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The Effects of Focusing and the Felt Sense on a Meaning-in-Life Intervention

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Abstract

Depression and anxiety today still have high incidence rates and especially graduate students are very vulnerable to these mental disorders (Evans et al., 2018). More interventions are needed to help decrease the incidences of depression and anxiety more efficiently. Meaning in life was theorized to be a transdiagnostic factor that was inversely related to depression and anxiety (Brown et al., 2008; Steger, 2012). Previous interventional studies trying to increase meaning also were successful in decreasing psychopathological symptoms (Manco & Hamby, 2021). Therefore, the current study tried to build on the previous correlation findings with an experimental design. We predicted that 1) the meaning intervention would increase meaning, 2) the meaning intervention would reduce depressive and anxiety symptoms, and 3) the relationship of H1 would be partially mediated by focusing. In this study, 135 participants were randomly assigned to either the meaning intervention condition, which focused on reflecting on meaningful goals and values or the control condition, which trained participants in executive functioning. Participants received digitized interventional conditions at baseline and every second day for two weeks (a total of six exercises) as home exercises. Finally, the meaning intervention did not significantly affect meaning in life perceptions, depression or anxiety ratings from baseline to follow-up. Additionally, focusing or listening to the felt sense was not a significant mediator on the meaning intervention creating change in meaning. Reasons for the nonsignificant findings could be the shorter and impersonal administration of the meaning intervention.

Keywords: Meaning in Life, Meaning Intervention, Focusing Attitude, Felt Sense, Experiencing, Bottom-up Processing

The Effects of Focusing and the Felt Sense on a Meaning-in-Life Intervention

Depression and anxiety are two of the most impacting mental disorders today with depression having a lifetime prevalence of 18.7% in the Dutch adult population (18-65 years old; de Graaf et al., 2010), creating a cost on society of around €953 million (Romijn et al., 2008). Cost of illness studies calculated an additional sum of €2,700 yearly for a family with a clinically anxious young adult (Bodden et al., 2018). Moreover, Evans et al. (2018) demonstrated that graduate students are six times more likely to be affected by depression or anxiety compared to the rest of the population. Therefore, it becomes evident that new and efficient treatments for depression and anxiety are needed in order to treat those mental illnesses and decrease incidence rates in the future. One construct that related to lower levels of depression and anxiety was meaning in life (Steger, 2012). This study used this concept to design an intervention that was hypothesized to increase meaning by reflecting and focusing on meaningful goals and decrease depressive and anxious symptoms in undergraduate students. Additionally, this study found *focusing* to be one of the more pertinent variables in the negative relationship of meaning, depression, and anxiety. Therefore, levels of focusing were also the main focus of this intervention.

Meaning as Transdiagnostic Factor

Meaning in life (MIL) has been theorized to be a transdiagnostic factor (Brown et al., 2008, Debats, 1996). Transdiagnostic factors explain that there are common concerns, thoughts and behavior patterns that can be observed in many psychological disorders and life meaning is one example of such a factor. Since transdiagnostic factors were believed to exist outside of the constraints of specific disorders, it was expected that transdiagnostic mechanisms like meaning were theorized to be related to almost all psychopathologies, f.e. anxiety disorders, mood

disorders, substance abuse disorders and eating disorders (Harvey et al., 2004). A feeling of

meaninglessness related to the helplessness in depression, elevated vulnerability to anxiety and

abuse of substances and the development of an unhealthy focus on weight and shape seen in

eating disorders (Brown et al., 2008; Marco et al. 2022; Mohammad & Mashhadi, 2018).

What is Meaning?

It is hard to pinpoint what meaning is and to define it in a way that suits everyone.

Meaning seems to be a rather subjective topic and is defined by the individual person (Christy et

al., 2017; King et al., 2006; Reker & Wong, 1988). However, in broad terms, it can be said that

meaning is what helps us to understand our lives. If we see meaning in our lives we can make

plans for the future with the knowledge of what gives us energy or what values are the most

important to us (Steger, 2012). One model that described what meaning entails was the tripartite

model of meaning in life (Christy et al., 2017; Costin & Vignoles, 2020). Based on this model,

meaning in life is made up of coherence, purpose and mattering. In this context, coherence meant

whether life has a sense of order. Purpose stood for the motivational domain of a meaningful life

and helped to explore what are one's aims in life. Mattering stood for whether life has

significance also in the broader scope of the universe.

Meaning Inversely Related to Depression and Anxiety

Transdiagnostic View

Taking the transdiagnostic view of meaning in life on depression or anxiety it makes

sense that meaning has a negative relationship with the two psychopathologies. Someone, who

perceives their life to be meaningless, most likely would score higher on measures of depression

like feeling sad, hopeless or helpless. Additionally, a common symptom of depression is a lack

of energy and withdrawal from life (American Psychiatric Association, 2013) and this could

reflect a low sense of purpose and lack of goals to aim for in accordance with the tripartite model. When it comes to anxiety and its negative relation to meaning, it was already mentioned that meaning protected from the negative consequences of experiencing stressful events (Frankl et al., 2010; Hirsh et al., 2012; Ostafin & Proulx, 2020; Reker, 2000; Steger, 2012). So, if someone experiences low meaning in life, they will be more vulnerable to the effects of stress and consequently could develop more anxiety symptoms overall (Brown et al., 2008).

Correlational Research

Cross-sectional research like the study by Zika and Chamberlain (1992) found this inverse relationship when looking at the correlation of meaning and depression or anxiety in self-report questionnaires. Moreover, also Steger (2012) in their literature review summarized the existing research that found cross-sectional evidence that depression and anxiety are inversely related to meaning. Interestingly, the treatment of depression and anxiety in turn also increased meaning again (Steger, 2012). The negative correlation between depression and meaning in older adults was estimated to be of medium effect (Pinquart, 2002). Additionally, in the theme of meaning being a transdiagnostic variable, meaninglessness was one of the main correlators with psychopathology overall including anxiety, depression, suicidal behavior, drug or alcohol abuse (Frankl et al., 2010; Reker, 2000; Steger, 2012).

