring the frequency of mindfulness in everyday life. The scale is a 15 item self-report instrument that assesses each item on a six-point Likert scale, ranging from 1, "almost always" to 6, "almost never". High scores indicate a high level of mindfulness. Some examples are: "I find myself doing things without paying attention", ``I could be experiencing some emotion and not be conscious about it", "I find myself listening to someone with one ear, doing something else at the same time". (M = 3.86, SD = .84) Cronbach's α = .866

Whitley's Index. The Whitley Index (WI; Pilowsky, 1967) is a 14 item scale that has been translated from Dutch (WI-7: Fink, 1999) to be used for this research. Of the 14 items we used 7-items that have been selected and validated by Speckens and van Hemert (1996) which examine health anxiety and hypochondriasis. The questionnaire is quite short in length but has been tested for reliability and validity in previous research (Fink, 1999). The questionnaire is 7 items in length answered by simply selecting "Yes" or "No" to statements about ones health such as: "Do you think there is something wrong with your body?" "Do you worry about your health?". Answering "Yes" would score an individual 1 point and answering "No" would score 0 points. Cut-off for healthy population > 2.5, and cut-off for anxious population > 4.8.

Summing all of the items gave a Mean score of 1.85 and a Cronbach's α=.753 which shows relatively high internal consistency.

Illness Anxiety (PILL). Examining a general level of Illness anxiety, the Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, 1982) consists of a list of 54 items that describe symptoms of physical health (such as nausea, coughing, racing heart, itchy eyes). Participants score how frequently they experience such symptoms on a 5- point Likert scale, ranging from 1 = "have never or almost never experienced" to 5 = "More than once a week". Abundant research showed evidence for good internal consistency and validity (Gijbers Van Wijk et al, 1996; Pennebaker, 1982). Summing all of the items gave a Mean score of 57.85 (SD=29.36) and a Cronbach's α=.943

Basic Psychological Needs Satisfaction. The Basic Psychological Needs in General – General Measure. The questionnaire assesses "Feelings I Have" and participants must rate how true the statement (such as "I really like the people I interact with", "Often, I do not feel very competent" or "People I know tell me I am good at what I do") relates to their life. The 21 item scale demonstrates need satisfaction in one's life and was taken from a more widely used instrument of need satisfaction for work (Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva (2001). The scale is on a 7-point Likert scale ranging from 1 = "not at all true" 4 = "somewhat true 7 = "very true". The negative worded questions are followed by (R). Higher scores indicate higher levels of satisfaction of basic psychological needs. (M = 5.05, SD = .97) Cronbach's α = .898 which shows high internal consistency.

Results

Preliminary Analysis

To assess whether Gender and Age had a differential effect on the study variables we performed a preliminary analysis. Independent sample t-test showed there were no significant gender- differences in regard to dispositional mindfulness or Basic needs satisfaction.

Furthermore, age correlated significantly with basic needs satisfaction (r=.27, p < .001), Illness anxiety (r=.24, p < 0.01) and dispositional mindfulness (r=.36, p < .001). Based on these results, we decided to control for age in the primary analyses. Bivariate correlations between the measured variables are summarized below in Table 1.

Table 1.

Bivariate correlations between the studied variables

	1	2	3	4
1. Dispositional mindfulness	-			
2. Basic needs satisfaction	.46**	-		
3. Health Anxiety	-.26**	-.36**	-	
4. Illness Anxiety	-.38**	-.32**	.41**	-

Note. N =111 *p < .05 (2-tailed); ** p < 0.01.

The correlational analyses showed that both dispositional mindfulness and basic need satisfaction are negatively related to Illness anxiety and health anxiety.

Hypothesis 2 examined the relationship between dispositional mindfulness and health anxiety with basic psychological needs as a mediator. In order to investigate the mediating effect of basic psychological needs satisfaction on the relationship between dispositional mindfulness and health anxiety mediation analyses were conducted, followed by a bootstrap analysis (Hayes, 2013; Field, 2014). In line with the inverse relationship between dispositional mindfulness and health anxiety $r = -.264$, $p<.01$ we found a significant negative total effect $\beta = -.26$ $p<.01$ the direct effect was not significant $\beta = -.12$, $p = .24$. Furthermore, the indirect effect was significant $\beta = -.14$ CI [-.25, -.05]. Therefore, the hypothesis was confirmed that basic psychological needs is in fact a significant mediator of the relationship between dispositional mindfulness and health anxiety.

