

**PARTICIPANTS' OUTCOME EXPECTATIONS AND
CHANGES IN WELL-BEING AND ILL-BEING IN
MINDFULNESS BASED INTERVENTION FOR
BURNOUT**

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MÄKINEN, KATI: Intervention vaikuttavuutta koskevat odotukset ja hyvinvoinnin muutokset tietoisuustaitopohjaisessa työuupumusinterventiossa

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Tietoisuustaitopohjaisten interventioiden tuloksellisuudesta työuupumuksen hoidossa Suomessa on vielä vähän tutkimustietoa. Hoitoa koskevien odotusten yhteyttä hoidon tuloksellisuuteen tietoisuustaitopohjaisissa interventioissa on myös tutkittu vähän. Tämän tutkimuksen tarkoituksena oli tarkastella tietoisuustaito-, hyväksyntä- ja arvopohjaiseen menetelmään perustuvaan ja työuupumuksen hoitoon tarkoitettuun Muupu-interventioon osallistuneiden (n = 88) psyykkisen hyvinvoinnin ja työpahoinvoinnin muutoksia sekä hoitoa koskevien odotusten yhteyttä näihin muutoksiin. Itsearvioitua psyykkisen hyvinvoinnin muutosta mitattiin emotionaalisen-, psykologisen- ja sosiaalisen hyvinvoinnin mittareilla. Työpahoinvoinnin muutosta mitattiin itsearvioinnein stressi-, työuupumus -ja työkykymittareilla. Intervention vaikuttavuutta koskevia odotuksia mitattiin tutkimusta varten rakennetulla kyselyllä, joka arvioi osallistujien toiveikkautta muutoksen suhteen sekä uskomuksia intervention tehokkuudesta muutoksen aikaansaamisessa. Toistomittausanalyysi osoitti, että osallistujien psyykinen hyvinvointi lisääntyi ja työpahoinvointi väheni merkittävästi intervention aikana. Muutos työpahoinvoinnissa ja työkyvyssä oli myönteisintä niillä osallistujilla, joilla oli korkeat intervention vaikuttavuutta koskevat odotukset. Psyykkisen hyvinvoinnin muutoksen ja odotusten välillä ei ollut merkittävää yhteyttä. Tutkimustulokset tukevat tietoisuustaitopohjaisten interventioiden tuloksellisuutta työuupumuksen lievittäjänä sekä interventiota koskevien odotusten myönteisyyden merkitystä tässä muutoksessa.

Avainsanat: vaikuttavuusodotukset, tietoisuustaidot, hyväksyntä, arvotyöskentely, hyvinvointi, työpahoinvointi, työuupumus

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MÄKINEN, KATI: Participants' outcome expectations and changes in well-being and ill-being in mindfulness based intervention for burnout

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The effectivity of mindfulness based interventions for burnout has not yet been widely investigated in Finland. There is also only a few studies about the relationship between patient outcome expectations and treatment outcome in mindfulness based interventions. The aim of this study was to investigate the interaction between participants' outcome expectations (n = 88) and changes in well-being and ill-being after mindfulness-, acceptance- and value based intervention for burnout (Muupu-program). Well-being was measured at two time points by self-assessments of emotional-, psychological- and social well-being. Ill-being was measured by self-assessments of stress, burnout and work ability. Outcome expectations were assessed by measurement constructed for the study. Result of repeated measures indicated that well-being increased and ill-being decreased significantly between the measurements. The change in ill-being and work ability was most positive in a group of high outcome expectations. Result supports the suitability of mindfulness based interventions for reducing burnout and the importance of positive outcome expectations in the treatment process.

Keywords: outcome expectations, mindfulness, acceptance, values clarification work, well-being, ill-being, burnout

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INTRODUCTION

Well-being and ill-being

Mental health is not only the absence of mental illness but requires also the presence of subjective well-being; the presence of positive affect and psychosocial functioning (Keyes, 2002; Keyes, 2005; Robischek & Keyes, 2009). Mental health and mental illness, in other words mental well-being and ill-being, are distinct but correlated dimensions (Keyes, 2005; Ryff et al., 2006; Ryff & Keyes, 1995). According to Keyes' tripartite model (2002), well-being consist of emotional (life satisfaction and positive affect), psychological (thriving in personal life) and social well-being (thriving in social life). Ill-being in turn includes major psychological disorders described in DSM-IV (Keyes, 2005). The functioning axiom of the complete health model proposes different continuums of mental health, depending on presence or absence of mental illness and the extent of well-being (Keyes, 2005).

Individuals can show high levels of both ill-being and well-being or be free from major psychological disorders, but lack meaningful life engagement (Keyes, 2002; Ryff, et al., 2006). Completely mentally healthy adults, who can be described as flourishing with high levels of subjective well-being and lack of mental illnesses, have reported the fewest health related limitations in everyday life, the fewest missed days of work, the fewest half-day work cutbacks, and the healthiest psychosocial functioning (Keyes, 2005).

Burnout

Burnout is a syndrome characterised by employee's cognitive and emotional exhaustion, mental distancing from the task (cynicism) and reduced professional efficacy (Maslach & Jackson, 1981; Maslach, Schaufeli & Leiter, 2001; Schaufeli, 2003). It is associated with many stress-related symptoms as sleep disturbance, irritability, tension headaches, inability to relax (Schaufeli, 2003) and when sever, also with the major depression (Ahola et al., 2005) and cognitive impairments like reduced cognitive flexibility (see Beck, Gerber, rand , Pühse & Holsboer-Trachsler, 2013). About 2 % of Finnish working population aged 30–64 years, suffered from severe burnout and almost every fourth had experienced milder burnout symptoms in year 2011 (Suvisaari et al., 2012). The most frequently used treatments for severe burnout in Finnish work health care are occupational interventions, pharmacotherapy, non- vocational rehabilitation and individual-focused interventions like counselling or psychotherapy (Ahola et al., 2007). Because of the long-term negative effects of burnout on well-being and life satisfaction (Hakanen & Schaufeli, 2012; Schaufeli, 2003), it's

important to investigate the factors that promote the positive change in treatments of burnout. It is also important to consider the positive change not only as a decrease in symptoms related to burnout but also as a change in individual's subjective well-being.