Meaning Interventions

As a next step, research tried to implement this negative relation of meaning and depression or anxiety and created interventions with the goal to decrease psychopathological symptoms and increase meaning. However, the number of meaning intervention studies that were run is limited. Further, there is a lot of heterogeneity between studies in terms of their sample, the theory of the intervention and the administration of the interventions. A meta-

analysis by Manco and Hamby (2021) collected previous meaning in life interventions and categorized the administered interventions into mindfulness, rewriting life narratives, psychoeducational programs, or psychotherapy. Mindfulness interventions, which focused on techniques for promoting conscious, non-judgmental awareness of the present moment and increasing awareness of thoughts and feelings, and narrative interventions, which were about reviewing and writing about one's life to achieve a sense of peace or empowerment, were found to be the most successful in decreasing psychopathological symptoms out of all the categories. Another example of a successful but brief meaning intervention was the experimental study by Ostafin and Feyel (2019) where undergraduate participants, who were drinking alcohol regularly, were assigned to either the control or meaning condition. The meaning condition had to reflect on and commit to personally valued goals, while control had to focus on unimportant goals. The intervention created a significant difference between the conditions in incentive salience of alcohol cues in a Stroop task, which suggested that the brief meaning intervention had an effect, however, the increase of perceived meaning in life was not measured.

Mechanisms of the Relationship

What Remains Unknown

Due to the strong heterogeneity of the existing meaning interventions described above it is still unclear what the best way to create meaning is. Moreover, there is a lack of research on the mechanisms that affect the inverse relationship of meaning and psychopathologies like depression or anxiety. We researched the theories on potential mechanisms in more detail and in the following we will elaborate on the theory and statistical evidence of such factors.

Bottom-Up Processing

A process that was suggested before to be important for the judgment and the creation of meaning was bottom-up processing (Christy et al., 2017; King et al., 2006; Reker & Wong, 1988; Vanhooren et al., 2022). In order to understand bottom-up processing on meaning creation, it is helpful to define the difference between bottom-up and top-down processing. Greenberg and Pascual-Leone (2001) theorized that there are two ways of meaning-making which are tied to two streams of consciousness, on the one hand, a conscious conceptualization of what is meaningful, which is similar to top-down processing, and on the other hand, an immediate emotional experience, which is reflected in our affect and other bodily sensations. Using the latter stream of consciousness is a way of bottom-up meaning-making. Vanhooren et al. (2022) took this first theory of the two streams of consciousness and experience and elaborated it further. They theorized that meaning is created through an accumulation of smaller meaningful or valuable experiences we gather throughout life. We judge experiences by whether they feel meaningful to us and once these experiences and moments of meaningfulness accumulate, we will have found a sense of meaningfulness. This type of bottom-up meaning-making changes our outlook on life and over time if meaningful experiences aggregate it will be easier to find more meaningful moments. On the contrary, Vanhooren et al.'s (2022) idea of top-down meaning-making was that one would adopt a bigger scheme of meaning and would evaluate their life through this construct, for example being part of a religion, ideology, or sticking to some ideas of goals one should have. To sum this up, apparently meaning can be created in two ways, however, there is a difference between whether you create your own sense of meaning and what is important for you personally or whether you adopt a bigger construct of how meaning someone created for you, for example judging one's life meaningfulness or significance through the lens of one's religion.

Greenberg and Pascual-Leone's (2001) argued that the healthier way of creating meaning is based on the self-reflections of one's experiences, feelings and sensations in the body in a moment, so the bottom-up process. We can argue that one's own experiential understanding of what brings meaningfulness to their life has more weight on meaning creation, compared to only being able to judge meaning through a pre-specified theory or ideology. Something as broad as personal meaning-making could benefit more from the bottom-up process because it will be more related to the subjective experience of the individual, similar to how meaning was defined in this text before, i.e. being a construct of high subjectivity and self-experience.

Focusing

One example of a bottom-up type of processing is focusing, also called *focusing attitude* (Gendlin, 1962, 1981; Vanhooren et al., 2022). Similar, to the definition of bottom-up processing from Greenberg and Pascual-Leone (2001) and Vanhooren et al. (2022), Gendlin (1981) also theorized meaning is created by having a bottom-up focus on feelings and bodily sensations in a moment, which will help to judge what is meaningful based on the experience of the situation. The experience of bodily feelings and affect was also called the "felt sense". The felt sense describes the openness to listen to one's feelings and sensorimotor sensations and focusing is the mechanism of nonjudgmentally experiencing these feelings in the here and now (Gendlin, 1961, 1981). Focusing sounds similar to mindfulness, which also describes paying nonjudgmental attention toward inner experiences and thoughts (Vanhooren et al., 2022), however, when using focusing a person in the end will try to interpret or put meaning to the felt experiences (Gendlin, 1961). The term focusing was born because Gendlin (1961) found that some of his patients had a better progression in therapy compared to others. After studying those patients, he saw that the more successful patients were better in using focusing. Therefore, focusing acted like a

mechanism that helped patients find meaning easier than those who were not trained in it. The felt sense lies between the conscious and the unconscious thought (he called it "preconscious") and to be able to use focusing and listen to the felt sense, one would need practice to be able to listen to that preconscious experience.

Focusing-Oriented Therapy

Also due to the success of focusing that Gendlin (1998) saw in his patients, he later designed a new therapy called Focusing-Oriented Therapy. Ever since focusing and Focusing-Oriented therapy were part of more recent research, however, a lot of previous research on the concepts has been run in Japanese and the lack of translation made it hard for the constructs to reach the English-speaking research space. Aoki and Ikemi (2014) used their meta-analysis to translate and summarize the results of these previous Japanese studies. They reported that across the summarized research on Focusing-Oriented therapy focusing had a negative relation with psychological distress, existential anxiety, and depression. To be able to assess the level of someone's level of focusing Fukumori and Morikawa (2003) created the Focusing Manner Scale (FMS), which assessed the level to which someone is trained in using focusing and being able to attend to their felt sense. FMS scores, psychological distress and well-being were consistently correlated (Aoki & Ikemi, 2014). In another cross-sectional study, Vanhooren et al. (2022) tested whether focusing can be trained and whether focusing attitude influenced the meaning-making process, as Gendlin (1981) theorized. Results indicated that the perception of meaning in life partially mediated the relationship between focusing attitude and psychological distress. All in all, it can be concluded that focusing, meaning in life and psychological distress in the forms of depression and anxiety have extensive research supporting that focusing was related to meaning

in life and that focusing could be one of the mechanisms that help explain the relationship

between meaning in life and depression or anxiety.

