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# Effectiveness of a Low-dose Mindfulness-based Intervention for Alleviating Distress in Young Unemployed Adults

**Running title: Alleviating Distress in Young Unemployed Adults**

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**Conflict of interest**

The authors declare that they have no conflict of interest.

**Data accessibility statement**

The current dataset cannot be made publicly available due to confidentiality.

**Abstract**

While the effectiveness of mindfulness-based interventions (MBIs) with respect to distress has been widely researched, unemployed individuals, who often suffer from high levels of distress, have largely been neglected in MBI research. The present study aimed to investigate the effects of a low-dose MBI on distress in a sample of young unemployed adults. The sample included 239 young unemployed adults enrolled for a six-week long employability-related training camp. Participants were allocated into an intervention group that received weekly one-hour mindfulness training over 4 weeks, and a control group. Dispositional mindfulness, distress and well-being were assessed in the entire sample prior to the start and upon completion of the mindfulness training. A mixed-model ANCOVA showed that distress was inversely and significantly predicted by baseline levels of mindfulness and well-being. After accounting for the baseline levels of mindfulness and well-being, a significant effect of the mindfulness intervention was evident. This result shows that a low-dose MBI can decrease distress in a sample of young unemployed adults and its effectiveness is positively associated with initial levels of dispositional mindfulness and well-being.

*Keywords:* Mindfulness-based intervention; psychological distress; well-being; dispositional mindfulness; unemployed

Unemployment has a negative impact on an individual's financial situation. For this reason, many countries offer unemployment benefits, which often consist of income support (Stovicek & Turrini, 2012). While the negative financial impact is obvious, it should also be acknowledged that unemployment negatively impacts mental health as well. As part of job-seeker support programmes to assist with job re-entry, unemployed people are sometimes offered vocational and psychological training. Such workshops and interventions only provide limited evidence for a reduction of psychological distress (Audhoe, Hoving, Sluiter, & Frings-Dresen, 2010; Koopman, Pieterse, Bohlmeijer, & Drossaert, 2017). The search for psychological interventions for the unemployed that effectively alleviate distress is therefore warranted, especially during times of recession and economic downturn.

The COVID-19 pandemic has led to increased unemployment in many countries in 2020 and the youth, who were already a vulnerable group prior to the pandemic, have been particularly negatively affected (Blustein et al., 2020). Those who were already unemployed might find it even more difficult to get into employment during these uncertain times. A newly published research agenda by Blustein et al. (2020) addresses the problems associated with unemployment caused by the pandemic and suggests that research focus on interventions to help with the immediate as well as long-term consequences of unemployment."

Unemployment not only has a negative financial impact on an individual's life, but is also associated with severe psychological consequences which can exceed the consequences that are related to pecuniary losses (Clark & Lepinteur, 2019). For example, early-adult unemployment compromises an individual's health and well-being (Bell & Blanchflower, 2011; Clark & Lepinteur, 2019; Krasteva, 2018) and such negative effects often persist during a later employment (Clark, Georgellis, & Sanfey, 2001).

A substantial number of studies have addressed the psychological problems related to unemployment and were summarised in a large meta-analysis (Paul & Moser, 2009). Across

323 independent samples and 458,820 participants, it was found that unemployment had a significant negative effect on mental health, indicated through symptoms of distress, depression, anxiety, psychosomatic symptoms, and subjective well-being. Furthermore, a systematic review and meta-analysis uncovered that unemployment is also associated with a higher risk of mortality, especially for individuals at early stages (Roelfs, Shor, Davidson, & Schwartz, 2011). Not only do negative psychological outcomes such as anxiety, worry and depression increase, but positive psychological states, such as positive affect, life satisfaction and self-satisfaction, decrease when experiencing unemployment, (Hanisch, 1999). When compared to employed individuals, unemployed people experience significantly more psychological distress (Backhans & Hemmingsson, 2012; Reneflot & Evensen, 2014), which in turn makes it more difficult to find work: unemployed people with higher levels of distress are less likely to get into employment (Schaufeli & VanYperen, 1992). In addition, psychological distress is a predictor of other serious psychological disorders (Kessler et al., 2002). It is therefore crucial to target the issue of high distress and low well-being experienced by the unemployed.