Mindfulness and acceptance based processes and patient expectations: theoretical and empirical associations

Mindfulness based interventions have showed their effectiveness in treatment of stress (Poulin, Mackenzie, Soloway, & Karayolas, 2008), depression (Dimidjian et al., 2014; Teasdale, Segal, Williams, Ridgeway, & Soulsby, 2000) and in recent years also in treatment of burnout (Bazarko, Cate, Azocar, & Kreitzer, 2013; Goodman & Schorling, 2012). In fact, Vilardaga et al. (2011) have found in their survey, that mindfulness and values-based processes have a stronger and more consistent relationship with burnout reduction than work-site factors. Studies have also revealed positive associations among measures of emotional, psychological and social well-being and mindfulness (Howell, Digdon, Buro & Sheptycki, 2008; Howell, Dopko, Passmore and Buro, 2011). In their review Philippot and Segal (2009) refer to meta-analyses that have showed a medium effect size of mindfulness interventions on psychological variables.

According to Ludwig & Kabat-Zinn (2008, 1350–1351): “Mindfulness refers to a meditation practise that cultivates present moment awareness... The goal of mindfulness is to maintain awareness moment by moment, disengaging oneself from strong attachment to beliefs, thoughts, or emotions, thereby developing a greater sense of emotional balance and well-being.” The goal of mindfulness practise is closely related to acceptance, a central concept in Acceptance and Commitment Therapy (*ACT*; see Hayes, 1987), that refer to experiencing events actively and nonjudgmentally as they are; feelings as feelings, thoughts as thoughts (Hayes, 2002). Mindfulness and acceptance based interventions can increase person's psychological flexibility: contacting the present moment consciously and persisting or changing behaviour in the direction of chosen values (Hayes & Plumb, 2007).

Effectivity of mindfulness based interventions, like mindfulness based cognitive therapy (*MBCT*; Teasdale, Segal & Williams, 1995), as well as *ACT* (Hayes, 1987), can be explained by Relational frame theory (*RTF*; Hayes & Hayes, 1992; Hayes, 2002; Hayes, 2004; Hayes & Plumb, 2007). According to Hayes and Plumb (2007) verbal problem solving is based on the human ability to predict, evaluate and compare potential outcomes of events, using symbols that are only arbitrarily related to the events being thought about. This adaptive functioning becomes maladaptive, when people begin to “live in their heads” relying more on verbal rules than on direct experience. Because

even thoughts can lead to pain through memories triggered by relational frames, people learn to avoid unpleasant thoughts and feelings that would be necessary for valued actions. Mindfulness and acceptance can change this process by cognitive defusion; changing the way an individual relates to unpleasant private experiences such as thoughts or feelings by exposure in non-evaluative way (Hayes, 2002; Hayes & Plumb, 2007).

Expectations in turn are belief based cognitions regarding a probable future event or condition (Constantino, Arnkoff, Glass, Ametrano & Smith, 2011; Schulte, 2008). Patient's expectations about the treatment have been considered as one of the common factors affecting the outcome in psychotherapy and other psychological interventions (Lambert, 1992; Miller, Duncan, & Hubble, 1997; Sprenkle & Blow, 2004; Thomas, 2006). Outcome expectations are patient's prognostic beliefs about personal efficacy of a treatment and the consequences of undergoing therapy (Constantino et al., 2011; Schulte, 2008). Outcome expectations are malleable and influenced by the information and patient's previous and current experiences about treatments (Constantino, 2012; Schulte 2008).

Even if hope can be considered as reflecting more general anticipation to the future (Constantino, 2012), positive outcome expectations are often related to hope and remoralization; patient's beliefs that change is possible and that treatment can affect the change (Constantino, Ametrano, & Greenberg, 2012; De Fife & Hilsenroth, 2011; Frank, 1973; Howard, Moras, Brill, Martinovich, & Lutz, 1996; Schulte, 2008). In addition, the outcome expectations are often considered similarly to credibility beliefs that are patient's evaluations about how convincing treatment appears to be (Constantino, 2012; Mooney et al., 2014). Outcome expectations can be distinguished from motivation and treatment preferences, because these two don't always correspond to a belief that a certain treatment will help (Constantino, 2012). Treatment expectations in turn reflect beliefs about the treatment process; what will happen in therapy, duration of treatment and the roles that the patient and therapist will adopt (Constantino, 2012; Schulte, 2008). Finally, efficacy expectations are persons' beliefs about whether or not they can carry out the desired behaviour in therapy or back at home (Schulte, 2008). There have been published at least five measures of psychotherapy outcome expectations and most of them assess also perception of credibility beliefs or treatment expectations (Constantino et al., 2012; Schulte, 2008).

One can see a theoretical discrepancy between the mindfulness training and patient expectations. In mindfulness-based interventions the focus is on learning to maintain awareness on a present experience in non-judgemental way, while expectations are directed to the future conditions in an evaluative manner. That raises a question about the relations between patient expectations and treatment outcomes in mindfulness-based interventions.

Empirical associations between outcome expectations, treatment outcome and mindfulness based interventions

The results on association between patient's expectations and treatment outcome have been inconsistent (Schulte, 2008). While many studies have indicated a significant relationship between expectations and treatment outcome (Constantino et al., 2011), others have showed no relationship or mixed findings (see Barber, Zilcha-Manoi, Gallop, Barret, McCarthy, & Dinger, 2014; Coppock, Owen, Zagarskas, & Schidt, 2010; Webb, Kertz, Bigda-Peyton, & Bjorgvinsson, 2013). Inconsistency in results can depend on differences between studies; how treatment outcome is operationalized, timing of the expectation measurement in treatment process, type of expectation measurement and treatment been used and on differences between patients' diagnoses (Schulte, 2008). Schulte (2008) has found, that the relation between outcome expectations and treatment outcome have been found more often in studies, when the outcome is measured as a level of symptom post scores than as symptom change scores. Constantino et al. (2011) have found in their meta-analysis a small but significant positive effect of expectations on post treatment symptomatology.