Current Study

To sum up what has been said so far, meaning in life is a transdiagnostic factor (Brown et

al., 2008) that showed an inverse relationship to depression and anxiety (Steger, 2012). Meaning

interventions were designed to decrease depression or anxiety and increase meaning in life

perceptions (Manco & Hamby, 2021). Mechanisms of the relation of meaning and

psychopathology were unclear. Bottom-up processing was theorized to be the healthiest way to

create meaning (Greenberg & Pascual-Leone, 2001), saying that meaning is created by

subjective experiences and understanding of affect and bodily sensations. Focusing is an

example of a bottom-up process and it was found to be connected to meaning in life measures

and psychological distress in the forms of depression and anxiety (Gendlin, 1962, 1981;

Vanhooren et al., 2022). This study will address the gap in knowledge by, firstly, designing a

meaning intervention that will try to increase participants' meaning perceptions by having them

reflect and focus on meaningful goals. Secondly, the intervention will test whether the creation

of meaning truly is a bottom-up process and whether participants who are connected to their felt

sense will be better at creating meaning. Thirdly, it will be measured whether this new

intervention will decrease depression and anxiety symptoms. Lastly, the meaning intervention

will be tested on undergraduate students since there is an urgent need for more successful

interventions that can help decrease the incidences of depression and anxiety in this vulnerable

population. In clear terms, this study wants to find out whether a focusing-based meaning

intervention could increase perceived life meaning. It will be tested whether 1) compared to

control, the MIL intervention will increase perceived life meaning significantly from baseline to

follow-up, 2) compared to control the MIL intervention will lead to significantly 2.1) lower

depression and 2.2) lower anxiety ratings from baseline to follow-up, and 3) the relationship of

the first hypothesis is partially mediated by focusing attitude.

Methods

Participants

Participants were first-year undergraduate students of psychology at the University of

Groningen. Participation was a requirement for one of their first-year courses and was rewarded

with "SONA credits". An initial number of 424 participants were screened for their Meaning in

life (MIL) and using a bottom median split of MIL scores (Schnell, 2009), 207 participants low

in MIL were invited to the study. The study had an aimed sample size of 104 participants for an

estimated *power* of .80 and an effect size of $f = .25$. The current study initially had a sample size

of $n = 135$, however, ten participants had to be deleted (see result section). The final sample

consisted of 125 participants of which 76% of participants were female, 22.4% male and 1.6%

other (gender-fluid and nonbinary). The mean age was 19.8 with a standard deviation of 2.64.

The final sample ($n = 125$) resulted in a power of .99 to detect an effect size of $f = .25$.

Materials

Interventions

Baseline. The current study had two digitized intervention conditions, the meaning and

the control. In the meaning condition, participants had to reflect on their values and goals in life

to increase their perception of meaning in their lives. At baseline, the meaning condition was

shown a video of Steve Jobs, who talked about the importance of living authentically. This was

followed by an audio recording, which was supposed to do three things. First, to relax them,

second to help them connect to their most important life values and third to make specific goals

on what values they wanted to act upon more. In the control condition, participants were

informed that they were training working memory skills. At baseline, this group watched a video

and read an essay on the importance of building working memory or executive functioning skills.

Afterward, the control group did some working memory tasks, i.e., remembering and

reproducing a line of seven numbers (two times in order and two times in reverse), producing as

many words as possible with the beginning letter s and afterward with b, and, lastly, attentively

reading a short story and answering some questions about the content. The intervention part at

baseline lasted on average around 20 minutes.

Home Exercises. In the daily interventions, participants in the meaning condition were

asked to reflect more on meaningful values and their life goals. They listened to other audio

recordings, which had a similar structure to the baseline audio. Themes of the daily interventions

varied and were either about general meaning, meaningful songs, meaningful memories, and

meaningful people. In the working memory condition, daily interventions involved either

remembering and reproducing strings of seven numbers or reading an essay and repeating the

story in writing.

Measures

Meaning in life. To measure meaning in life, the Multidimensional Meaning in Life

Scale (MMIL; Costin & Vignoles, 2020) was used at baseline, post-intervention, and follow-up.

The scale covered the topics of MIL judgment ("My life as a whole has meaning"), Coherence

("I can make sense of the things that happen in my life"), Purpose ("I have certain life goals that

compel me to keep going") and Mattering (e.g., "Whether my life ever existed matters even in

the grand scheme of the universe."). This selection consisted of 16 items, which could be rated

on a 7-point Likert scale *(1= strongly disagree; 7= strongly agree;* All items and response

options of the questionnaires used in this study can be found in the appendix of this paper.) All

subscales showed internal reliability no lower than a Cronbach alpha of $\alpha > .70$ (at baseline $\alpha =$

.91, at post-intervention $\alpha = .88$, at follow-up $\alpha = .92$).

Focusing. Focusing was measured using the Focusing Manner Scale (FMS; Aoki &

Ikemi, 2014) at follow-up. Five items were picked from the FMS scale based on high face

validity (e.g., "I know that I can trust what I sense inside"). Items were rated on a four-point

Likert scale running from 1 (*Never*) to 4 (*Often*). For a full overview of items used refer to the

full FMS measure in the appendix. Cronbach's coefficient alpha for the FMS was .70.

Depression. The Major Depression Inventory (MDI; Bech et al., 2001) was used to

assess depression symptoms at baseline, post-intervention and follow-up. It included 12 items,

which are ranked on a scale from 0 (*At no time*) to 5 (*All the time*). For two questions (Question

8.1 and 8.2, and 10.1 and 10.2 only the higher of the two answer values were counted. Items

followed the diagnostic criteria of the DSM-IV, f.e. "Have you felt low in spirits or sad?" or

"Have you had trouble sleeping at night?". The MDI displayed good internal reliability of

Cronbach's coefficient alpha $\alpha = .88$ at baseline, $\alpha = .82$ at post-intervention and $\alpha = .89$ at

follow-up.

Anxiety. Lastly, anxiety was measured at baseline, post-intervention and follow-up using

the Generalized Anxiety Disorder questionnaire (GAD-7; Spitzer et al., 2006). This scale had 7

items (e.g. "Feeling nervous, anxious or on edge") and was ranked on a scale from 0 (*Not at all*)

to 3 (*Nearly every day*). Also, this scale had good internal reliability, with Cronbach's alpha $\alpha =$

.84 at baseline, $\alpha = .91$ at post-intervention and $\alpha = .84$ at follow-up.

Procedure

The present study received ethics approval from the University of Groningen psychology department ethics review board, with the code: PSY-1920-S-0105. All measures and home practices that were to be filled in by participants were administered via Qualtrics. Participants were randomly assigned to the two conditions. At the baseline session, participants completed a series of measures, including the ones mentioned above (excluding the FMS). Afterward, the intervention tasks were administered (see intervention paragraph). The baseline session lasted around 45 minutes.

After the baseline session, participants received the six home exercise interventions (see intervention paragraph), lasting approximately 10-15 minutes, every other day over two weeks via email. After these two weeks, participants were invited back to the laboratory. We assessed them on the same measure as in the baseline, and they received a short refresher on the intervention. In the meaning group, this meant reflecting on their values and setting goals for the future. In the working memory group, it meant an attention and reaction time task. This lasted around 20 minutes.

Lastly, after two weeks we sent out an approximately 10-minute long follow-up measure with only the previously used questionnaires, plus the Focusing Manner Scale.

