The effects of signature strengths interventions on meaning in life mediated by state authenticity

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Abstract

Meaning in life is an important contribution to well-being, but there is a gap in research on how to increase it through interventions. This study aimed to test the effectiveness of a signature strengths intervention to increase meaning in life and to test if this effect is partially mediated by authenticity. To our knowledge, this has not been tested before. However, this relationship can be explained through the framework of the self-concordance model. According to this model, acting in line with one's values and authentic self can facilitate achieving goals, which in turn fosters meaning. The sample (n=48) consisted of master students and job starters and included an intervention group (n = 17) and a wait-list control group (n = 31). The intervention group received a three-week online intervention to increase awareness and usage of their signature strengths. The participants received two questionnaires before and after the intervention. The findings show that it might be possible to increase meaning in life through a signature strengths intervention. Meaning in life was also positively associated with authenticity. In the present study, the signature strengths intervention did not increase authenticity, nor did authenticity mediate the relationship between the strengths intervention and meaning in life. Implications are discussed.

Keywords: signature strengths, strengths intervention, meaning in life, authenticity, master students, job starters

The effects of signature strengths interventions on meaning in life mediated by state authenticity

Meaning in life is a fundamental topic in positive psychology and an important contribution to well-being and physical health (Czekierda et al., 2017; Li et al., 2021; Seligman 2002). Meaning in life describes having self-directed goals and feeling a sense of purpose and coherence in one's existence (Baumeister & Vohs, 2002; Ryff & Singer, 1998; Schueller & Seligman, 2010; Steger et al., 2006). In this sense, the self-concordance model can be used to explain how meaning in life can be fostered: Acting in line with one's values and authentic self can facilitate achieving goals, which in turn fosters meaning (Sheldon & Elliot, 1999; Zhang et al., 2018). On average, a majority of people view their lives as meaningful, but many people still do not feel that their life has a sense of purpose and do not know what makes their lives meaningful (Smith, 2013). Thus, it is important to find ways to increase the experience of meaning for those people as well. Particularly the COVID-19 pandemic has shown that meaning in life can be an important protective factor for the mental health of young people during this crisis (Yu et al., 2021). However, young adults might also be an especially vulnerable group: Compared to middle-aged and older people, young adults experience less meaning in their lives (Steger et al., 2009). This is an important issue as it might lead to well-being deficits later in life (Steger et al., 2009).

This study investigates one approach to promote meaning in life as well as authenticity: to discover and use one's character strengths. Character strengths are character traits that are thought to be morally valued across cultures and which promote a fulfilled and happy life (Peterson & Seligman, 2004; Quinlan et al., 2012). Knowing what they are good at and acting in line with their true selves might increase feelings of authenticity in graduate students and young workers, which in turn makes their lives more meaningful. Meaning in life has been shown to be important for one's well-being, yet there is a gap in research of the exact mechanisms and how to increase meaning in life (Steger et al., 2006). Little is known

about how using one's strengths can increase meaning or how that relationship is influenced by authenticity, particularly in this target group. This study aims to contribute to that.

The effects of a signature strengths intervention on meaning in life

To understand the possible value of character strengths, we first have to understand the complexities of meaning in life. Many different definitions for meaning in life exist, but they most often include a motivational and a cognitive aspect (Heintzelman & King, 2014). Meaning in life can be defined as having a sense of purpose and having goals that can guide one's actions (Baumeister & Vohs, 2002; Schueller & Seligman, 2010). Meaning in life can also be conceptualized as feeling competent and in control and matching actions to one's values (Baumeister, 1991; Kashdan & Steger, 2007). In short, a person experiences meaning when their life makes sense to them (Heintzelman & King, 2014). According to Victor Frankl, a psychiatrist and Holocaust survivor who inspired much research on meaning, humans have an innate drive to find meaning in their lives and failing to find it will lead to psychological distress (Frankl, 1963; Steger, 2012; Steger et al., 2006). Thus, meaning in life is a fundamental concept in positive psychology as it is an important contributor for several positive outcomes and optimal functioning: Previous studies have shown that meaning in life is positively related to objective well-being, more specifically to education and occupational attainment, life and job satisfaction, physical health, adaptive coping, lower stress and flourishing (Forgeard et al., 2011; Hadden & Smith, 2019; Kern et al., 2014; Schueller & Seligman, 2010, Seligman, 2011). Thus, experiencing one's life as meaningful is important to human functioning and contributes to a healthy and appreciated life (Steger et al., 2006). Experiencing meaning can be an important protective factor for the mental health and risky health-related behavior for young people (Brassai et al., 2011). Thus, it is even more important to find possible pathways to increase meaning for young adults, as they tend to experience less meaning in their lives compared to middle-aged and older people (Steger et al., 2009).