Highly optimistic expectations are often associated with better treatment outcome (Constantino et al., 2011; Noble, Douglas, & Newman, 2001; Price, Anderson, Henrich, & Rothbaum, 2008). In fact, highly positive expectations have been indicated to have important role through therapeutic alliance in different treatments (Ahmed, Westra & Constantino, 2012; Constantino, Arnou, Blasey, & Agrass, 2005; Johansson, Høglend & Hersoug, 2011; McClintock, Anderson, & Petrarca, 2015; Meyer et al, 2002; Westra, Constantino & Aviram, 2011). High outcome expectations are also found to predict lower dropouts, higher homework compliance and greater reduction of depression in MBCT (Snippe et al., 2015). Highly psychologically minded persons, who can be described as psychologically healthy and flexible have also higher outcome expectations (Beitel, Ferrer & Cecero, 2005; Beitel et al., 2009).

On another hand, both unrealistically high and unrealistically low outcome expectations have been assessed by psychologists as detrimental for counselling process (Tinsley, Bowman & Barich, 1993). Higher baseline outcome expectations are also related to less improvement in anxiety symptoms in cognitive behavioral therapy for depression (Tsai, Ogrodniczuk, Sochting and Mirmiran, 2014). There's also evidence from qualitative studies, that in mindfulness based interventions patients might benefit from moderate outcome expectations (Mason & Hargreaves, 2001; Wyatt, Harper, & Weatherhead, 2014). A study of Mason and Hargreaves (2001) showed, that compared to highly optimistic or unrealistic expectations, participants' flexible expectations about

MBCT led to higher meditation skills and better therapeutic change. Wyatt et al. (2014) found in their meta-synthesis of 15 qualitative studies about mindfulness based group interventions, that very high expectations were likely to lead to a disappointment with treatment outcomes. They came into conclusion that maybe the open-minded approach to mindfulness leads to more positive experiences of the intervention because of its accordance with the non-judgemental attitude promoted by mindfulness.

Mixed empirical findings about the relationship between expectations and treatment outcome in mindfulness-based interventions (see Mason & Hargreaves, 2001; Snippe et al., 2015; Wyatt et al., 2014) can partly depend on different research methods but the relation between these two still remains unresolved. Even if hope and realistically positive outcome expectations undoubtedly have favourable impact on treatment process (Constantino et al., 2011), extremely high expectations may have negative effects on outcome. Apparently there are no studies so far, that have examined the relationship between patient expectancy level and treatment outcome in mindfulness based intervention for burnout. In addition, no studies were found about the relations between patient expectations and changes in well-being. The aim of this study was to examine the relationships between participants' outcome expectations and changes in well-being and ill-being in mindfulness based intervention for burnout.

The present study addressed following two questions and hypotheses:

Research question 1: Is there a significant change in positive direction in well-being and in ill-being after the intervention?

Hypotheses 1: It was hypothesized, that there would be a significant difference in positive direction between the pretreatment and posttreatment measurements in all measurements of well-being and ill-being.

Research question 2: Does the level of expectations predict the changes in well-being and ill-being?

Hypotheses 2: It was hypothesized, that there would be a more positive change in well-being and ill-being in a group of moderate expectations than in groups of low and high expectations based on above mentioned theoretical accounts and findings (Ludwig & Kabat-Zinn, 2008; Mason & Hargreaves, 2001; Wyatt et al., 2014).

METHOD

This study used a part of a dataset collected within Muupu-research program (“The Effectiveness of Mindfulness Practices in the Recovery of Burnout”) at Jyväskylä University, Department of Psychology in year 2013. Muupu-research program is funded by The Social Insurance Institution of Finland and registered to ClinicalTrials.gov.

Sample attrition and participants

Participants were recruited to Muupu-program using announcements in newspaper and webpage or through work health care. Enrolling to the study happened through a specific webpage, and was open for everyone interested in the study. Participants were selected based on information given in enrolling questionnaires and in the selection interview. Inclusion criterias for participation in the program were the following four: person needed to be 25 – 60 years old, currently in the working life, belong to the group of most exhausted workers in Finland (the BBI cut-off was set at the 75 percentile of age group, reported in the manual by Näätänen et al., 2003) and have daily access to the internet. Exclusion criterias were following: regular psychotherapy, acute pharmaceutical changes, psychological or somatic conditions or other practical reasons that could impede the participation in the program.

Participants of Muupu-research were paired based on gender, age and educational background. After that each pair was randomly divided to mindfulness intervention group (10 separate groups, n = 109) and to a TAU-group (treatment-as-usual in Finland, 10 separate groups, n = 109). Participants at two pilot mindfulness groups (n = 27) did not participate to the randomization procedure. The pilot mindfulness group participants fit the inclusion criteria, except for two individuals.

Because this study concerned the effectivity of the intervention and relation between the expectations and intervention outcome, only the mindfulness intervention group and the pilot mindfulness group were included in this study. Data from those participants, who had answered to all seven measurements relevant in this study, were included in analyses (N = 88, pilot mindfulness n = 6, mindfulness intervention group n = 82). Majority of participants were women (78 %). The average age of participants’ was 47.5 years (range 29 – 59 years). Most of participants (65%) were highly educated (had at least a lower university degree). Majority were working at the time of first measurement (98%) and two persons were on a short sick leave from work when accepted into the study.

Intervention

Muupu-program is a mindfulness-, acceptance- and value-based (MAAV) intervention that was created by using an approach presented by Williams & Penman (2011). The program has roots in Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT). Value-based components and practices of ACT (see Hayes, 2004) were added to the Muupu-program.

The intervention was delivered using 8-week face-to-face group meetings combined with web-based material. Purpose of the program was to increase participants' mindfulness skills, acceptance and non-judgmental attitude towards oneself and others. Furthermore, the intervention aimed to clarify individual values and to encourage participants to perform value-based actions in their daily lives. The intervention was delivered by two researchers in the Muupu-research group, who had education and experience of the MAAV-interventions.