Statistical Analyses

We conducted statistical analyses using SPSS version 29 (IBM Corp, 2022). We assessed the first hypothesis that the meaning intervention increases perceived life meaning using repeated-measures ANOVA with the group condition as the between-group variable and meaning in life at baseline, post-intervention and follow-up as the within-group variable. We assessed the second hypothesis that the meaning intervention will lead to lower depression and anxiety ratings with repeated measures ANOVA, where the group condition acted as the

between-group variable and depression (and anxiety in a separate analysis) at baseline, post-intervention, and follow-up as the within-group variable. The third hypothesis that the relationship of the first hypothesis is mediated by focusing attitude was assessed with a regression analysis using PROCESS macro (Hayes, 2013). Here we used group (meaning vs. control) as the independent variable, change in meaning in life from baseline to post-intervention as the dependent variable, and focusing attitude as a mediator variable since we hypothesized that participants, who are more skilled in using focusing, will have higher increases in meaning-in-life ratings compared to those who are not trained in focusing.

<div align="center">

Results

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Preliminary Analysis

Data Management

We had to delete ten data cases due to participants doing less than three of the assigned home practices ($n = 5$), missing data at post-intervention ($n = 2$), follow-up ($n = 1$), or due to a below moderate understanding of the English language ($n = 2$). Seven of these deleted cases were from the working memory and three were from the meaning condition. The final sample with no empty data cases had $n = 125$, with the meaning condition having $n_{Meaning} = 65$ and the working memory condition $n_{WM} = 60$. Three significant outliers were found in the analysis of the first hypothesis with studentized residuals at baseline of -2.90 and 2.83 (see *Figure* 1 in appendix) and at follow-up of -3.11 (see *Figure* 2 in appendix). We kept these outliers in the data set because omitting them did not significantly affect the main results. Assumptions of normality, homoscedasticity, and sphericity were checked for each analysis. All three repeated measures ANOVA violated the assumption of sphericity (based on Mauchly's test of sphericity, $p < .05$), therefore for all three we used the Greenhouse-Geisser correction ($\varepsilon > .90$). H2.1 and

H2.2 both violated the assumption of normality assessed by Shapiro-Wilk's test of normality ($p <$ .05 at all measurement points) and no data transformation could make data normal. We accepted this and continued with data analysis.

Initial Group Differences

An initial one-way ANOVA revealed no significant differences between the two conditions on their MIL, depression and anxiety ratings at baseline. Means, standard deviations, the F statistics and related p-values of the one-way ANOVA can be found in *Table* 1.

Table 1

Means, standard devations (M (SD)) of baseline variables and F-statistic and p-value (F, p-value)) of Group differences at baseline.

Baseline Measure	Meaning Group ($n = 65$)	Control Group ($n = 60$)	Group Difference
MMiL	66 (14)	70 (15.22)	$F = 2, p = .16$
MDI	20 (8.55)	19 (10.33)	$F = .39, p = .53$
GAD-7	8 (4.05)	9 (5.02)	$F = 1.44, p = .23$

Note. Means, standard deviations were derived from the final sample (N = 125). Means display the sum scores of responses to all items at baseline. These sum scores were also used in the one-way ANOVA analysis. MMiL = sum score of MIL at baseline, MDI = sum score of depression at baseline, GAD-7 = sum score of anxiety at baseline.

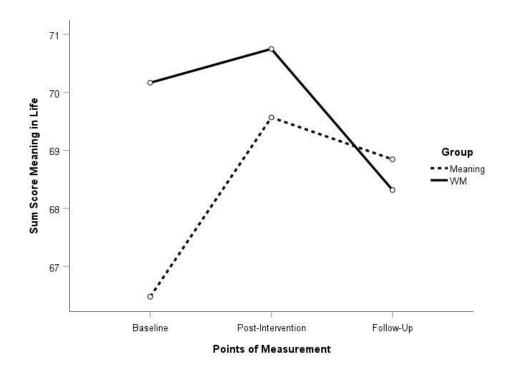### Main Analysis One: Meaning in Life Intervention - Hypothesis One (H1)

To examine whether the intervention had a significant effect on perceived MIL of participants, a two-way repeated measures ANOVA was used. The three measurements of MIL at baseline, post-intervention and follow-up were entered as the within-subjects variable, and intervention condition was entered as the between-subjects variable.

The results of this first analysis did not support the first hypothesis that the meaning intervention significantly influenced the perceived meaning in life ratings between conditions.

The two-way RM-ANOVA showed no significant interaction effect (using the Greenhouse-Geisser correction, since sphericity was violated) between the two conditions across the three time points, i.e. baseline, post-intervention, and follow-up (F 1.82, 224.22 = 2.14, p = .11., η^2_p = .02). Also, the main effect of the intervention across both groups and all three time points did not show statistical significance (F 1.82, 224.22 = 2.04, p = .14, η^2_p = .02). A visual representation of the differences in group means across time points between both conditions can be found in *Figure* 3.

Figure 3

Change in Meaning Between Meaning and Control Group

Note. Shows the marginal means of MIL ratings for working memory and meaning conditions at the three measurement points of baseline, post-intervention and follow-up. Y-axis values represent the mean sum scores of meaning in life for participants. The two conditions are displayed (Meaning = meaning condition; WM = working memory condition/ control)

Main Analysis Two: Meaning in Life on Depression and Anxiety - Hypothesis Two (H2)

To test whether the MIL intervention had an effect on the depression and anxiety levels in participants, again a two-way repeated measures ANOVA was used. Depression ratings (H2.1) and in another analysis anxiety ratings (H2.2) at baseline, post-intervention, and follow-up were used as the within-subjects variable, while *condition* was entered as the between-subjects variable.
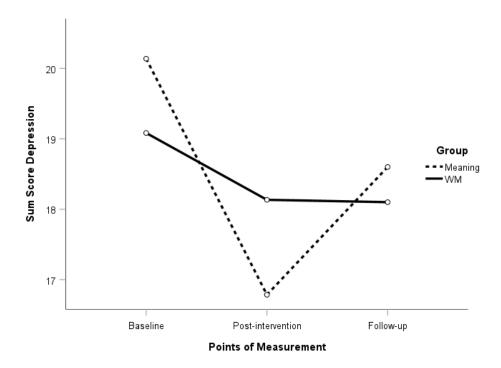
Depression (H2.1)

The results of this second two-way repeated measures ANOVA analysis did not support the hypothesis that depression ratings showed a significant interaction effect across the three time points, $F(1.86, 228.7) = 2.25$, $p = .11$, $\eta^2_p = .02$. However, the main effect of the interventions across both groups did show a statistically significant difference in depression ratings between trials, $F(1.86, 228.7) = 6.66$, $p = .002$, $\eta^2_p = .05$. For a visual representation of the differences in mean depression scores between both conditions refer to *Figure* 4.