Psychological distress is defined as "the unique discomforting, emotional state experienced by an individual in response to a specific stressor or demand that may cause harm, either temporary or permanent, to the person" (Ridner, 2004, p.539). Unemployed people face a variety of situation-specific stressors and demands, such as financial hardship and difficulties finding work, but also social problems, which may result in the experience of a negative emotional state that is a characteristic of psychological distress. To better cope with the challenges the unemployed face, it is necessary that individuals learn to manage their emotional, cognitive, and behavioural response to the stressors and demands they have to deal with. Recent research indicates that mindfulness is a promising skill that may help to regulate one's response to stressors and demands in order to manage distress and enhance well-being

(Krägeloh et al., 2019).

Mindfulness is defined as the conscious attention to and awareness of the present moment while being non-judgmental and accepting (Kabat-Zinn, 2003). Being mindful involves to attend to internal and external stimuli without judging them (Good et al., 2016). This is a central mechanism underlying mindfulness, which is referred to as decentring. Decentring involves the observation of stimuli and resulting reactions without interpreting them in either a positive or negative way (Good et al., 2016; Shapiro, Carlson, Astin, & Freedman, 2006). The practice of mindfulness enables one to be observational of one's feelings, thoughts, and experiences, which facilitates superior self-regulation, allowing one to respond to a situation in an appropriate manner and not as a result of automaticity or impulsivity. Better self-regulation of feelings, thoughts, and behaviour through mindfulness may contribute to lower levels of distress and higher levels of well-being (Brown & Ryan, 2003; Shapiro et al., 2006). This implies that it is beneficial to develop and enhance the skill of mindfulness to manage distress.

Research analysing the impact of mindfulness-based interventions (MBIs), where participants learn how to practice mindfulness, on mental health has gained popularity over the last couple of years, but various MBIs differ in terms of duration and frequency of mindfulness practice (Krägeloh et al., 2019). Traditional MBI protocols suggest 2.5 hours of a contact session once a week combined with 45 minutes of home practice on six days a week over a period of eight weeks (Jamieson & Tuckey, 2016). This protocol has shown to be effective, but it is highly time consuming and might not be practical when conducted with non-clinical samples, who would have to implement it into a daily routine that also entails other responsibilities. Therefore, this time-consuming protocol may be a barrier to adoption While some studies found even shorter (low-dose) MBIs effective with regards to stress reduction and mental health outcomes (Phang, Mukhtar, Ibrahim, Keng, & Mohd. Sidik,

2015; Shearer, Hunt, Chowdhury, & Nicol, 2015), other studies analysing the impact of shorter MBIs did not find effects on psychological variables such as life satisfaction, negative affect or stress (Chin, Slutsky, Raye, & Creswell, 2019; Howells, Ivtzan, & Eiroa-Orosa, 2016). However, scientists are investigating the extent to which MBIs can be amended without compromising the beneficial effects, aiming to determine a 'minimum effective dose'.

One review examined whether the length of contact sessions as well as the overall intervention length affected the impact of the MBI on psychological distress (Carmody & Baer, 2009). This review examined studies where the total number of weekly contact sessions ranged from four to ten and duration of those sessions ranged from one to 2.5 hours. The total in-class hours of all studies ranged from 6 to 28. Taking the pre- and post-test assessments of psychological distress into account, no significant relationship between the number of in-class hours of an MBI and pre- and post-test effect sizes was found. This is an interesting finding, considering that the number and length of weekly contact sessions varied to a great extent between those studies (Carmody & Baer, 2009). Demarzo et al. (2017) provide further evidence that an abbreviated MBI might be as effective as a standard length MBI. Participants in a non-clinical sample were either assigned to a 4-week or 8-week MBI group. The intervention in both groups consisted of a 120 minute contact session and 45 minutes of daily home practice. Both interventions produced similar improvements with regards to mindfulness, positive, affect, depression and anxiety in comparison to a control group who did not undergo an intervention. Moreover, a meta-analysis investigated the effects of MBIs on psychological distress with a sample of employed adults and showed that MBIs had a positive effect on psychological distress regardless of intervention length (Virgili, 2015). These findings indicate that abbreviated MBIs may work as well as standard length MBIs, which might be valuable when aiming to conduct MBIs with samples that are suffering from

time constraints.