One possible approach to enhance experienced meaning is conceptualized within the self-concordance model, a model about intrinsic goals and behavior that developed from the self-determination theory of human motivation (Ryan & Deci, 2000; Sheldon & Elliot, 1999). The model mainly focuses on self-concordant goals, also called autonomous goals, which are goals that a person freely chooses based on their values and interests (Sheldon & Elliot, 1999). These goals are in line with their true selves, thus they are intrinsically motivated to achieve them (Sheldon & Elliot, 1999; Sheldon et al., 2004). According to this model, if people choose self-concordant goals, they put sustained effort into achieving these goals. With sustained effort, a person is more likely to attain goals, which in turn increases their well-being (Sheldon & Elliot, 1999). As much of our everyday behavior is goal-directed, individuals might be able to experience meaning by acting in line with their values and their true selves (Zhang et al., 2018). Specifically, meaning can be experienced in different ways in the self-concordance model: On the one hand, experiencing meaning might encourage sustained effort of the goal-directed behavior, even when failing (Zhang et al., 2018). On the other hand, acting in a self-concordant way and achieving self-concordant goals may foster more meaning (Zhang et al., 2018). Therefore, self-concordant goals and behaviors are consistent with a person's core values and interests and in consequence essential for an individual's perception of meaning.

Recent research trends in meaning in life might also show how the self-concordance model explains meaning: Traditionally, research has focused on more global predictors of meaning, such as religion and interpersonal relationships (Heintzelman & King, 2014). However, more recently, empirical studies have focused on the daily fluctuations of experiencing meaning (Hadden & Smith, 2019; Heintzelman & King, 2014). These studies indicate that small daily experiences and actions are fundamental to experiencing meaning in life (Hadden & Smith, 2019; Heintzelman & King, 2014). Thus, behaving in a self-concordant way by acting according to one's values and interests and who a person is at their core might

be related to experiencing more meaning. These results are important because they indicate that individuals can experience meaning through small daily steps.

One way to experience more meaning in one's everyday life may be to use one's character strengths. Character strengths are one of the most prominent concepts used in positive psychology (Peterson & Seligman, 2004). Peterson and Seligman (2004) classified 24 character strengths, such as love, fairness, and curiosity. These strengths are categorized into 6 virtues, such as wisdom and courage (Peterson & Seligman, 2004). Previous research indicates that using one's character strengths is beneficial to one's well-being and life satisfaction and these findings have been replicated in different cultures (Kaufman, 2015; Park et al., 2009; Park et al., 2004; Ruch et al., 2007). Thus, the positive associations of strengths use and well-being outcomes has led researchers to investigate how strengths use can be increased through strengths interventions. Within these interventions, participants learn more about what character strengths are and set goals to use their strengths in everyday life (Madden et al., 2020; Quinlan et al., 2012). Strengths use has been shown to partially mediate the effectiveness of strengths intervention (Duan et al., 2019). Therefore, the authors recommend that the focus of strengths interventions should be on strengths use (Duan et al., 2019). An effective intervention using character strengths involves using one's signature strengths. According to Seligman and Peterson (2004), signature strengths are the top five most prominent strengths a person has. Seligman et al. (2005) found that this type of intervention can increase happiness and decrease depression, lasting for at least six months after the intervention. Other studies suggest that signature strengths interventions increase life satisfaction, self-efficacy, and academic performance, and have positive effects on goal progress (Li & Liu, 2016; Linley et al., 2010; Peterson & Peterson, 2008; Schutte & Malouff, 2018). From this we can conclude that self-concordant goals and behaviors are in line with one's character strengths, as they represent core values and it is thought to be intrinsically motivating to pursue them (Sheldon & Elliot, 1999; Zhang et al., 2018).

Yet little research has focused on the link between character strengths and the self-concordance model. Peterson and Seligman (2004) describe character strengths as values in actions that people feel intrinsically motivated to use. One's signature strengths are at the core of a person, as they are strengths a person identifies with, frequently uses, and feels fulfilled when using (Peterson & Seligman, 2004). Therefore, if a person uses their signature strengths, it can be expected that it is self-concordant, which means that it is based on their values and interests and is in accordance with who they are (Sheldon & Elliott, 1999). This is in line with a previous study, where the authors hypothesized that acting in a self-concordant way means using one's signature strengths, and that this is important in goal attainment: Linley et al. (2010) found that in a study with college students, strengths use was related to goal progress, which was in turn related to higher well-being. Thus, it can be hypothesized that behaving in a self-concordant way includes using one's character strengths, which may lead to more meaning in life (Seligman, 2011).