Anxiety (H2.2)

The results of this third two-way repeated measures ANOVA did not show a significant interaction effect for the hypothesis that anxiety scores were significantly different between conditions across the three time points (F 1.89, 232.16 $= .27$, $p = .75$, $\eta^2_p = .002$). However, the main effect of the interventions across both groups at the three time points was significantly different in the ratings of anxiety (F 1.89, 232.16 $= 23.89$, $p < .001$, $\eta^2_p = .16$). Again, a visual representation of the differences in mean anxiety scores between both conditions can be seen in *Figure* 5 below.
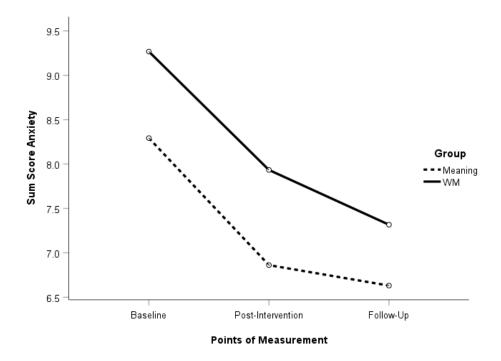
Figure 4

Change in Depression Between Meaning and Control Group

Note. Shows the marginal means of depression scores for working memory and meaning conditions at the three measurement points of baseline, post-intervention and follow-up. Y-axis values represent the mean sum scores of participants. The two conditions are displayed (Meaning = meaning condition; WM = working memory condition/ control)

Figure 5

Change in Anxiety Between Meaning and Control Group

Note. Shows the marginal means of anxiety scores for working memory and meaning conditions at the three time points of baseline, post-intervention and follow-up. Y-axis values represent the mean sum scores of participants. The two conditions are displayed (Meaning = meaning condition; WM = working memory condition/ control)
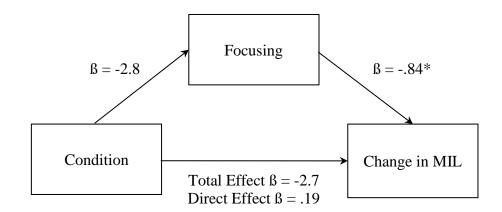
Main Analysis Three: Focusing as Mediator - Hypothesis Three (H3)

To find out whether focusing had a mediating effect on the development of meaning in life in our intervention, we ran a mediation analysis using PROCESS in SPSS (Hayes, 2013). The outcome variable of this mediation analysis was the change of meaning in life ratings from baseline to post-intervention caused by the intervention. The independent variable was the condition the participants were in. The mediator variable chosen for this analysis was focusing attitude.

First, the assumptions of running a mediation analysis, i.e., normality and multicollinearity, were checked and were met. Dependent and mediator variables were on a continuous scale and condition was dummy coded. The bias-corrected bootstrap 95% CIs for the indirect effect (-.19) of condition and focusing on Change in MIL based on 10,000 bootstrap samples included zero (-.69 to 1.19), which meant that the relationship of Condition on Change in MIL was not significantly mediated by focusing. All regression coefficients of condition and focusing on Change in MIL can be seen in *Figure* 6.

Figure 6

Mediation Model Focusing and Condition on Change in MIL

Note. Figure 6 shows the model of the indirect effect of condition on change in MIL through focusing. Regression coefficients are unstandardized.
* $p < .05$.

Post Hoc Analysis - Immediate Interventional Effect

Since the main analyses were not significant, we ran a post hoc analysis to see whether there would have been a significant difference between the two conditions immediately after the intervention, i.e., at post-intervention. Three additional two-way repeated measures ANOVA were run and were set up similarly to the original analyses for H1 and H2 with the only

exception that the post hoc repeated measures ANOVA only checked for a significant difference between both conditions comparing baseline and post-intervention measures. Since this analysis was post-hoc we adjusted the alpha levels for statistical significance to 0.025% to counteract possible type one errors due to multiple testing.

Post Hoc Analysis - Change in Meaning from Baseline to Post-Intervention

In this first additional analysis, another repeated measures ANOVA was run similarly to the original one with the exception of excluding the follow-up measurement point. Results again indicated that there was no significant interaction of the meaning intervention and the condition on meaning (F 1, 123 = 1.9, p = .17, η^2_p = .02). The main effect of the intervention for both groups together was also not significant with F (1, 123) = 4.07, p = .05, η^2_p = .03.

Post Hoc Analysis - Change in Depression and Anxiety from Baseline to Post-Intervention

The additional two repeated measures ANOVA analyses were run to see whether the meaning intervention had a significant effect on the change of depression and anxiety from baseline to post-intervention. In this analysis, the meaning intervention did not have a significant effect on the depression symptoms of participants (F 1, 123 = 4.77, p = .03, η^2_p = .04). However, a significant main effect for depressive symptoms was found (F 1, 123 = 15.29, p < .001, η^2_p = .11). The analyses for anxiety symptoms showed no significant difference in anxiety ratings between the two conditions at post-intervention (F 1, 123 = .04, p = .85, η^2_p = .00). On the other hand, the main effect of the intervention for both groups together revealed significance with a F (1, 123) = 28.71, p < .001, η^2_p = .19.

Discussion

The current study examined an intervention designed to increase participants' perception of meaning in life based on the theories of bottom-up processing, experiencing, the felt sense and

focusing (Gendlin, 1962, 1981; Greenberg & Pascual-Leone, 2001; Vanhooren et al., 2022). The intervention was experimentally tested against a control group, being trained in working memory skills. The study had three main hypotheses we wanted to explore. First, did the meaning in life intervention facilitate an increased perception of life meaning? Second, based on previous research on the association between meaning in life and psychopathology, specifically depression and anxiety (Brown et al., 2008; Debats, 1996; Reker, 2000; Steger, 2012), did the intervention have an effect on participants' depression and anxiety symptoms between the two groups? Finally, according to the theory of Gendlin (1981) was the increase in participants' meaning in life caused by the intervention partially mediated by their ability to use focusing and connect to their felt sense, which meant using a bottom-up approach of listening to their affect and bodily sensations to explore meaningful experiences?

Comparing the two conditions there was no overall significant difference in their meaning in life ratings looking at baseline through follow-up. Thus, the results did not support that the meaning in life intervention had a significantly different effect on participants' meaning in life perception or on their depression or anxiety symptoms. Additionally, focusing attitude did not have a significant partial mediation effect on meaning production.