Very little mindfulness research has targeted unemployed individuals so far, though initial findings indicate that an MBI may be beneficial in terms of stress reduction for the unemployed (Creswell et al., 2016; de Jong, Hommes, Brouwers, & Tomic, 2013). Creswell et al. (2016) conducted a study investigating the effects of an MBI versus relaxation training on inflammation markers that are linked to stress among unemployed. Thirty-five participants who had moderate to high scores on a self-report stress measure were either assigned to a 3-day mindfulness meditation training or a 3-day relaxation retreat intervention. Participants in the MBI group showed reductions in stress-related inflammation markers from baseline to follow-up, whereas the relaxation group showed increases of inflammation markers from baseline to follow-up. Positive effects of a mindfulness intervention were also found in a study with 43 unemployed participants. The intervention followed a standardised protocol with a weekly 2.5 hour contact session and 45 minutes of home practice on six days a week over a period of eight weeks. The intervention group showed significant increases in mindfulness and decreases in perceived stress compared to the control group (de Jong et al., 2013). These studies indicate that an MBI may be an appropriate way to reduce distress in individuals who deal with the challenges of unemployment. However, a major criticism of these two studies is the small sample size.

Another largely unaddressed question in MBI research is for which individuals interventions are most effective. It is crucial to identify such moderating personal variables in order to explain why MBIs sometimes do not show positive effects. One of these moderating variables is a person's baseline (pre-treatment) level of mindfulness (Shapiro, Brown, Thoresen, & Plante, 2011): individuals with higher levels of dispositional mindfulness at baseline showed larger increases in mindfulness and well-being and greater decreases in levels of perceived stress. Participants in an MBI with higher levels of mindfulness prior to

the intervention may find it easier to engage with and be open to the content of the training and to implement the exercises. For this reason, it is important to consider trait mindfulness prior the intervention as a potential moderator in the process in order to evaluate the success of an MBI.

Previous research has shown that abbreviated, low-dose MBIs may show similar positive effects as standard-length MBIs and that MBIs may reduce distress for the unemployed. The aim of the present study is to examine the effects of a low-dose MBI on psychological distress with a sample of young unemployed adults. It is expected that a low-dose mindfulness intervention will be effective for reducing psychological distress and this effect will be moderated by pre-intervention levels of dispositional mindfulness.

## Method

### Participants

The participants were 239 members of the Youth Development Unit (YDU), a development programme offered by the New Zealand Defence Force (NZDF) on behalf of the Ministry of Social Development. The YDU aims to help New Zealand youth develop skills needed to enter the workforce. The intervention was conducted within the frame of a training camp facilitated by the NZDF. The 239 participants' age ranged from 17 to 25 years and mean age of the participants was 19.91 years (SD=2.04) and there were almost double as many male (64.4%) than female (35.6%) participants. In terms of ethnicity, the sample consisted of Māori (32.6%), Joint Ethnicity (eg. NZ European/Māori; 31.4%), NZ European (23.8%), Pasifica (8.8%) and Others (3.3%).

### Procedure

Ethical approval was granted by the authors' institutional ethics boards and the study was conducted under supervision of registered psychologists. Participation in the training sessions

was mandatory for the YDU participants, however, participation in the research element of the training was voluntary and data collection was anonymous. Informed consent was obtained prior to data collection. Pre- and post-intervention data were collected by using unique codes to ensure the participants' anonymity. Participants did not receive any form of compensation.