Previous research supports the connection between character strengths and meaning in life. All of the 24 character strengths have been shown to be positively associated with meaning (Wagner et al., 2019). Previous studies have found that character strengths were related to increased meaning in life in volunteers and paid workers and that learning to use one's strengths is positively related to meaning for university students (Littman-Ovadia & Steger, 2010; Smith et al., 2021). In another study a character strengths intervention increased meaning (Green, 2021). However, this study focused on observing all character strengths in oneself and others and developing the lesser strengths, rather than focusing on using one's signature strengths (Green, 2021). To our knowledge, there is no empirical study that has tested the effects of a signature strengths intervention on meaning in life. Therefore, the present study aims to test the effectiveness of a signature strengths intervention on increasing meaning in life. Thus, the first hypothesis is as follows:

Hypothesis 1: Participating in a signature strengths intervention increases meaning in life, compared to a wait-list control group.

The effect of signature strengths use on authenticity

Authenticity can also be implemented into the self-concordance model (Sheldon & Elliot, 1999; Zhang et al., 2018). Goals or behaviors are self-concordant if they are in line with one's core values and interests or in other words, if they are in line with one's authentic self (Zhang et al., 2018). If an individual feels a high sense of authenticity, they are expected to act in more self-concordant ways (Milyavskaya et al., 2015). Thus, authenticity is an important aspect of the self-concordance model. Authenticity can be defined as knowing and acting as one's true self (Kernis & Goldman; 2006). Authenticity has been shown to have positive effects on self-esteem, well-being, and relationship qualities (Wilt et al., 2019). Authenticity can be measured as a trait or as a state (Lenton et al., 2013). State authenticity describes shorter and more continuous experiences of feeling authentic (Lenton et al., 2013). State authenticity can be defined as feeling aligned to one's true and genuine self in the moment (Sedikides et al., 2017). In this study, state authenticity is used rather than trait authenticity because the focus is on the experiences of feeling or acting authentic rather than the differences between authentic and inauthentic people (Milyavskaya et al., 2015).

Not much research has focused on testing the link between character strengths and authenticity. However, this link is implicitly at the core of strengths theory: According to the founders of the character strengths classification, using one's signature strengths, one's values in action, helps a person to be more authentic and live a more meaningful life (Peterson & Seligman, 2004). Using one's signature character strengths is expected to increase that person's sense of authenticity (Harzer, 2020). This might be explained by the self-concordance model, i.e. knowing one's strengths and using them to set and pursue self-concordant goals that reflect one's values and interests, may foster feelings of authenticity. Preliminary findings have shown that authenticity might be a mediator for strengths use and

outcomes such as career development (Matsuo, 2020). However, there is a research gap about how signature strengths interventions impact feelings of authenticity. Thus, to find out more about this link, the following hypothesis is proposed:

Hypothesis 2: Participating in a signature strengths intervention increases state authenticity, compared to a wait-list control group.

Authenticity and meaning in life

Living authentically includes integrating the self and living according to one's values and beliefs, which in turn leads to more meaning in life (Chu & Mak, 2019; Weinstein et al., 2012). In other words, authenticity includes autonomous and intrinsically motivated behavior, which is linked to a more integrated and meaningful life (Schmader & Sedikider, 2017). This can also be explained by the self-concordance model: According to Zhang et al. (2018), acting in a self-concordant way encourages individuals to be in line with their authentic self, which in turn fosters meaning. Thus, self-concordant, goal-directed behavior may increase meaning in life because it increases feelings of authenticity (Milyavskaya et al., 2015; Zhang et al., 2018).

Previous research has also focused on the association between authenticity and meaning in life: According to Martela and Steger (2016) authenticity can make a person's life feel more meaningful. Authenticity has also shown to be a mediator for predictors such as mindfulness and meaning in life (Allan et al., 2014; Martela & Steger, 2016). Previous studies suggest that authenticity is an antecedent of meaning in life, but more research is needed on the role authenticity plays in meaning in life (Ménard & Brunet, 2011; Sutton, 2020, Wood et al., 2008). To add to the literature, the following hypothesis is proposed:

Hypothesis 3: State authenticity is positively associated with meaning in life.

Authenticity as a mediator between signature strengths intervention and meaning in life

As described before, the link between signature strengths, authenticity, and meaning in life can be theoretically explained by the self-concordance model: Acting in a self-concordant

way by using one's signature strengths increases meaning in life because self-concordant goals and behavior increase feelings of authenticity. However, empirical research is lacking to test this link. To counter this gap in the literature, the fourth hypothesis is:

Hypothesis 4: Authenticity partially mediates the effect of the signature strengths intervention on meaning in life.