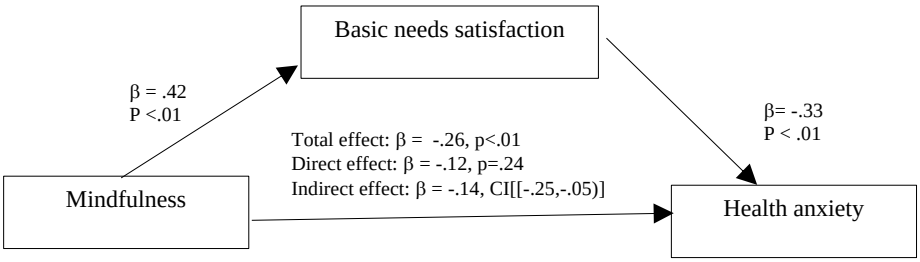


Figure 1. Model of Basic needs satisfaction as mediator between the variable's dispositional mindfulness and health.

Hypothesis 2 examined the relationship between dispositional mindfulness and illness anxiety and whether basic psychological needs had a mediating effect on the relationship between the two variables. In line with the negative correlation between dispositional mindfulness and illness anxiety (r= -.381, p<.01) we found a significant negative total effect between dispositional mindfulness and illness anxiety β= -.35, p<.001. In order to investigate the mediating effect of basic psychological needs on the relationship between dispositional mindfulness and illness anxiety mediation analyses were conducted, followed by a bootstrap analysis. (Hayes, 2013; Field, 2014). As for Basic psychological needs satisfaction as a mediator the indirect effect was not significant, β = -.08 CI [-.19, .0016). Therefore, the hypothesis was rejected. There is no significant mediation by basic psychological needs satisfaction on the relationship between dispositional mindfulness and illness anxiety.

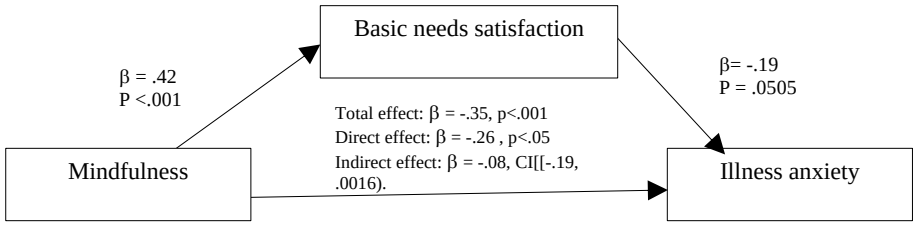


Figure 2. Model of Basic needs satisfaction as mediator between the variable's dispositional mindfulness and illness anxiety.

Discussion

The aim of this study was to first examine the relationship between dispositional mindfulness on the one hand and both health anxiety and illness anxiety on the other hand and to examine whether basic psychological needs satisfaction was a mediator of those associations. Previous research has found that dispositional mindfulness is beneficial on a range of mental well-being and physical well-being outcomes such as anxiety and stress, as well as, physical activity. (Broderick & Metz 2009; for review see Brown, Creswell and Ryan, (2016) for an overview). This present research confirmed our expectations that people who score higher on dispositional mindfulness had lower scores on both health anxiety and illness anxiety. An explanation for this outcome may be the clear contrast of a person's state of mind whilst engaging in mindful thinking compared to thinking in an anxious way. Thinking in an anxious way is characterized by having a rigid, judgmental relationship with internal and external responses and causes ill-being (Roemer & Orsillo, 2009). However, when a person engages in more mindful thinking and behaving, they employ a mindful state of mind (Brown & Ryan, 2004) which has been proven to reduce anxiety responses and symptoms (Kabat-Zinn, 2005).