*Design.* The YDU programme was conducted over a period of six weeks. The programme is a mix of activities to build self-confidence, teamwork, and life skills. Participants engage in classroom learning, skills workshops, military-style team-building activities (e.g. marching and drill), physical exercise as well as outdoor exercises. The programme was delivered at three different locations across the country. A flow diagram with participants' allocation in the program and control groups is displayed in Figure 1. The sample (n=239) was split up into an intervention and a control group. Participants at one location (n=115) received in addition to the normal YDU course content mindfulness training once a week for one hour at the start of the second week for a period of four weeks. The remaining participants (n=124) were allocated to the other two training locations. Measures were administered to participants in the control group as well as the intervention group at the start of week two and at the end of week five. Measures were administered by support staff. The measures at the end of week five were completed by 86 participants in the intervention group and by 94 participants in the control group. This means 29 participants were lost to follow-up in the intervention group and 30 participants were lost to follow-up in the control group, representing a drop-out rate of 25.21% and 24.19% respectively. The participants who were lost to follow-up did not differ from those who completed the study with regards to gender ($\chi^2(1,239) = 0.00$, $p = .996$), ethnicity ($\chi^2(4,239) = 3.29$, $p = .511$), baseline well-being ($F(1,235)=2.53$, $p=.113$), mindfulness ($F(1,237)=0.20$, $p=.656$) or distress ($F(1,236)=0.86$, $p=.355$), and there was no difference in dropout numbers between the intervention and the

control groups ($\chi^2(1,239) = 0.03$, $p = .854$). After considering that non-responders were not different from responders in any way, it was decided to keep only participants who completed both the T1 and T2 measure for evaluation of the intervention.

*<Insert Figure 1 here>*

*Intervention content*. The intervention followed an established intervention programme conducted by an organisation that specialises in delivering mindfulness training.

It consisted of a weekly contact session of one hour over a period of four weeks, facilitated by a qualified mindfulness instructor. In addition, participants were encouraged to practice mindfulness in their daily lives, such as brushing teeth mindfully or eating mindfully, and to use a mindfulness app for 10 to 15 minutes before their lunch break. However, daily practice compliance was not monitored.

In their first contact session participants were introduced to mindfulness and its immediate effects. The second contact session was themed around thinking and mindfulness and the third contact session focused on emotions and the interplay with thinking. In week four participants learned about the principle of radical acceptance. In order to support and foster learning, participants were given an info booklet after the first week. A typical contact session used a mix of audio and visual material to introduce participants to each topic. After that, participants engaged in mindfulness-based exercises, such as body scans, breathing, identifying internal and external sensations as well as judgments when they arise. Participants also had time for feedback and reflection. An outline of the intervention with example exercises can be found in the Supplementary Table. The assigned instructor originates from an Eastern culture with a Buddhist way of life, but spent most years of adult life in New Zealand. The instructor has been facilitating mindfulness training for the organisation for 4 years.

**Measures**

Self-report measures were used to collect demographic data and assess well-being, psychological distress, and mindfulness pre- and post-intervention.

*Psychological distress*. The Kessler 10 Psychological Distress Scale (K10; Kessler et al., 2002) was used to measure distress, assessing ten symptoms that are typical for depression and anxiety. Items can be rated on a 5-point Likert scale (1 = none of the time; 5 = all of the time). All items are summed to get an overall score with high scores indicating high levels of psychological distress. The K10 exhibited excellent reliability in the present study (α T1=0.88; α T2=0.90)

*Mindfulness*. A shortened version of the Five Facet Mindfulness Questionnaire was used to assess dispositional mindfulness (FFMQ-SF; Bohlmeijer, Klooster, Fledderus, Veehof, & Baer, 2011). The instrument consists of 24 items capturing the five dimensions observe, describe, actaware, nonjudge, and nonreact, which can be rated on a 5-point Likert scale (1 = never or very rarely true; 5 = very often or always true). Items are summed up to get an overall scale score and higher scores indicate higher levels of mindfulness. The measure exhibited good reliability in the present study (α T1=0.78; α T2=0.79).