Method

Participants

Participants were Dutch or international master students in their last academic year, or job starters who recently started working within the past year. The intervention started with 37 participants in the signature strengths intervention and 46 participants in the control group. However due to drop-outs and deleting missing data, the final sample was 48, with 17 participants in the intervention and 31 participants in the control group. 26 participants were female, 21 participants were male and one person was gender non-conforming. The participants were mostly Dutch (n=25) and German (n=11). The age ranged from 21 to 30 with a mean age of 23.9. Most participants were master students (n=39), while 7 participants were working and two were currently looking for work. The majority of the participants was in the domain of the social and behavioral sciences (n=21) or economy (n=16). Out of the 17 participants in the intervention condition, 7 completed the entire intervention, 7 completed most steps of the intervention, 2 did not complete much of the intervention, and 1 participant completed all the steps of the intervention, but sometimes forgot to apply their strengths in their everyday life. The intervention was conducted in English. For a power of .80 with medium effects (.39) expected and α-value of .05, the required sample size was 71 participants (Baron & Kenny, 1986; Fritz & MacKinnon, 2007). The study was advertised via flyers and on social media and the participants signed up for the study with their email via google forms. The participants gave their informed consent to join the study and created an anonymized ID code to keep track during the study and oblige with privacy regulations.

Ethical approval was granted by Ethics Review Board of Tilburg School of Social and Behavioral Sciences.

Research Design

This two-wave study was a field experiment with random allocation to an experimental and wait-list control group. The study included an experimental group, which received the signature strengths intervention, and a wait-list control group that received no intervention during the study, but were offered the opportunity to complete the intervention after the end of the study. The assignment of the participants to the experimental and control groups was the independent variable in this study. The aim was to investigate how a signature strengths intervention influenced meaning in life (dependent variable) and how this was mediated by feelings of state authenticity (mediator).

Instruments

Demographic questions were included in the first questionnaire before the interventions to gain more information about the participants. These 5 items included questions about gender, age, nationality, field of study, and study progress/employability status.

Completed steps was included to ask the participants how many steps of the intervention they completed (see Appendix A).

State authenticity was the mediator in this study and was measured using the state authenticity scale developed by Lenton et al. (2013), which is an adapted version of the 12-item dispositional authenticity scale (Wood et al., 2008). The questionnaire consists of 12 items on a 7-point Likert scale ranging from 1 "strongly disagree" to 7 "strongly agree" (see Appendix B). A sample item was "Right now, I feel out of touch with the real me". The authenticity scale consists of three subscales; authentic living, accepting external influence, and self-alienation. The latter two subscales have reverse items, which were recoded in this study. The final score was calculated using the mean score of the items. The state version of

the scale has a high internal consistency ($\alpha = .85$). In the present study Cronbach's Alpha is .87 for the pre-test and .84 for the post-test.

Meaning in life was the dependent variable in this study and was measured with the Presence of Meaning subscale of the Meaning in Life Questionnaire (Steger et al., 2006). This subscale consists of 5 items on a 7-point Likert scale ranging from 1 "not true at all" to 7 "definitely true" (see Appendix C). A sample item was "My life has a clear sense of purpose". One item ("My life has no clear purpose") was a reverse item and had to be recoded. The final score was calculated using the mean score of the items. According to Zhang et al. (2018) the subscale has often been used in previous research to measure meaning in life and has a high internal consistency ($\alpha = .80$). In the present study Cronbach's Alpha is .89 for the pre-test and .90 for the post-test.

Strength Awareness was included as a manipulation check in the study. This questionnaire consists of 1 face valid item on a 7-point Likert scale ranging from 1 "strongly disagree" to 7 "strongly agree". A sample item was "I am aware of my most prominent strengths". The test-retest reliability of this item was checked by correlating the scores at t0 and t1. Strengths awareness at the pre- and post-test measurement was found to be strongly correlated, $r(43) = .41$, $p < .01$.

Procedure

The intervention took place over three weeks and included two measurement points with questionnaires of the same variables (except the demographic questions, which were only asked at the first measurement point). The recruitment started after ethical approval was given and the participants were randomly assigned to the experimental group (signature strengths condition) or wait-list control group. The participants did not know about the different conditions of the study and were debriefed after the end of the study, after the wait-list control group received their intervention. All questionnaires were done with Qualtrics. The first baseline measurement was done before the start of the intervention (t0), and the

second measurement three weeks later when the intervention ended (t1). Originally, the study

was meant to include a third measurement four weeks after the end of the intervention (t2).