Furthermore, partly in line with our expectations and building on previous research we found that basic psychological need satisfaction mediates the relationship between dispositional mindfulness and health anxiety. However, need satisfaction did not mediate the relationship of mindfulness and illness anxiety. The successful mediation may be explained by people who are more mindful experience more autonomy, relatedness and competence. Mindfulness contributes and plays a key role in the satisfaction of the three basic psychological needs; autonomy, relatedness and competence. Autonomy is facilitated by mindfulness

creating a pathway and allowing people develop a greater self-insight which allows for a person to behave and think in ways that are congruent with their values and needs (Deci & Ryan, 1985) which in turn satisfies the need for autonomy. According to Barnes and Colleagues (2007) dispositional mindfulness predicted relationship satisfaction and how much they invest in their relationships. This facilitates the satisfaction of the relatedness basic psychological need. Individuals who were more mindful showed less conflict after discussions, they showed less anger, anxiety and negativity. Also, people who had their relatedness need satisfied showed more love, commitment and support in their relationships and also experienced greater affect and have stronger and deeper relationships with people. In addition, they become better at completing tasks which increases satisfaction for the need of competence. Health anxiety on the other hand is focused on the preoccupation with and fear of becoming ill or being ill. This is caused by cognitive distortions, misinterpretation of bodily sensations and a preoccupation with fear. Higher levels of mindfulness allow for a more open-minded analysis of one's experiences internally and externally in the present moment. Thus, results in coping styles that are healthier, as well as perspectives that are based on reality rather than a misinterpretation or a cognitive distortion. This suggests that their misinterpretations of their bodily sensations as well as their cognitive distortions of their body would decrease as a result of having their basic psychological needs satisfied.

In contrast to our expectations there was no mediation on the relationship between dispositional mindfulness and illness anxiety by basic psychological need satisfaction. We expected that basic psychological needs satisfaction would reveal underlying mechanisms playing a role in the relationship between both health anxiety and illness anxiety due to their close proximity and the difficulty of distinguishing between the two types. Illness anxiety is characterized by the reporting of physical symptoms and is heavily focused on the behaviors of the individual. It is conceptualized as a behavioral disturbance rather than an emotional disturbance (Noyes et

al.,2006). Basic psychological needs satisfaction is paramount for psychological growth and healthy functioning. Thus, basic psychological need satisfaction was a mediator for health anxiety which is characterized more as psychological or emotionally distressing. However, seen as the over reporting of physical symptoms is rooted in cognitive distortions and misinterpretation, we found that this was not a valid explanation for there being no mediation. In addition, partly in line with our expectation that health anxiety and illness anxiety overlapped in conceptualization we found that there are difficulties in distinguishing health anxiety from illness anxiety while diagnosing, assessing and classifying (Noyes et al., 2006). Despite our hardest efforts we lack the resources and literature to interpret these findings. According to Noyes and colleagues' review of existing literature on hypochondriasis (health anxiety) and somatization disorder (illness anxiety) there is still a lot of research required to identify concrete differences between health and illness anxiety that lie within personality, emotions, somatic symptoms, illness behavior and beliefs which may explain why there is mediation with the health anxiety model as compared to the illness anxiety model.

This posits that previous research measuring the relationship between mindfulness and anxiety may need further examination because they may have unobserved variables that are playing a role in the relationships. This may facilitate further research because the direct relationship between mindfulness and anxiety needs further investigation to see whether basic psychological needs might also play a role in the relationship between dispositional mindfulness and other anxiety related variables.

Clinical Implications

The results of this study may have potential value for clinical practice. Mindfulness is in the clinical spotlight with Mindfulness-based stress reduction and cognitive therapy programs. In a systematic review multiple studies supported the fact that practicing

mindfulness is beneficial in terms of reducing anxiety, stress and depression symptoms as well as benefiting clients in relapse prevention regarding anxiety and depression. (Fjorback et al., 2011). Our research supports these findings that higher levels of dispositional mindfulness, which can be improved through mindfulness exercises and programs such as Mindfulness Based Stress reduction (MBSR) and Mindfulness based cognitive therapy (MBCT), results in lower health and illness anxiety. Furthermore, basic psychological needs satisfaction was a mediator in the relationship and this may have implications in clinical treatment seen as there are more variables possibly playing a role between the relationship of mindfulness and anxiety, more specifically health anxiety. Fortunately, practicing mindfulness allows people to have a more mindful approach which is known to facilitate basic psychological needs satisfaction, which in turn yields psychological well-being and physical health. In a study done by Weinsten, Legate, Khabbaz (2016) examined 'need engaging' activities which showed reduced symptoms of GAD and depression among Syrian refugees over the period of just one week. This shows that psychological needs satisfaction can be improved by engaging in 'need engaging' activities. An activity that they included in their research to improve feelings of competence was teaching someone a skill that you are skilled at. Such as: cutting an individual's hair in a certain style or cooking a certain dish. In another paper written by Ryan and colleagues (2011) found evidence across a wide range of clinical treatment settings and approaches that patient motivation is paramount and predictive of treatment effectiveness. Underlying various approaches and counseling settings patient's motivation is predictive of treatment effectiveness across the board. Although there is a lack of evidence supporting this, the body of research focusing on patient's motivation within a clinical setting is vastly growing.