*Well-being*. The short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS; Stewart-Brown et al., 2009) was used to measure well-being. The SWEMWBS is a unidimensional measure consisting of seven items that are rated on a 5-point Likert scale (1 = none of the time; 5 = all of the time). Item scores are summed to yield a scale score. Higher scores indicate higher levels of well-being. As recommended by the test developers, total scores were converted to metric scores with a conversion table (Stewart-Brown et al., 2009). The SWEMWBS was found to be reliable in the present study (α T1=0.80; α T2=0.85).

**Data Analysis**

Data analysis was conducted using IBM SPSS v.25. The dataset was screened for missing values, which were less than 1%. Included in this percentage are two participants who did not complete the well-being measure and one participant who did not complete the measure of psychological distress at T1 and three participants who did not complete the well-being measure and one participant who did not complete the distress measure at T2. These are treated as system-missing values in SPSS. Some participants rated single items with half scores (e.g. 3.5). Those item scores (only 0.3% of all responses) were replaced with rounded mean scores of the respective subscale (Huisman, 2000). All variables displayed acceptable normality of distribution and skewness and kurtosis values were within the conservative recommended range of -/+ 1 (Muthén & Kaplan, 1985).

Pearson correlation coefficients were computed to establish relationships between constructs at baseline and post-intervention. A mixed model ANCOVA was used to investigate effects of the mindfulness intervention (IV) on distress (DV), with group (intervention vs control) as between-subjects and time (pre- and post-intervention) as within-subjects factors while controlling for baseline levels of mindfulness and well-being as covariates.

## Results

Demographic statistics are summarised in Table 1. There were no significant differences between groups in distribution of age, sex, and ethnicity at baseline. Distress, mindfulness and wellbeing mean scores did not differ significantly between intervention and control groups at the baseline (all $p>.05$). Correlations between study variables presented in Table 2 were examined to identify and confirm potential covariates for a subsequent ANCOVA. Well-being for the entire sample at baseline correlated negatively with distress at T1 (r=-.45) and T2 (r=-.27). The noticeable difference in magnitude of these correlations indicates that baseline level of well-being may influence the outcome of the intervention and needs to be accounted for in

an ANCOVA. Similar correlation patterns were observed between mindfulness at T1 and distress at both T1 and T2, supporting the inclusion of mindfulness at baseline as another covariate in a single omnibus *F*-test to minimise type I error.

*<Insert Table 1 and Table 2 here>*

A mixed model ANCOVA showed that psychological distress was inversely and significantly predicted by both covariates: mindfulness ($F$ (1, 172)=28.75, $p$<.001, $\eta_p^2$=.14) and wellbeing ($F$ (1, 172)=7.04, $p$=.009, $\eta_p^2$=.04). After accounting for the effect of covariates there was a significant effect of time ($F$ (1, 172)=15.17, $p$<.001, $\eta_p^2$=.08) and a significant interaction between group and time ($F$ (1, 172)=4.06, $p$=.045, $\eta_p^2$=.02). This shows there is an overall distress reduction observed in both groups as well as a significant effect of the mindfulness intervention. Figure 2 shows that, after accounting for the effects of both covariates, estimated distress mean scores are higher in the intervention group at the baseline (Time 1) and lower after intervention (Time 2) compared to the control group. While distress is reduced in both groups at Time 2, a stronger reduction is observed in the intervention group.

*<Insert Figure 2 here>*

Subsequent post-hoc tests showed that scores of well-being $t$(175)=-9.23, $p$<.001, $d$=.70, distress $t$(177)=8.16, $p$<.001, $d$=.61 and mindfulness $t$(179)=-5.36, $p$<.001, $d$=.40 improved for the sample as a whole from baseline to post-intervention.

## Discussion

The COVID-19 pandemic in the year 2020 required a rapid response to the situation of the unemployed and research regarding interventions that may assist with the negative consequences associated with unemployment was warranted (Blustein et al., 2020). The present study investigated the effects of a low-dose MBI on psychological distress in a sample

of young unemployed adults within the frame of an employability-related training camp. The results show that psychological distress was inversely and significantly predicted by baseline levels of mindfulness and wellbeing. After accounting for the effects of these covariates, the short mindfulness intervention was effective in reducing psychological distress. These findings indicate that a low-dose MBI may be more effective for a sample population with initially higher levels of mindfulness perhaps because dispositional mindfulness may enhance openness and acceptance to the intervention.