However, due to the high drop-out rate, the follow-up was not administered. The control

group completed the questionnaires at the same time as the experimental group, but were

offered to do the intervention after the end of the study.

Signature Strengths Intervention

The intervention took place over three weeks and had the focus on strengths usage and

development of strengths. After filling out the first questionnaire (t0), the participants of the

signature strengths condition (experimental group) took the VIA Character Strength Survey

and were informed about the five highest signature strengths according to their test results.

The intervention itself consisted of four steps, which are based on the Aware-Explore-

Apply Model, a model that is generally used for character strengths interventions (Niemiec,

2014). In the first step, which focused on strength awareness, the participants received

descriptions of their signature strengths according to the VIA classification system, so that

they could get to know their own strengths (Peterson & Seligman, 2004). In the second step,

strength exploration, the participants had to reflect on how they use their strengths and how it

feels to use them (Niemiec, 2018). In the third step, strength appreciation, they had to do an

exercise in which they imagined a life without their signature strengths and how it would feel

and then write a gratitude letter to themselves (Niemiec, 2018). In the last and fourth step,

strength application, the participants had to find new ways to use their strengths and set a goal

how to build new habits with using the strengths, by thinking about how exactly they will

practice with their strengths (Ghielen et al., 2018; Seligman et al., 2005). Every week the

assignments for step 1 and 2 were sent on a Monday, step 3 on a Tuesday, and step 4 on a

Wednesday. The participants were then asked to use their strengths in their everyday life by

themselves for the rest of the week.

Statistical Analysis

All statistical analyses were completed using IBM SPSS Statistics 27. Some preliminary analyses were done to ensure reliability of the present study. The Qualtrics questionnaires were checked for missing data and mistakes. This data was excluded along with data from participants who dropped out during the study. First, to ensure internal consistency, Cronbach's alpha was determined for the different scales used. To check the assumption of normal distribution, a histogram was plotted in SPSS. Furthermore, skewness and kurtosis of the variables were checked in SPSS. The assumption tests for multiple regression analysis, including the linearity of relationships, absence of multicollinearity, and homoscedasticity, were done according to Pallant (2016). Outliers were checked according to Tabachnick and Fidell (2007). A factor analysis was performed to check if the three subscales of authenticity can be analyzed as one construct. A chi-square test was done to see if the randomization was successful and the experimental and control group did not significantly differ on the demographic variables. Descriptive statistics included means, standard deviations, and correlations of the study variables. An independent sample t-test was done to see if there were any baseline significant differences in authenticity and meaning in life between the experimental group and the control group before the start of the intervention (t0). Furthermore, a manipulation check was done to see if the intervention was successful and to check if the signature strengths intervention increased the strengths awareness of the participants, compared to the control group. A mixed ANOVA was performed to check if strengths awareness changed over time (comparing t0 with t1 and t2 respectively) and if there were differences between the two groups (experimental and control group).

Several analyzes were performed to test the hypotheses. A mixed ANOVA was done to test the effects of the signature strengths intervention on meaning in life and authenticity respectively over time (Hypothesis 1 and 2). The within-subjects factor hereby was comparing the first measurement (t0) of meaning in life and authenticity respectively with the post-intervention measurement (t1). The between-subjects factor was each comparing the

experimental and the control group. Finally, a mediation analysis using SPSS PROCESS was

run to test Hypothesis 3 and 4 (Hayes, 2013). In the mediation analysis, the intervention group

was the independent variable, meaning in life was the dependent variable, and authenticity

was the mediator (see Figure 1). During the analysis authenticity and meaning in life were

taken at t1 (post-intervention questionnaire). During the analysis, the levels of meaning in life

and authenticity at the first measurement before the intervention (t0) were controlled for. A

95% bootstrap confidence interval with 5,000 bootstrap samples was used (Shrout & Bolger,

2002).

Figure 1

Conceptual Model
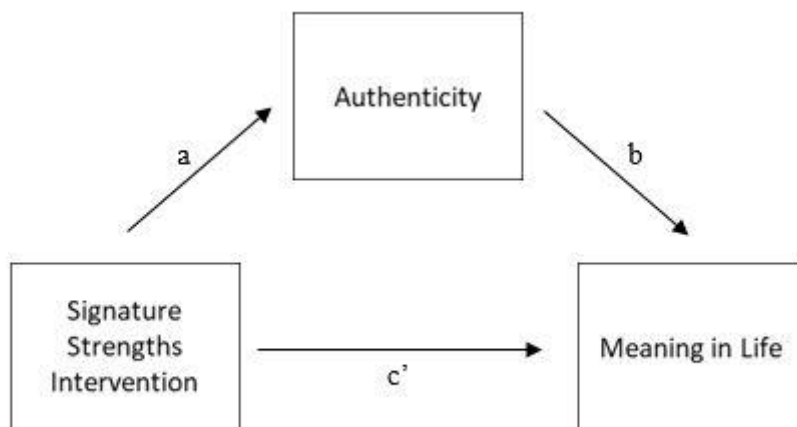
Results

Descriptives

First, the assumptions for multiple regression were checked. The normality test for the