Measures

Respondents in Muupu-program received personalized web questionnaires at four time points during the program. In current study, data from the first two time points of measurements were used; Participants' thoughts about the Muupu-program were measured before the intervention (pre-treatment measurement) and well-being and ill-being were measured before and after the intervention (pre- and posttreatment measurements).

Thoughts about the Muupu-program

Expectation measurement used in this study was based on a questionnaire *Thoughts about the Muupu-program* that was constructed for the Muupu-research program. The questionnaire consisted of following six items (The original items in Finnish are presented in Appendix A): (1) "How familiar are you with the mindfulness training?" (N = 88, M = 2.01, SD = 0.795), (2) "How motivated are you to participate in the program?" (N = 84, M = 4.73, SD = 0.475), (3) "How do you believe to benefit from the program?" (N = 85, M = 4.22, SD = 0.730), (4) "How much do you believe in possibility of change in your life?" (N = 88, M = 3.97, SD = 0.686), (5) "How effective do you think the internet-based training program will be?" (N = 88, M = 3.58, SD = 0.723), (6) "Do you believe, that you can take enough time for your daily exercises within a training program?" (N = 84, M = 4.32, SD = 0.584).

Responses were rated on a five-point scale ranging from 1 ("completely disagree") to 5 ("completely agree"). The Cronbach's alpha of the questionnaire was .608.

Measures of well-being

Life Satisfaction Questionnaire (LSQ; Pulkkinen, 2005) was used to measure person's satisfaction in seven areas of life; satisfaction for choice of an occupation and occupational situation, present intimate relationship, housing, financial situation, leisure time and friendly relationships. LSQ scale consists of 7 items and responses are rated on a four-point scale ranging from 1 ("very unsatisfied") to 4 ("very satisfied"). The Cronbach's alphas in this study were .495 at the pretreatment measure ($M = 20.14$, $SD = 2.54$) and .671 at the posttreatment measure ($M = 21.25$, $SD = 2.76$).

Psychological well-being was measured by *The Ryff Scales of Psychological Well-Being (Ryff, 1989)*. The questionnaire consists of 18 items that measure the six domains of psychological well-being (self-acceptance, positive relationships with others, environmental mastery, autonomy, purpose in life, and personal growth) but in this study, only the total score was used. Responses in the questionnaire are rated on a four-point scale ranging from 1 ("completely disagree") to 4 ("completely agree") and higher total score reflect the better psychological well-being. The scales of 18-item version of psychological well-being have shown modest internal consistency (Ryff & Keyes, 1995). In this study, the Cronbach's alphas were .728 at the pretreatment measure ($M = 53.80$, $SD = 6.24$) and .713 at the posttreatment measure ($M = 56.55$, $SD = 5.92$).

Social well-being was measured by short version of *Keyes's Scales of Social Well-being (Keyes, 1998;2005)*. The questionnaire operationalizes how much individuals see themselves thriving in their public, social life. It comprises 15 items that measure five dimensions of social well-being (social-acceptance, social actualization, social contribution, social coherence and social integration) but in this study, only the total score was used. Responses are rated on a four-point scale ranging from 1 ("completely disagree") to 4 ("completely agree") and higher total score reflect the higher well-being. The scales of 15-item version of social well-being have shown modest-to-excellent internal consistency (Keyes, 1998). The Cronbach's alphas in this study were .687 at the pretreatment measure and .758 ($M = 42.53$, $SD = 5.03$) at the posttreatment measure ($M = 45.02$, $SD = 5.51$).

The scores of LSQ, The Ryff Scales of Psychological Well-Being and Distress Questionnaire were summed to form a score of well-being. Higher score reflected better well-being. The

Cronbach's alphas for well-being were .652 at the pretreatment measure ($M = 116.47$, $SD = 11.18$) and .693 at the posttreatment measure ($M = 122.82$, $SD = 11.65$).

Measures of ill-being

Burnout was measured by *the Bergen Burnout Indicator (BBI-15)* (Näätänen et al., 2003). The BBI-15 scale comprises 15 items that measure three dimensions of burnout (exhaustion, cynicism and reduced professional efficacy), but only the total score of burnout was used in this study. Responses are rated on a six-point scale ranging from 1 ("completely disagree") to 6 ("completely agree") and higher scores reflect more severe burnout. BBI-15 has shown a good reliability and validity in a Finnish occupational sample (Salmela-Aro, Rantanen, Hyvönen, Tilleman, & Feldt, 2011). The Cronbach's alphas in this study were .799 at the pretreatment measure ($M = 56.77$, $SD = 10.15$) and .906 at the posttreatment measure ($M = 47.15$, $SD = 13.77$).

Stress was measured by *the Perceived Stress Scale (PSS)* (Cohen et al., 1983). PSS comprises 10 items and responses are rated on a 5-point scale ranging from 0 ("never") to 4 ("very often"). As follows, the higher total score reflect higher perceived stress. The Cronbach's alphas were .855 at the pretreatment measure ($M = 19.77$, $SD = 5.35$) and .881 at the posttreatment measure ($M = 14.50$, $SD = 5.81$).

Work ability was measured by modified version of *Work Ability Questionnaire (WAI)* (Ilmarinen, 2007; Rautio & Michelsen, 2012) along with Sipponen et al. (2011). The modified scale measures person's ability to work by seven dimensions related to the person's health and resources; (1) Personal prognosis of work ability 2 years from now (1 = hardly, 2 = not sure, 3 = fairly sure), (2) Subjective estimation of current work ability compared with lifetime best (from 1 = I am not able to work at all to 10 = I am able to do my best at work), (3) Perceived health (from 1 = poor to 5 = good), (4) Perceived stress (from 1 = a lot to 5 = not at all), (5) Recovery from work (from 1 = poorly to 5 = well), (6) Worries about melancholy, depression or hopelessness during past month (1 = yes, 2 = no), (7) Worries about lack of interest or unwillingness during past month (1 = yes, 2 = no). Only the total score of work ability was used in this study. All the items were reversed, so that they would be in the same direction as other two measures of ill-being. As follows, the higher score reflected inferior work ability. The Cronbach's alphas were .723 at the pretreatment measure ($M = 17.61$, $SD = 3.77$) and .788 at the posttreatment measure ($M = 14.90$, $SD = 3.95$).