This study has several implications concerning actions to improve the mental state of unemployed people as well as the benefits of low-dose MBIs. Firstly, the study has shown that an employability-related training course teaching soft and life skills may significantly enhance well-being and reduce psychological distress for the unemployed. Lower levels of psychological distress make it more likely to get into employment (Schaufeli & VanYperen, 1992), which is not only beneficial to the individual, but also to the wider economy.

Secondly, these results show that a low-dose mindfulness intervention can be an effective way of reducing psychological distress in unemployed individuals, who are a group of people prone to suffer from poor mental health (Backhans & Hemmingsson, 2012). These findings align with previous research that aimed at improving health of unemployed individuals through an MBI (Creswell et al., 2016; de Jong et al., 2013). Earlier research discussed the necessary dose of MBIs to achieve positive effects distress (Carmody & Baer, 2009). While some studies did not find significant effects of low-dose MBIs that differed from the standardised protocol of 2.5 hours a week for eight weeks (Chin et al.,, 2019; Howells et al., 2016), other studies found them to be as effective (Demarzo et al., 2017; Virgili, 2015). The reasons for these inconclusive findings remain unknown, however, one potential factor could be the level of dispositional mindfulness of participants prior the MBI.

Previous research indicated that levels of dispositional mindfulness may have a

moderating role with respect to positive effects of an MBI on mindfulness, well-being, and distress (Shapiro et al., 2011). The present study's findings indicate that participants with higher baseline levels of mindfulness benefitted more from the mindfulness intervention and experienced stronger decreases in psychological distress. There are several possible mechanisms for this effect. First, as mindfulness itself is defined as a heightened state of awareness resulting from purposefully paying attention to the present moment in a nonjudgmental way (Kabat-Zinn, 2003), participants in the intervention group high in dispositional mindfulness might have found it easier to practice what they have learned while on the mindfulness training (Shapiro et al., 2011). Second, dispositional mindfulness is positively associated with cognitive abilities, such as attentional functions and working memory (Moore & Malinowski, 2009; Ruocco & Wonders, 2013). It is therefore possible that participants with higher levels of mindfulness were better able to pay attention to the intervention content and process it more efficiently. Third, dispositional mindfulness is related to reduced motivated perception, which is a top-down process that influences perceptions through existing desires or expectations (Adair & Fredrickson, 2015). Consequently, more mindful participants might have been less judgmental and biased regarding the intervention they were assigned to, which might have contributed to more openness and engagement with the intervention content and they reaped more benefits as a consequence. These findings imply that it may be useful to assess dispositional mindfulness of participants before the start of an MBI. Depending on the participants' levels of mindfulness, it needs to be considered whether a low-dose MBI is appropriate.

The present study also showed that individuals with higher levels of well-being at baseline similarly benefitted more from the intervention with regards to levels of distress. This finding indicates that a low-dose mindfulness intervention may work better for individuals whose well-being is not severely compromised. Previous research suggests that

short MBIs with non-clinical samples may work as well as long MBIs with clinical samples (Virgili, 2015). Individuals with low well-being and/or mindfulness may therefore possibly benefit more from higher-dose or longer mindfulness interventions (Krägeloh et al., 2019).

**Limitations and future research**

This study has a few limitations that need to be acknowledged. Firstly, it used a highly homogenous sample in terms of age and current living situation (unemployment), which does not allow a generalisation of findings. Secondly, even though participants in the intervention group were encouraged to use an app to practice mindfulness by themselves, compliance was not monitored. It is possible that the more mindful intervention participants tended to practice mindfulness more often outside the face-to-face training, but because this variable has not been assessed, the impact of self-directed practice remains unclear. Thirdly, even though mindfulness as a predisposition at baseline was taken as a moderating variable into account, it is possible that other traits or factors concerning personality had an impact on the effect of the intervention. Fourthly, the assignment of participants to the different camp locations was based on the location of their hometown, for this reason the assignment of participants to control and intervention group was not completely random, although analyses indicated no significant differences on study variables between groups at baseline. Lastly, the camp staff who facilitated the camp activities differed between the camps. Apart from the mindfulness training, the camp activities were the same across all camps and all camp staff received standardised training, but it remains possible that camp location and social relationships with staff had an influence on the reported effects.