Meaning Intervention Creating Meaning - H1

Having a closer look at why our meaning intervention did not create significantly different levels of meaning between the groups, one possible explanation could be that creation of meaning in meaning interventions can only be observed in the short-term immediately after the intervention. Studies that were successful in decreasing psychopathological symptoms and/ or increasing meaning in participants usually measured the construct of interest immediately after the end of the intervention. For example, in both studies by Ostafin and Feyel (2019) or

Ostafin and Proulx (2020) brief meaning interventions were created, which also were successful in decreasing the psychopathological symptoms of interest by having the participants reflect on meaningful goals. All measures and manipulations happened on the same day of testing. Comparing this to our study, the main measure at post-intervention, which checked whether the manipulation was successful, happened two days after the last interventional home practice. We could argue that the effects of such a meaning intervention are fleeting and if measures are administered not within the same day of intervention the results will be weaker. This slow phasing out of the interventional effects could also explain why the meaning perception of participants went back to the pre-interventional level at follow-up (refer to *Figure* 3). Also, what should be noted is that the difference between the two conditions in their levels of meaning at baseline were not significantly different but the size of the *p*-value shows that the means of both conditions also were not very equal ($p = .16$). Thus, if the groups already were a bit more different from the start, according to their perception of their life meaning, this could have also influenced the final null results of this study.

Another argument for why the intervention did not have significant effects is that this intervention was digitized and there was no psychologist or therapist administering the intervention. Hallford and Mellor's study (2016) had a more personal administration of the intervention, where participants met with therapists six times a week for one-on-one sessions. In their study follow-up effects could still be found at the five-week and three-month follow-up point, while in this study any small emerging effect diminished at the time of the follow-up. However, looking at whether online or in-person therapy have better therapeutic outcomes, Morland et al. (2015) could not find a significant difference between online versus in-person administration of therapy. Additionally, digitized interventions also seem to be working because

van Zyl et al. (2020) could find a significant increase in meaning in life ratings in their digitized photographic meaning intervention that went over Instagram without additional one-on-one personal contact. Participants had to reflect on things they found meaningful in everyday life and had to capture these meaningful moments in photographs, which were finally uploaded to a personal Instagram account. However, we want to note that the sample of van Zyl et al.'s (2020) study was made up of volunteers, who responded to an advertisement asking whether they would like to participate in a meaning study. It is possible that a positive effect of their study might be due to the fact that participants were most likely motivated to participate and increase their meaning. So, it is questionable whether a similar effect would have been found with a sample similar to the current one consisting of first-year students, who possibly were not as motivated to participate since participation was a requirement for their first-year course.

Furthermore, interesting to note is that the small effects that were seen in our intervention diminished again before the follow-up measure and went back to the pre-interventional level. Possibly, our intervention was not long or intensive enough to create strong and sustainable effects. In previous theory, it was explained that the creation of meaning is a longer process, where meaning is often created by overcoming distressing situations or traumatic experiences (Frankl et al., 2010; Saarelainen, 2022). In Hallford and Mellor's study (2016) a young sample of participants (12 - 25 years), was used and their intervention had a significant effect on perceptions of life meaning. This sample differed in that these participants were in a clinical setting and on average younger than the current sample. Additionally, the procedure to increase meaning was not the same as in our study as they used a manualized meaning intervention, however, it could still be argued that also the time spent on the intervention can have an effect on how long the increase of meaning perception lasted. Their intervention ran for 6 weeks with

once-a-week face-to-face interviews with a psychologist. If this is compared to our intervention, participants in the current study spent less time (i.e., approximately 60 minutes altogether) reflecting on meaning and on the intervention overall compared to participants who over six weeks received about 45-minute interviews a week (i.e. together about 2,700 minutes) plus any time Hallford and Mellor's participants spent reflecting on the topic themselves.

Lastly, a short intervention as created in our study has its shortcomings when thinking about the real impact a two-week intervention can have on someone's core life values and life meaning. Possibly, meaningfulness is something that slowly builds with life experience and it cannot be created in such a fast way. Maybe those with more life experiences are more trained in dealing with adversities in life and have an easier time building new meaning, purposes or a feeling of significance in their lives. The main reference study to our's is the study by Vanhooren et al. (2022). However, in Vanhooren et al.'s (2022) research the sample of participants was on average older (M_{Age}= 53 years) compared to our study (M_{Age}= 20). Age and previous life experiences might have an effect on how meaning is built and on what life values it is based on (see Reker & Chamberlain, 2000; Schnell, 2009). Similarly to the theory of meaning-making as a bottom-up process (Brown et al., 2008), if someone has already gathered many moments that were meaningful to them and has learned to identify these experiences and built their personal meaning structure, they will be faster in finding even more meaningful things in their environment compared to younger adults, who are lacking in the experience of these meaningful moments. Reker and Chamberlain (2000) explained that meaning in life judgments can change over the lifespan and Schnell (2009) argues that generally older people have built slightly stronger life purposes than younger people. So, comparing our study outcome with the study by Vanhooren et al. (2022) with a higher mean age might give the older study an unfair advantage

in that participants, who are on average older, have it easier to build meaning compared to young undergraduate students.

Meaning Intervention Decreasing Depression and Anxiety

One argument for why other studies found significant changes in depression and anxiety symptoms and our study did not could be explained by comparing the samples of the previous research to the one of the current study. Most previous studies were working with samples of patients in some form of (psycho-) therapy (Debats, 1996; Manco & Hamby, 2021; Steger, 2012; Vanhooren et al., 2022) or those who struggle with finding meaning after being diagnosed with life-threatening diseases (Manco & Hamby, 2021). In our study, the participants were a convenience sample of first-year students, who were screened for low meaning, but this does not necessarily equal the same amount of distress or experienced meaninglessness found in a clinical sample. Possibly a lack of results could be explained by our sample being healthier compared to those samples of clinical participants. Perhaps meaning in life is created faster in those that are already lacking in meaning compared to a sample of students, which is suspected to have an overall average to lower average meaning-in-life rating. Possibly, creating even more meaning in life in the current participants would have needed more interventional time and effort to raise the level to an above-average meaning in life perception. Possibly those who, for example, face existential crises triggered by illnesses are much more willing and motivated to find meaning in their lives since that is what can help alleviate some of their existential worries.

Looking at the data more closely we can report that in both the original and the post-hoc analysis exactly the same results were found. In both analyses, mean depression and anxiety symptoms were not significantly different between the groups after the intervention but mean depression and anxiety symptoms were significantly different between the points of

measurement. These differences cannot be accredited to the meaning intervention but to possibly an additional variable that was unaccounted for. While the study was running most participants were going through their very first exam period at the University of Groningen. Exam periods can already be a stressful, anxiety-provoking and depression-affected time (Zunhammer et al., 2013) and especially since it was for most of them their first exam period this could have had an effect on participants' depression and anxiety scores throughout the study. For example, the period of the first exams could have decreased depression ratings overall because students were busy with studying and after around two weeks when this intervention was done and follow-up measures took place, probably results of those exams were published or were going to be soon, which could explain another increase in depressive symptoms as rumination and worrying could start again (refer to *Figure* 4). Similarly, once students start to be done with exams, it makes sense that their anxiety levels decrease significantly compared to before the exam period and that they also stay low after exams as the most stressful period has gone by then (refer to *Figure* 5).