This may provide clinicians with a more transparent view of the effects of dispositional mindful awareness on problems with physical health awareness or anxiety, as well as the potential benefits of bringing a focus on basic psychological needs satisfaction to increase well-

being and improve treatment effectiveness across various clinical settings and counseling approaches. Furthermore, dispositional mindfulness and basic needs satisfaction might play a main role in future investigations and clinical practice regarding health anxiety and other anxiety related disorders, as well as becoming a strong facilitator of well-being and treatment effectiveness within non-clinical and clinical settings.

Overall the findings of this research suggest there is a strong connection between people who have a higher frequency of mindful states and people who are worried about their health. Given the large of amount of research showing that mindfulness training increases the frequency and quality of mindful states reduces anxiety, rumination and stress. It seems evident that it would also reduce anxiety and stress in terms of one's health and illness. (Coholic et al., 2012; Kabat-Zinn, 2005; Kerrigan et al., 2011).

Strengths and Limitations

Some limitations must be kept in mind when looking at the findings of this study. Firstly, our study was of a cross-sectional design and the data cannot be used to assess cause and effect, because it is just a snapshot of data. We cannot examine changes over time and therefore we cannot make a proper generalization of the population based on this sample. Secondly, convenience sampling was used and this had an effect on the generalizability and all participants were recruited through Facebook groups and Instagram posts or through the researcher's network, such as family or friends. Further investigations should focus on drawing a more diverse population to see whether this effect is universal. Thirdly, to imply clinical suggestions based on our research findings would need further investigation of clinical population samples. Therefore, if one were to evaluate possible clinical implications of this research a focus on a clinical sample would be a better representative for this community. Thirdly, MAAS is a reliable instrument to test for dispositional mindfulness and Baer and

colleagues (2006) found that self-report assessments of mindfulness have good psychometric properties. However, further research may include other experience-based mindfulness assessments to evaluate further relationships between mindfulness and health anxiety. For example The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006; Baer et al., 2008; Van Dam, Earlywine, & Danoff-Burg, 2009) which is to date the widest and most applied questionnaire for mindfulness investigations, explores five facets or dimensions of mindfulness in the entire questionnaire. The different facets included in the FFMQ are observing, describing, acting with awareness, non-judging of inner experience, and non-reactiveness to inner experience. A strength of this item is that it utilizes a factor analysis of the five most widely used measurements regarding mindfulness. Fourth, PILL is also a reliable instrument to measure illness anxiety however further research may include more instruments that evaluate other anxiety measures to further investigate the relationship mindfulness has with other types of anxiety and or hypochondria. Also, the PILL was a self-report questionnaire filled in by the participants and there was no controlled setting, in other words, participants completed the questionnaire at their own leisure in a place of their own choosing. Even though our Cronbach's alpha showed good reliability and consistency a more controlled setting and other non-self-report data may produce different findings.

Conclusion

This study examined the relationship between dispositional mindfulness on the one hand and both health and illness anxiety on the other and whether these relationships were mediated by basic psychological needs. The mediation analysis found that basic needs satisfaction is a mediator regarding the relationship between dispositional mindfulness and health anxiety anxiety, but not of illness anxiety. All throughout research we see basic psychological needs playing a key role in therapy and counselling processes as well as treatment effectiveness. This warrants the growing body of literature examining the benefits that basic psychological needs

can bring to the table in clinical but also in non-clinical settings. In conclusion, further research may focus on improving treatment efficacy by integrating parts of basic psychological needs satisfaction in therapy approaches and counseling methods in order to reduce psychopathology as well as testing for possible mediation in further analyses involving basic psychological needs satisfaction.

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