Future research could further investigate the effects of MBIs on well-being and distress of unemployed individuals, but might want to consider to recruit participants of all age groups to make findings more generalizable. Moreover, it is crucial to monitor and capture practice time outside the training to establish any positive effects from more practice

time. In addition to that, future research should address the question of which individuals benefit from MBIs, especially when they are low-dose MBIs that significantly deviate from standardised protocols. It is possible that traits other than dispositional mindfulness may play a moderating role regarding the effects of MBIs. More insight into such factors will allow to make sure that interventions match the participants' skills and cognitive capacities. Furthermore, future research should investigate whether a longer MBI might be more effective for those individuals that have low baseline levels of dispositional mindfulness and well-being.

**Conclusion**

This study found that a low-dose MBI can enhance mindfulness and decrease psychological distress in a sample of young unemployed adults. However, findings indicate that a low-dose MBI seems to be more beneficial to participants that exhibit high levels of dispositional mindfulness and/or wellbeing prior the intervention. This has important implications regarding the appropriateness of low-dose MBIs in future research and therapy.

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**Table 1**

*Demographic data of the current sample who participated in the camps*

| Demographics | Total *n* = 180 | Control *n* = 94 | Intervention *n* = 86 | Test of difference |
|---|---|---|---|---|
| Mean Age (SD) | 20.03 (2.07) | 20.13 (2.12) | 19.93 (2.03) | *t*-test: *p*=.52 |
| Sex n (%) | | | | |
| Male | 116 (64.4) | 56 (59.6) | 60 (69.8) | $X^2$: *p*=.15 |
| Female | 64 (35.6) | 38 (40.4) | 26 (30.2) | - |
| Ethnicity n (%) | | | | |
| NZ European | 42 (23.3) | 22 (23.4) | 20 (23.3) | $X^2$: *p*=.99 |
| Māori | 57 (31.7) | 29 (30.9) | 28 (32.6) | - |
| Joint Ethnicity | 56 (31.1) | 31 (33.0) | 25 (29.1) | - |
| Pasifika | 17 (9.4) | 8 (8.5) | 9 (10.5) | - |
| Other | 8 (4.4) | 4 (4.2) | 4 (4.5) | - |

*Note*. *t*-test (independent sample *t*-test); $X^2$ (chi square test)

**Table 2**

*Correlations between well-being, distress, and mindfulness at T1 and T2 (n=180)*

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. Well-being T1 | (.80) | | | | | |
| 2. Distress T1 | -.45** | (.88) | | | | |
| 3. Mindfulness T1 | .53** | -.51** | (.78) | | | |
| 4. Well-being T2 | .46** | -.16* | .23** | (.85) | | |
| 5. Distress T2 | -.27** | .54** | -.40** | -.46** | (.90) | |
| 6. Mindfulness T2 | .46** | -.38** | .58** | .48** | -.52** | (.79) |

*Note*. Cronbach's alphas are presented in parentheses.