Meaning Intervention Mediated by Focusing Attitude

Lastly, referring back to the result of the last hypothesis, which wanted to test whether focusing attitude would have a partial mediating effect on the increase in meaning in the meaning intervention, it should be noted this study could not support that focusing attitude was partially mediating the effect of the meaning intervention on the final meaning perception of participants. The meaning intervention did not have a significant relation with focusing but focusing had a significant relationship with the overall change in meaning from baseline to post-intervention. A possible reason for focusing not being a successful partial mediator in this relationship could be that the participants in this study did not change in their already pre-interventional existing level of focusing attitude. Participants could use focusing and attend to

their felt senses only to the amount they previously were also able to do, in other words, the

meaning intervention did not help participants to connect to their felt senses more easily than

before the intervention. As Gendlin (1961, 1981) showed in his research if meaning creation is

truly related to connecting to one's pre-conscious feelings, one cannot assume that participants

will be able to connect to their felt senses and meaningful experiences easily without any

previous training or experience. Vanhooren et al. (2022) also only included participants in their

study, who were already knowledgeable about and well-trained in using focusing and its

mechanisms before the study started. They assessed this by asking whether the participants have

had practice in focusing already. Gendlin's (1981) guide on how to use focusing also showed

that patients first had to practice focusing with him in their therapy sessions before they were

able to use the skills themselves. Comparing this to the current intervention such therapeutic

guidance and previous training is completely lacking and this could explain why focusing was

not significantly related to the meaning intervention and also not a mediator in the relationship.

Focusing being a significant predictor in the mediation model for change in meaning in life the

change of meaning perceptions comparing baseline to post-intervention.

Strengths, Additional Limitations and Future Research

Some of the strengths of our study were the setup of the experimental conditions, the

design of the control group and the size of the sample. Some previous meaning intervention

research did not include a control group (van Zyl et al., 2020), but reported significant results. In

the meta-analysis from Manco and Hamby (2021) summarizing 33 meaning interventions more

than half ($n = 19$) of interventions only used passive control groups. Therefore, it is a big

strength that our study had an active control condition and did not include a passive group like a

waitlist control group. Another strength is that the intervention ran for two weeks compared to

some previous research that was only conducted within one day (Ostafin & Feyel, 2019; Ostafin & Proulx, 2020). Moreover, this study included a follow-up measure, which could assess how long-lasting the effects of the intervention were. Lastly, the sample in our study was one of the bigger ones comparing it to the other studies in the meta-analysis by Manco and Hamby (2021) only 10 other studies from 33 selected had a sample size bigger than 100.

Next to the differences from previous studies that were discussed above, our research had some more limitations. First, our sample consisted of a convenience sample of undergraduate students. For the sake of this study, it was good because it could be argued that undergraduate students would especially benefit from another successful intervention to decrease their depressive or anxious symptoms. However, the results of this study cannot be easily generalized to other populations, which limits this study's frame of interpretation. If it would be of interest whether this meaning intervention study would have similar effects on undergraduate and graduate student populations from different years this study would need to be replicated. Additionally, it can be noted that the gender ratio in this study was unbalanced. The study had 76% of participants who indicated they were women, which is not necessarily a representative gender ratio across all under- and graduate programs. However, previous research could not find support that gender would significantly affect meaning creation and perception (Schnell, 2009). Another possible limitation was arguably that the control condition might have received an intervention that itself already could have created meaning. Possibly, the idea of working on something productive like strengthening executive functioning skills, especially during finals weeks, when all students were already studying for exams, could have been interpreted as practicing a meaningful goal. Following and setting meaningful goals relates to the subconstruct of finding purpose from the tripartite model of meaning (Costin & Vignoles, 2020). Therefore,

the control group could have also, unwillingly from our side, increased in their meaning levels but nevertheless, this kind of more active control should still be preferred over non-active control groups as these limitations can challenge the meaning interventions to increasingly become better.

Overall, building an intervention that is supposed to increase someone's perception of their meaning in life overall is not an easy task. Nevertheless, there were a few things we could learn from this research for possible future research. A first aspect that seemed to be helpful in building a meaning in life intervention would be to have a longer administration period of your intervention. Due to time concerns, the follow-up of the study was also shorter than planned originally. For future studies, a later follow-up at approximately a month later or adding a second follow-up measure could help to oversee the long-term effects of the study. Second, meaning interventions should include sessions that have been administered by a psychologist or therapist either online or in person. Also, the post-intervention measurement where all measures of interest would be assessed is best scheduled as soon as possible after the last intervention. Additionally, strong designs of active control groups can challenge researchers to design even stronger meaning interventions. Another idea to build stronger meaning in life interventions could be to create more qualitative studies to research what people think creates life meaning. Gathering such a bigger insight could possibly uncover what "lay-people" would say brings meaning to their lives and this knowledge can be used in the creation of interventions that target the increase of life meaning overall.

Conclusion

Our study was a good first attempt at running a focusing-oriented meaning intervention and we could learn that meaning creation is not an easy project. However, many good ideas have

been put forward on how to help people increase in their personal meaning, i.e. teaching them

focusing or connecting to their felt sense. The most important takeaway was that the effect of life

meaning on mental health should not be underestimated and hopefully meaning creation will get

more attention in clinical practice also helping the more vulnerable groups like undergraduates in

the future.

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Appendix

Measures Used in Questionnaires

Generalized Anxiety Measure

GAD-7

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

Total Score ___ = Add Columns ___ + ___ + ___

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
☐	☐	☐	☐

Figure 1. The generalized anxiety disorder 7-item (GAD-7) scale.