dependent variable, meaning in life, was not significant ($p = .068$), thus meaning in life was

normally distributed. A P-P plot and scatterplot showed a linear relationship between the

independent variables and the dependent variable. There was no multicollinearity in the data,

as the correlation between the independent variables, the intervention condition and state

authenticity, was below .7 ($p = .062$). The values of the residuals were independent, as the

Durbin-Watson was 2.087 and thus close to 2. The scatterplot showed that the variance of the

residuals was constant and the P-P plot of the model suggested that the values of the residuals were normally distributed. Next, descriptive statistics were tested, including the means, standard deviations, and correlations. The results can be found in Table 1. Meaning in life, authenticity, and strengths awareness were significantly correlated at pre- and post-test measures. Furthermore, meaning in life (t0) was positively correlated with authenticity at both measurement points, while meaning in life at the post-test measurement (t1) was positively correlated to authenticity (t0 and t1) and strengths awareness (t0 and t1).

Table 1

Descriptive Statistics and Correlations for Study Variables

Variable	n	M	SD	1	2	3	4	5	6
1. Strengths Awareness (t0)	48	5.02	1.296	—					
2. Strengths Awareness (t1)	45	5.73	1.009	.406**	—				
3. State Authenticity (t0)	48	5.113	.917	.249	.221	—			
4. State Authenticity (t1)	48	5.096	.806	.268	.470**	.650**	—		
5. Meaning in Life (t0)	48	5.113	1.083	.265	.300*	.475**	.509**	—	
6. Meaning in Life (t1)	48	5.104	1.064	.332*	.489*	.353*	.540**	697**	—

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

Chi-square tests for independence were run to see if the randomization was successful: The experimental and control group did not significantly differ on the demographic variables, such as gender ($\chi^2(2, N = 48) = 1.875, p > .05$), nationality ($\chi^2(3, N = 48) = 3.486, p > .05$),

age, (χ^2(10, $N = 48$) = 7.591, $p > .05$), field of study (χ^2(6, $N = 48$) = 7.313, $p > .05$),

study/work progress (χ^2(3, $N = 48$) = 2.936, $p > .05$). Independent sample t-tests showed that

there were no significant baseline differences in authenticity (t(46) = -.381, $p > .05$) and

meaning in life (t(46) = -.197, $p > .05$) between the participants from the signature strengths

intervention and the control group before the start of the intervention (t0). A factor analysis

was done to see if the three subscales of state authenticity (authentic living, accepting external

influence, self-alienation) can be considered one component of the construct. The principal

component analysis found one component with an Eigenvalue above 1 (1.95) that explains

64.93 per cent of the variance. Thus, the further analyses could be done with authenticity as

one construct.

A manipulation check was done to see if the intervention was successful and to check

if the signature strengths intervention increased the strengths awareness of the participants,

compared to the control group. The mixed ANOVA showed a significant time effect for both

the intervention and the control group on strengths awareness (F(1,43) = 17.635, $p < .001$, ηp^2

= .291). The strengths awareness of both groups increased from t0 (Mean: 4.988) to t1

(5.809). There was no significant main effect of group on strengths awareness (F(1,43) =.741,

$p = .394$, $\eta p^2 = .017$) and the intervention group (mean = 5.529) and control group (mean =

5.268) showed similar strengths awareness. There was also not a significant time x group

interaction effect (F(1,43) = 3.323, $p = .075$, $\eta p^2 = .072$), but the strengths awareness of the

intervention group (t0: mean = 4.941, t1: mean = 6.118) increased slightly more than of the

control group (t0: mean = 5.036, t1: mean = 5.500). This means that the changes in strengths

awareness over time did not significantly differ between the signature strengths group and the

control group.