The scores of BBI-15, PSS and TKI were summed to form a score of ill-being. Higher score reflected more severe ill-being. The Cronbach's alphas for ill-being were .680 at the pretreatment measure ($M = 94.16$, $SD = 16.33$) and .704 at the posttreatment measure ($M = 76.55$, $SD = 21.22$).

Statistical procedure

Phase 1: Forming an expectation measurement

The statistical analyses were conducted by Statistical Package for the Social Sciences (SPSS), version 22. Principal component analysis with varimax rotation was used to explore the structure of questionnaire "Thoughts about the Muupu-program". The aim was to investigate, what items would load on the same components and whether the solution would be theoretically reasonable.

Phase 2: Classification of participants into expectation level groups

Participants were arranged according to distribution of expectations into three groups; low expectations (cut of set at - 1 SD from mean), moderate expectations (between - 1 / + 1 SD from mean) and high expectations (cut of set at +1 SD from mean).

Phase 3: Forming a measurement of well-being and ill-being

Because measurements of life satisfaction, psychological well-being and social well-being had a different number of items, the mean pre- and post scores of each subscale were calculated. Two outliers at the post scores of psychological well-being were located to the tails of the distribution of the measure. The mean of three subscales were calculated to form the pre- and post scores of well-being. One outlier at the pre score of well-being was located to the tail of the distribution of the measure.

The measurements of burnout, stress and work ability had different range of measurement scales and different number of items. Because there were no need to weight any of these measurements, scales were transformed into same 5 point Likert scale; pre- and post scores of work ability were divided with the value 6.4, pre- and post scores of burnout were multiplied with the value 0.83 and pre- and post scores of stress were multiplied with the value 1.25. Finally, the mean of transformed subscales were calculated to form the pre- and post scores of ill-being.

Phase 4: Investigating the significance of change in well-being and ill-being and differences in change between three expectation level groups

The significance of change in well-being and in ill-being after the intervention and differences in change between expectation level groups were tested with the repeated measures of general linear

model (GLM). In addition to testing change in well-being and ill-being, each subscale were tested also independently. Because significance tests are highly dependent on sample size (Levine & Hullet, 2002), results were interpreted in addition to p-value by effect size. In accordance to Cohen (1969), benchmarks for partial eta squared was set as follows; small, $\eta_p^2 = .001$, medium, $\eta_p^2 = .060$ and large, $\eta_p^2 = .14$ (Richardson, 2011).

RESULTS

The principal component analysis indicated that three items in the questionnaire Thoughts about the Muupu-program had the highest loadings on a first component. The expectation measurement was formed by summing the means of these items: (3) "How do you belief to benefit from the program?", (4) "How much do you belief in possibility of change in your life?" and (5) "How effective do you think the internet-based training program will be?". The results of principal component analysis are presented in Appendix B.

Correlations between well-being, ill-being and expectations at two time points were analysed before the further analysis to investigate connections between the variables (see Table 1). Small but significant correlations between expectations and post-treatment scores referred to relation between the expectations and treatment outcome.

Table 1. Correlations between well-being, ill-being and patient expectations

Components of well-being / ill-being	Expectations	
	Pretreatment	Posttreatment
Well-being	.15	.22*
Life satisfaction	.05	.03
Social well-being	.08	.26**
Psychological well-being	.25*	.26**
Ill-being	-.01	-.24*
Burnout	.03	-.19*
Stress	-.08	-.27**
Work ability	.03	-.20*

*p < .05, ** p < .01

The descriptive statistics of the expectation levels formed by the distribution of expectations are presented in Table 2.

Table 2. Participants' outcome expectation levels

Level	N (%)	Min.	Max.	M	SD
Low	18 (20.5)	2.00	3.33	3.16	0.328
Moderate	56 (63.6)	3.67	4.33	3.93	0.265
High	14 (15.9)	4.50	5.00	4.84	0.190
Total	88 (100)	2.00	5.00	3.92	0.571

Change in well-being and in ill-being between two measurements

The hypotheses, that there would be a significant positive change between the pretreatment and posttreatment scores of well-being and ill-being was investigated with the repeated measures of general linear model. In all groups of expectations, scores of well-being increased and scores of ill-being decreased between the two measurements. Means and standard deviations of measurements in three groups of expectations are presented in Table 3.

Table 3. Pretreatment and posttreatment well-being and ill-being in expectation level groups.

Expectation level	Low expect.		Moder. expect.		High expect		Total	
	N = 18		N = 56		N = 14		N = 88	
Component	M	SD	M	SD	M	SD	M	SD
Well-being								
pre	2.90	0.34	2.87	0.23	3.04	0.27	2.90	0.27
post	2.99	0.31	3.05	0.28	3.21	0.25	3.06	0.29
Life satisfaction								
pre	2.98	0.36	2.80	0.33	3.07	0.40	2.88	0.36
post	3.10	0.41	2.99	0.37	3.15	0.44	3.04	0.39
Social well-being								
pre	2.77	0.47	2.85	0.29	2.85	0.34	2.84	0.34
post	2.86	0.40	3.00	0.36	3.17	0.28	3.00	0.37
Psycholog. well-being								
pre	2.90	0.42	2.96	0.30	3.20	0.37	2.99	0.35
post	3.01	0.29	3.15	0.34	3.29	0.25	3.14	0.32
Ill-being								
pre	2.76	0.61	2.81	0.46	2.73	0.57	2.79	0.51
post	2.43	0.73	2.28	0.59	1.90	0.49	2.25	0.62
Burnout								
pre	3.15	0.58	3.12	0.45	3.21	0.89	3.14	0.56
post	2.86	0.97	2.58	0.70	2.40	0.64	2.60	0.76
Stress								
pre	2.47	0.74	2.53	0.61	2.26	0.79	2.47	0.67
post	2.06	0.81	1.84	0.69	1.39	0.64	1.81	0.73
Work ability								
pre	2.67	0.67	2.79	0.60	2.71	0.42	2.75	0.59
post	2.37	0.65	2.41	0.60	1.92	0.48	2.33	0.62

Results of repeated measures confirmed the first hypotheses; Test of within subject effects indicated a significant main effect of time with medium to large effect sizes in well-being and ill-being and in all subscales (see Table 4). Difference between the pre- and posttreatment scores were larger in measurements of ill-being than in measurements of well-being.