Major Depression Inventory

Table 1

Major (ICD-10) Depression Inventory. The following questions ask about how you have been feeling over the last two weeks. Please put a tick in the box which is closest to how you have been feeling

	How much of the time . . .	All the time	Most of the time	Slightly more than half the time	Slightly less than half the time	Some of the time	At no time
1	Have you felt low in spirits or sad?	☐	☐	☐	☐	☐	☐
2	Have you lost interest in your daily activities?	☐	☐	☐	☐	☐	☐
3	Have you felt lacking in energy and strength?	☐	☐	☐	☐	☐	☐
4	Have you felt less self-confident?	☐	☐	☐	☐	☐	☐
5	Have you had a bad conscience or feelings of guilt?	☐	☐	☐	☐	☐	☐
6	Have you felt that life wasn't worth living?	☐	☐	☐	☐	☐	☐
7	Have you had difficulty in concentrating, e.g., when reading the newspaper or watching television?	☐	☐	☐	☐	☐	☐
8a	Have you felt very restless?	☐	☐	☐	☐	☐	☐
8b	Have you felt subdued?	☐	☐	☐	☐	☐	☐
9	Have you had trouble sleeping at night?						
10a	Have you suffered from reduced appetite?	☐	☐	☐	☐	☐	☐
10b	Have you suffered from increased appetite?	☐	☐	☐	☐	☐	☐

Focusing Manner Scale

Table 2.   FMS-A.E.

<div align="center">Instruction</div>

Sometimes important personal things can be felt physically in the body
- the taste of a word on the tip of your tongue,
- a discomfort in the stomach when listening to half truths,
- a lump in the throat when things are difficult to bear,
- the comfortable sense when everything seems in harmony.
- the feel of a heart bounding with excitement
- the foggy sense that can come with anxiety

Sometimes these bodily senses come and at other times they do not. Even when they do come, they may be unclear to you or you may not even notice them. It is not a matter of being right or wrong, or better or worse. Everyone's experience is different. In this document, we refer to this bodily sense in different ways: "feeling in the body"; "asking myself"; and as an "inner sense."

<div align="center">Statements</div>

READ EACH STATEMENT AND CIRCLE THE NUMBER THAT INDICATES YOUR LEVEL OF
<div align="center">Never (1) Seldom (2) Sometimes (3) Often (4)</div>

		Never	Seldom	Sometimes	Often
1.	I can sense a variety of rich feelings in my body.	1	2	3	4
2.	I find time in daily life to get a bodily sense of just how I am.	1	2	3	4
3.	It is better to hold back and get some distance from things that concern me.	1	2	3	4
*4.	I criticize myself.	1	2	3	4
5.	I try to match the words I say to how I feel inside.	1	2	3	4
6.	When I have problems I try not to let them get to me.	1	2	3	4
7.	What I do comes from what I feel.	1	2	3	4
8.	I know I have unclear feelings in my life.	1	2	3	4
*9.	I force myself and make myself think in the way that I should.	1	2	3	4
10.	When choosing what to do on a day off, I trust my own feel of which options are best.	1	2	3	4
11.	When I face a difficulty, I know that if I take time and listen inwardly, I will get a sense of what to do or what needs to happen.	1	2	3	4
12.	In everyday life I turn to my feelings more than I consult my thoughts.	1	2	3	4
13.	If I have issues to face in life, I like to keep them at a distance.	1	2	3	4
14.	I retain a sense of how things are for me, even when I am with others.	1	2	3	4
15.	I know I can trust what I sense inside.	1	2	3	4
16.	I value my own unclear personal sense of things.	1	2	3	4
17.	When choosing what to eat, I like to sense what is right for me at that time.	1	2	3	4
18.	When I speak, I am confident that what I say comes from my feelings.	1	2	3	4
*19.	It's hard for me to have a sense of myself and what I feel.	1	2	3	4
20.	Whatever my feelings, I tend to accept them as a reflection of how I am at a particular time.	1	2	3	4
21.	When worrying about things, I pause and step back.	1	2	3	4
22.	I like to give myself the space to check out "just how am I right now?"	1	2	3	4
23.	When talking to someone I check with my inner sense to know the right things to say.	1	2	3	4
*24.	When I have feelings such as anger or sadness, I can't stand them.	1	2	3	4
*25.	I only accept having good feelings like happiness and fun.	1	2	3	4

* reverse items

Note. In this study only five items were administered. These items were chosen based on their face validity for the construct of focusing and felt sense. Items that were chosen were 5, 7, 15, 18, and 19.

Multidimensional Meaning in Life Scale

884 COSTIN AND VIGNOLES

Appendix B

Multidimensional MIL Scale

Using the scale, please indicate your current feelings by selecting how much you agree or disagree with the following statements:

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1	2	3	4	5	6	7

1. My life as a whole has meaning.
2. My entire existence is full of meaning.
3. *My life is meaningless.*
4. *My existence is empty of meaning.*
5. I can make sense of the things that happen in my life.
6. Looking at my life as a whole, things seem clear to me.
7. *I can't make sense of events in my life.*
8. *My life feels like a sequence of unconnected events.*
9. I have a good sense of what I am trying to accomplish in life.
10. I have certain life goals that compel me to keep going.
11. *I don't know what I am trying to accomplish in life.*
12. *I don't have compelling life goals that keep me going.*
13. Whether my life ever existed matters even in the grand scheme of the universe.
14. Even considering how big the universe is, I can say that my life matters.
15. *My existence is not significant in the grand scheme of things.*
16. *Given the vastness of the universe, my life does not matter.*

Note. MIL judgments = 1, 2, 3, 4; Coherence = 5, 6, 7, 8; Purpose = 9, 10, 11, 12; Mattering = 13, 14, 15, 16. Italicized items are reverse-scored.
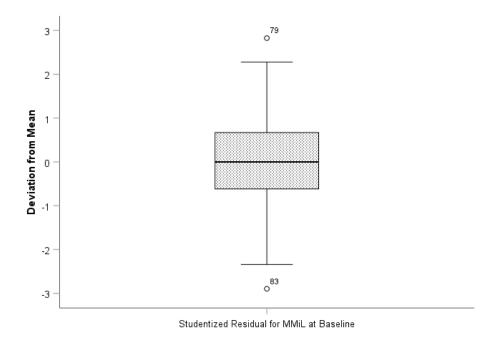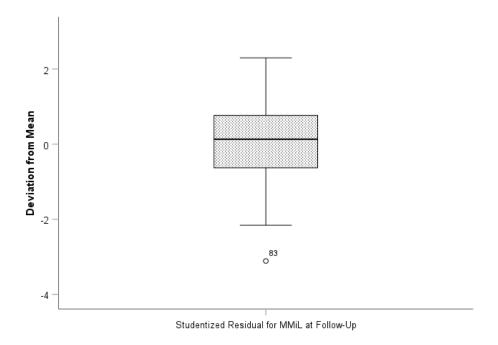
Additional Tables and Figures

Figure 1

Outlier in MIL sum scores for the baseline measure of "Meaning in Life" in both conditions

Note. Outliers were left in the data set as they did not significantly change the outcome of data analysis.

Figure 2

Outlier in MIL sum scores for the follow-up measure of "Meaning in Life" in both conditions

Note. Outliers were left in the data set as they did not significantly change the outcome of data analysis.