Hypothesis Testing

The first hypothesis was that meaning in life increases for the participants in the

intervention, but not for the participants in the wait-list control group. The results of the

mixed ANOVA showed no significant main effect for time ($F(1,46) = .615$, $p = .437$, $\eta p^2 = .013$) and no significant main effect for group ($F(1,46) = .869$, $p = .356$, $\eta p^2 = .019$). However, the mixed ANOVA showed a significant time x group interaction effect ($F(1,46) = 8.604$, $p < .01$, $\eta p^2 = .158$). This means that the changes in meaning in life over time were significantly different for the intervention group and the control group. The interaction plot (Figure 2) shows that meaning in life increased for the training group (t0: mean = 5.071, t1: mean = 5.506) and slightly decreased for the control group (t0: mean = 5.135, t1: mean = 4.884). Thus, the first hypothesis that meaning in life will increase in the signature strengths training group, but not in the wait-list control group, can be confirmed.

The second hypothesis was that state authenticity increases for the participants in the signature strengths intervention, but not in the wait-list control group. The results of the mixed ANOVA showed no significant main effect for time ($F(1,46) = 0.014$, $p = .906$, $\eta p^2 = .000$) and no significant main effect for group ($F(1,46) = .000$, $p = .994$, $\eta p^2 = .000$). Furthermore, the mixed ANOVA also showed no significant time x group interaction effect ($F(1,46) = .903$, $p = .347$, $\eta p^2 = .019$). This means that the changes in state authenticity over time were not significantly different for the intervention and the control group. The interaction plot (Figure 3) shows a slight increase in state authenticity for the intervention group (t0: mean = 5.044, t1: mean = 5.162 and a slight decrease for the control group (t0: mean = 5.151, t1: mean = 5.059). Thus, the second hypothesis that state authenticity will increase in the signature strengths intervention group, but not in the wait-list control group, cannot be confirmed.

To test Hypothesis 3, that authenticity is positively associated with meaning in life, and Hypothesis 4, that authenticity partially mediates the effect of the signature strengths intervention on meaning in life, a mediation analysis was run with PROCESS (Hayes, 2013). In the mediation analysis, the group condition was the independent variable, meaning in life (t1) was the dependent variable, and state authenticity (t1) was the mediator.

Figure 2

Changes in means over time per group for meaning in life
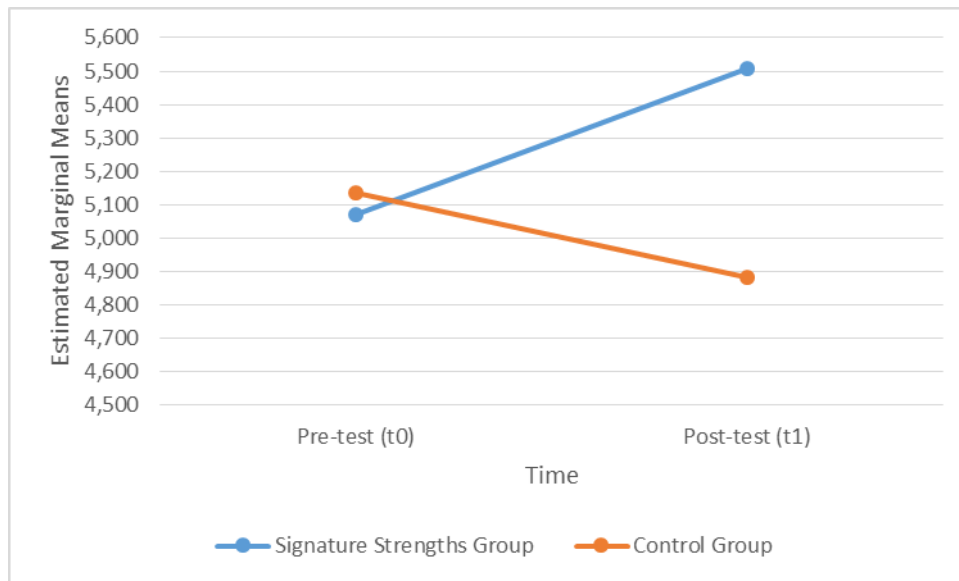
Figure 3