Table 4. Change in well-being and in ill-being between two time points

	F	df	p	ES (η_p^2)
Well-being	26.54	1, 85	.000	.24
Life satisfaction	11.09	1, 85	.001	.12
Social well-being	23.24	1, 85	.000	.22
Psych. well-being	15.35	1, 85	.000	.15
Ill-being	62.49	1, 85	.000	.42
Stress	48.87	1, 85	.000	.37
Burnout	43.23	1, 85	.000	.34
Work Ability	49.94	1, 85	.000	.37

Differences in change of well-being and ill-being between three groups of expectation level

The hypotheses that there would be a more positive change in well-being and ill-being in a group of moderate expectations than in groups of low and high expectations was also investigated with the repeated measures. Test of within subject effects showed a significant interaction with medium effect sizes between time of measurement and expectation level in ill-being and its subscale work ability (see Table 5). Result indicated, that there were differences in change between the expectation groups in these two measurements.

Table 5. Change in well-being and ill-being; interaction between time and expectation level

	F	df	p	ES (η_p^2)
Well-being	1.05	2, 85	.356	.024
Life satisfaction	0.89	2, 85	.413	.021
Social well-being	2.46	2, 85	.092	.055
Psych. well-being	1.00	2, 85	.372	.023
Ill-being	3.03	2, 85	.053	.067
Stress	1.62	2, 85	.204	.037
Burnout	2.54	2, 85	.085	.056
Work Ability	3.93	2, 85	.023	.085

Differences between the expectation level groups in ill-being and work ability at pretreatment and posttreatment measurements were tested with parameter estimates in repeated measures. Results did not confirm the second hypotheses; ill-being and work ability had the most positive change in the group of high expectations (see Figures 1 and 2). There were no significant differences in ill-being between low and high expectation groups ($t = 0.187$, $p = .852$, $\eta_p^2 = .000$) or between high and moderate expectation groups ($t = 0.548$, $p = .585$, $\eta_p^2 = .004$) at the pretreatment measurement. At the posttreatment measurement the scores of ill-being were significantly lower in the group of high expectations than in the group of low expectations ($t = 2.430$, $p = .017$, $\eta_p^2 = .065$). Difference between the high and moderate expectation groups was significant with small effect size ($t = 2.046$, $p = .044$, $\eta_p^2 = .047$). In work ability there were no differences at the pretreatment measurement between the groups of high and low expectations ($t = -0.181$, $p = .856$, $\eta_p^2 = .000$) and between the high and moderate expectations ($t = 0.424$, $p = .673$, $\eta_p^2 = .022$). At the posttreatment measurement work ability was significantly better in group of high expectations than in a group of moderate expectations ($t = 2.770$, $p = .007$, $\eta_p^2 = .083$). Difference between the high and low expectation groups was significant with small effect size ($t = 2.158$, $p = .034$, $\eta_p^2 = .052$).

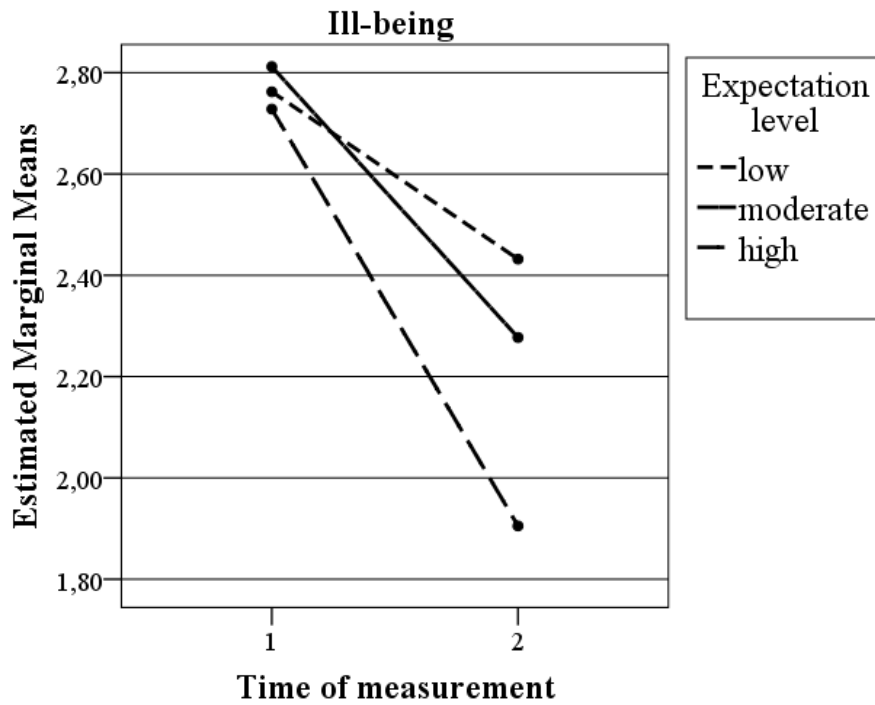


Figure 1. Differences between expectation level groups in pretreatment (1) and posttreatment (2) scores of ill-being