**p<.01; *p<.05

**Figure 1**
*CONSORT diagram outlining participants' allocation to groups and dropouts*

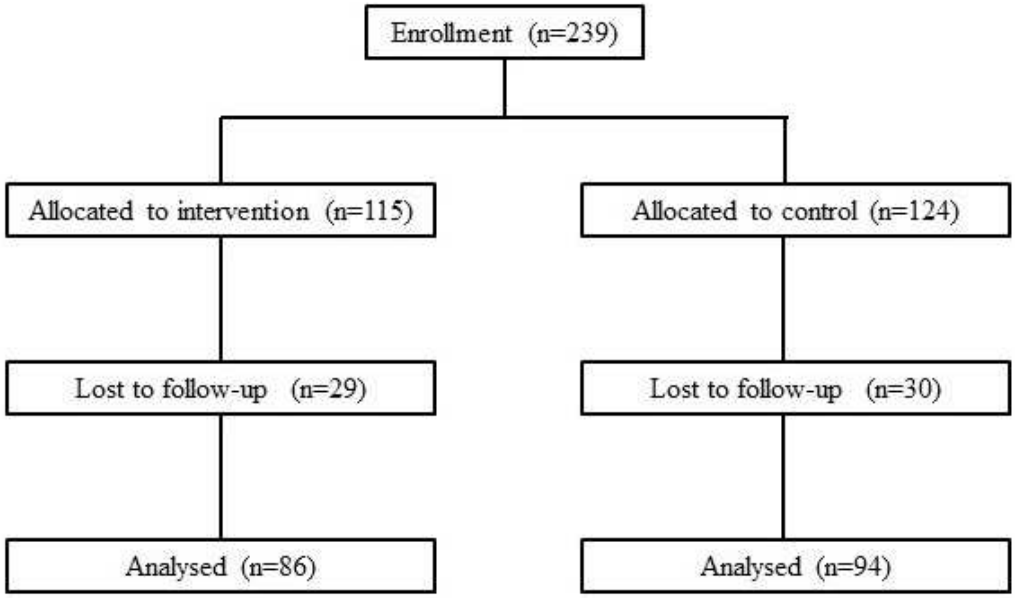
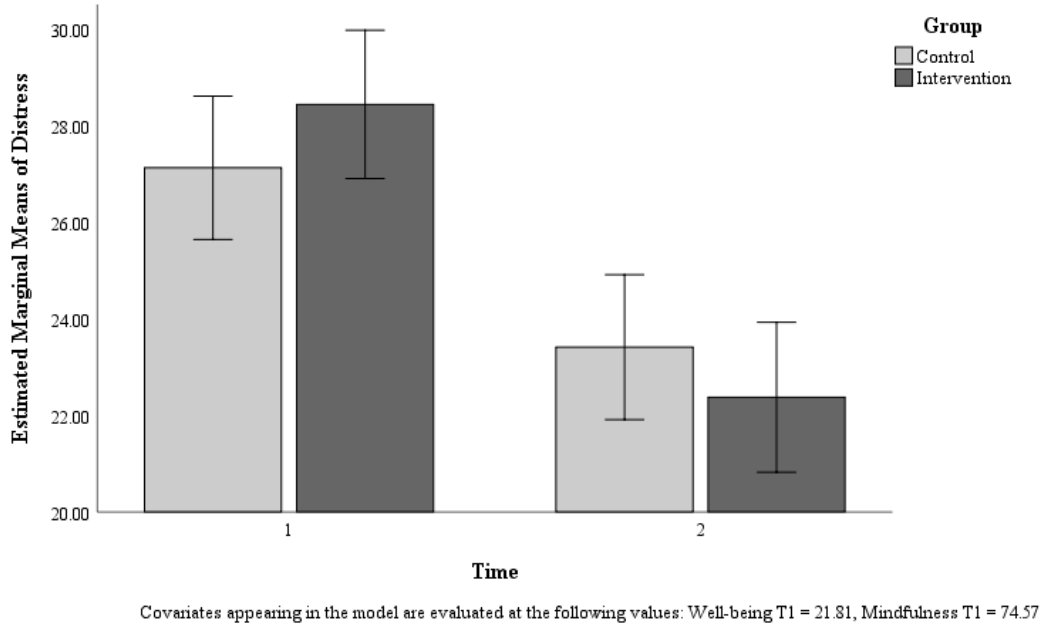


**Figure 2**

*Distress mean scores of intervention and control groups at time 1 (pre-) and time 2 (post-intervention) after accounting for effects of mindfulness and well-being covariates at the baseline*




*Note.* Error bars indicating 95% CI.