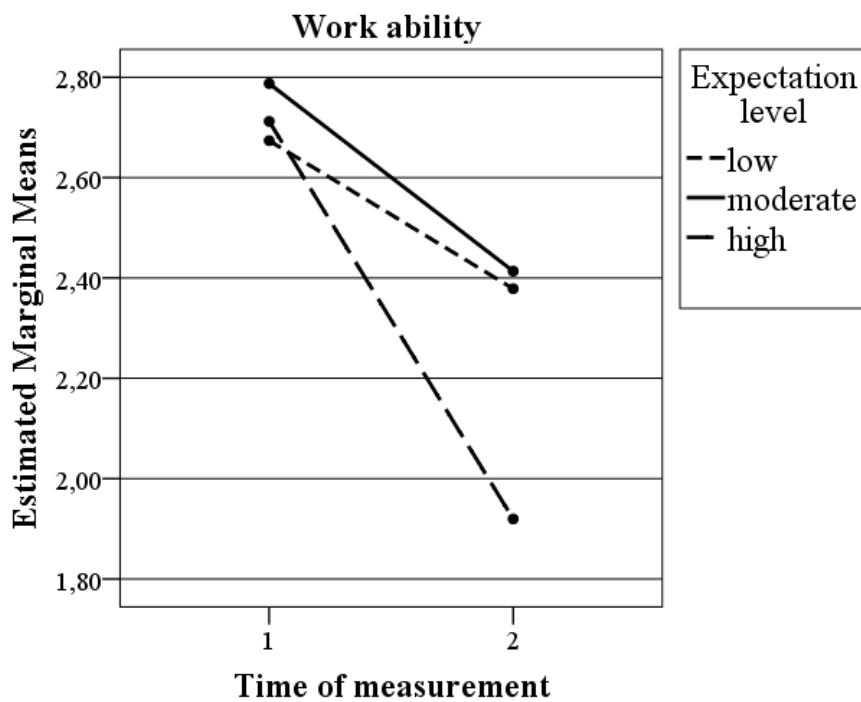


Figure 2. Differences between expectation level groups in pretreatment (1) and posttreatment (2) scores of work ability

DISCUSSION

The aim of this study was to investigate the relationship between the participants' outcome expectations and changes in well-being and ill-being after mindfulness-, acceptance- and value-based intervention. It was hypothesized, that there would be a significant change in positive direction both in well-being and ill-being after intervention. It was also hypothesized, that participants with the moderate outcome expectations would have more positive change in measurements of well-being and ill-being compared to those with the low or high outcome expectations.

As hypothesized, there was a significant positive change in both well-being and ill-being after the intervention. Result is in accordance with the former findings about the effectiveness of mindfulness and values-based processes in burnout reduction (see Bazarko et al., 2013; Goodman & Schorling, 2012; Vilardaga et al., 2011). It also supports the former findings about the positive associations among measures of emotional, psychological and social well-being and mindfulness (see Howell et al., 2008; Howell et al., 2011). Result supports the usefulness of mindfulness based interventions in treatment of burnout in Finnish occupational healthcare in addition to commonly used methods (for the most frequently used treatments for severe burnout see Ahola et al., 2007).

Results did not confirm the second hypotheses that moderate outcome expectations would lead to more positive change in mindfulness based intervention, inspired by the non-judgemental attitude promoted by mindfulness (Ludwig & Kabat-Zinn, 2008) and findings of Mason and Hargreaves (2001) and Wyatt et al. (2014). There was a significant differences in change between expectation level groups in ill-being and work ability, but the change was most positive in the group of high expectations. Result is in accordance with the former findings about the association between higher outcome expectations and less severe posttreatment symptomatology in different therapies (see Constantino et al., 2011; Noble et al., 2001; Price et al., 2008). Result also supports the recent findings of Snippe et al. (2015) that the higher outcome expectations lead to better outcome in mindfulness based intervention.

The fact, that interaction between the expectation level and treatment outcome was found only at measures of ill-being and work ability can depend on many factors. First for all, a focus in Muupu-intervention was in relieving ill-being and it is natural, that results in ill-being are more encouraging. Second, Constantino et al. (2011) also found in their meta-analysis only a small positive effect of expectations on posttreatment symptomatology. The outcome of the treatment was operationalized as a change between the measures instead of posttreatment scores. Thus, the result supports also Schulte's (2008) finding, that the relation between the outcome expectations and treatment outcome have been found less often in studies, when the outcome is measured as a level of symptom change

scores and not as symptom post scores. Schulte (2008) has argued that two different processes could be differentiated within psychotherapy; one that is not or only marginally influenced by patient expectations and leading to change of symptoms and a second one strongly influenced by expectations leading directly to an improvement of patients view of their symptoms. According to this view, outcome expectations would be related to the patient's attitude to their suffering in the end of a treatment process not to the change in amount of suffering. Because mindfulness and acceptance processes can change the way a person relates to unpleasant private experiences (see Hayes, 2002; Hayes & Plumb, 2007), it would be interesting to investigate the relations between outcome expectations and mindfulness processes.

It is also possible, that expectations have different mechanisms of change in well-being and ill-being. As Philippot and Segal (2009) have underlined, the mindfulness based interventions are short term interventions. Life satisfaction, psychological well-being and social well-being may need more time to change than stress, burnout and work ability and that can affect the differences between the expectation level groups. Because chosen values are seen as a necessary component of meaningful life in values based interventions (see Hayes, 2004) participants well-being can diminish temporarily when they come more aware of the discrepancy between own values and actions. This kind of process might manifest itself more clearly in well-being related factors, like a lack of positive relationships, than in ill-being related factors. That is supported by the fact, that there was a bigger change in ill-being than in well-being in this study. It is possible that the measurement of expectations conducted for this study couldn't reach the construct of outcome expectations correctly and differences between expectation level groups were too modest.

Why high outcome expectations led to better outcomes in mindfulness based intervention? High outcome expectations in this study were actually extremely high ones and that supports Frank's (1973) view, that hope and expectations have an important role for recovery in psychological interventions. It seems also that participant's expectations really have an important role in the treatment process regardless of the type of treatment, as the theory of common factors have dedicated (Lambert, 1992; Miller et al., 1997; Sprenkle & Blow, 2004; Thomas, 2006). High outcome expectations can increase patient's commitment to the treatment procedure and deepen the therapeutic relationship (Ahmed et al., 2012; Constantino et al., 2005; Johansson et al., 2011; McClintock et al., 2015; Meyer et al, 2002; Westra et al., 2011) and it is possible, that this kind of process has affected the results. Still, processes related to alliance and commitment to treatment process in group interventions can be more complex than in individual therapies and this would need further research. Because outcome expectations can change during the treatment (Constantino, 2012; Mason & Hargreaves, 2001; Schulte, 2008; Wyatt et al., 2014), it is also possible, that extremely

high expectations have declined during the Muupu-intervention. Because expectations were measured only prior to intervention in this study, this is only speculative.

Research of Beitel et al (2009) have indicated that highly psychologically minded persons have higher outcome expectations. Psychological mindedness is a close concept with mindfulness and these individuals can be described as psychologically healthy and flexible (Beitel et al., 2009). Mindfulness based interventions are based on learning mindfulness skills that increase well-being related features, like psychological flexibility (Hayes & Plumb, 2007). It is possible, that persons with higher outcome expectations about Muupu-intervention had also better mindfulness skills in the beginning of the intervention process. That could have been benefit the treatment process and lead to greater symptom reduction compared to those with lower mindfulness skills in the beginning of program. This would also need a further research.

There are some limitations concerning the generalizability of the findings of this study. First, the relatively small sample size and large proportion of highly educated female participants restricts the representativeness of the sample. The mean level of expectations in this study was also relatively high, differences between the levels of expectations were rather small and the number of participants in groups of low and high expectations were small. That could have affected the results. Non validated measurement of expectations used in this study also restricts the generalizability of findings and there is a need for more methodological coherence in the research field in future.

Because of only a few researches conducted so far, there is still the need for further research about the relation between the participants' outcome expectations and treatment outcome in mindfulness based interventions. Results of this study still supports the meaning of positive outcome expectations on treatment outcome and underlies the importance of paying attention to patient's expectations in the beginning of the treatment process.

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APPENDIX A*Thoughts about the Muupu-program-questionnaire (Ajatukset Muupu-ohjelmasta)*

1. How familiar are you with the mindfulness training? (Kuinka tuttuja mindfulness-tyyppiset harjoitukset ovat sinulle?)
2. How motivated are you to participate in the Muupu-program? (Kuinka motivoitunut olet osallistumaan Muupu-harjoitusohjelmaan?)
3. How do you think you will benefit from the Muupu-program? (Miten uskot hyötyväsi Muupu-harjoitusohjelmasta?)
4. How much do you believe in possibility of change in your life? (Missä määrin uskot muutoksen mahdollisuuden omassa elämässäsi?)
5. How effective do you think the internet-based training program will be (Muupu-webpage)? (Kuinka toimivaksi arvelet harjoitusohjelman, joka tarjotaan internetin (Muupu-sivusto) välityksellä?)
6. Do you believe, that you can take enough time for your daily exercises within the training program? (Uskotko, että sinun on mahdollista varata arjessasi päivittäin riittävästi aikaa harjoitusohjelman toteuttamiseen?)

APPENDIX B

Forming an expectation measurement

Correlations between the items in *Thoughts about the Muupu-program-questionnaire* were calculated for analysing the convergent validity of the questionnaire (see Table 1). Significant correlations between items number three, four and five supported the convergent validity of the questionnaire.

Table 1. Correlations between items in questionnaire "Thoughts about the treatment program"

Item	1	2	3	4	5	6
1. How familiar are you with the mindfulness training?		.27*	.08	.12	.00	.02
2. How Motivated are you to participate in the Muupu-program?			.45*	.27*	.22*	.06
3. How do you think you will benefit from the Muupu-program?				.51**	.32**	.05
4. How much do you believe in possibility of change in your life?					.38**	.03
5. How effective do you think the internet-based training program will be (Muupu-webpage)?						.25*
6. Do you believe, that you can take enough time for your daily exercises within the training program?						

* $p < .05$, ** $p < .01$

Principal component analysis with varimax rotation (see Table 2) was used to investigate the structure of the questionnaire. Data were screened for violations of assumptions prior analysis. Little's MCAR test ($\chi^2(16) = 23.405$, $p = .103$) indicated, that values in three items were missing completely at random and pairwise option could be used in analysis. Kaiser-Meyer-Olkin measure of sampling adequacy (.644) and Bartlett's test of sphericity ($F(15) = 71.62$, $p = .000$) indicated the suitability of data for structure detection. All communalities were over .60, ranging from .604 to .887. Results indicated a three dimensional factor structure and three components explained 71.95 % of variance.

Table 2. The factor structure of questionnaire Thoughts about the Muupu-program

Component	Factor 1	Factor 2	Factor 3
3. How do you think you will benefit from the Muupu-program?	.823		
4. How much do you believe in possibility of change in your life?	.807		
5. How effective do you think the internet-based training program will be (Muupu-webpage)?	.600		.516
1. How familiar are you with the mindfulness training?		.912	
2. How Motivated are you to participate in the Muupu-program?	.526	.571	
6. Do you believe, that you can take enough time for your daily exercises within the training program?			.938
Eigenvalue	2.190	1.126	1.001
% of Variance	36.494	18.765	16.687
Cronbach's alpha	.686	.393	.396

The three items, that had the highest loadings on the first component, were theoretically related to outcome expectations. Item number three reflected outcome expectations (Constantino, Glass, Arnkoff, Ametrano, & Smith, 2011). Item number four reflected outcome expectation related construct, hope (see De Fife & Hilsenroth, 2011; Constantino, Ametrano, & Greenberg, 2012). Item number five reflected credibility beliefs that are also closely related to outcome expectations (Constantino, 2012; Mooney et al., 2014). Together these items are reflecting participant's beliefs about the possibility of change and how the intervention can affect that change.

First item on the second component was related to treatment expectations (Constantine, 2012; Schulte, 2008) but second item reflected theoretically distinct concept from expectations, motivation (Constantine, 2012). Item that loaded highly on the third component was related to efficacy expectations (Schulte, 2008). The first three items on the first component were included in the expectation measurement. Cronbach's alpha for the final scale was .661.