*Changes in means over time per group for state authenticity*
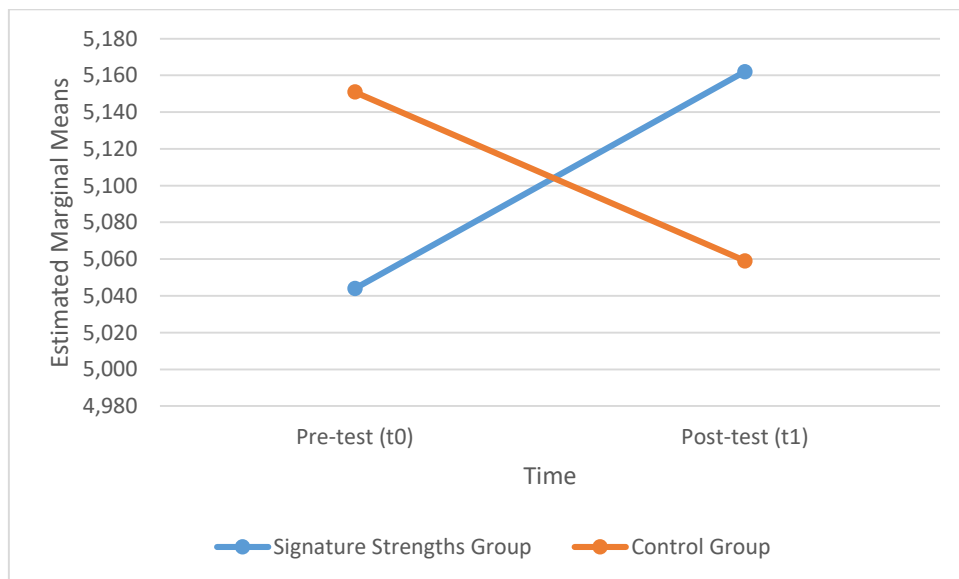
Control variables were authenticity and meaning in life at the baseline measurement (t0). The full results can be found in Table 2. The mediation analysis showed that participating in the signature strengths intervention had significant direct effects on meaning in life at the post-test measurement (t1) (β =.610, $t(43) = 2.913$, $p = .006$) , but the signature strengths group did not have significant direct effects on state authenticity(β =.165, $t(44) =$ .911, $p = .367$) (see Figure 4). Authenticity (t1) was also positively associated with meaning

in life at t1 ($\beta = .369$, $t(43) = 2.131$, $p = .039$). However, the effect of the signature strengths intervention on meaning in life, mediated by authenticity, was not significant (effect: .061, BootSE: .077, BootLLCI: -.049 and BootULCI: .255). Thus, Hypothesis 3, authenticity predicts increases in meaning in life for the training group compared to the control group, was supported. Hypothesis 4, authenticity partially mediates the effect of the signature strengths intervention on meaning in life, was not supported.

Table 2

Mediation Analysis Authenticity and Meaning of Life

Variable	B	SE	t	p	%CI
DV: Authenticity t1					
$F(3,44) = 13.725^{**}$					
$R^2 = .483$					
Constant	1.660	.547	3.054	.004	[.564, 2.756]
Intervention	.165	.181	.911	.367	[-.200, .530]
Authenticity t0	.468	.108	4.318	.000	[.250, .686]
Meaning in Life t0	.193	.092	2.102	.041	[.008, .377]
DV: Meaning in Life					
t1 $F(4,43) = 17.449^{**}$					
$R^2 = .619$					
Constant	.552	.686	.804	.426	[-.832, 1.936]
Intervention	.610	.210	2.913	.006	[.188, 1.033]
Authenticity t1	.369	.173	2.132	.039	[.019, .717]
Authenticity t0	-.120	.148	-.811	.422	[-.419, .179]
Meaning in Life t0	.601	.110	5.451	.000	[.379, .823]
Indirect Effect	Effect	BootSE	-	-	BootCI
Authenticity t1	.061	.077			[-.049, .255]

Note. $^{*}p < .05$. $^{**}p < .01$. Intervention (0 = control condition, 1 = intervention condition)

Figure 4

Mediation Model
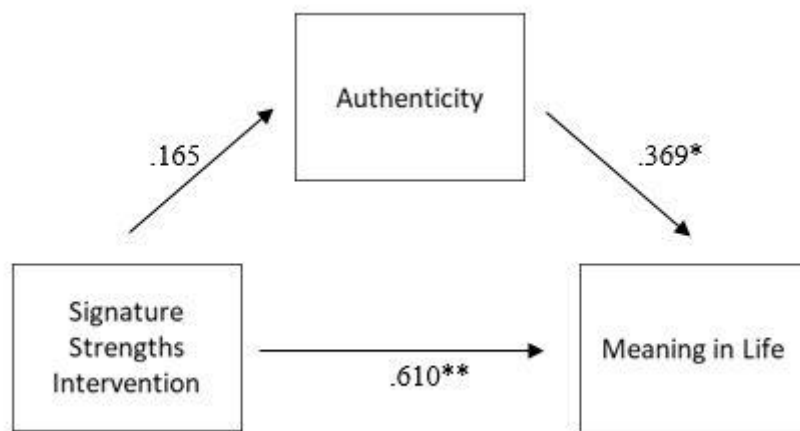
Additional analyses

Some additional analyses were performed to gain more information about the data. 15 out of the 17 participants in the intervention condition indicated that they completed all or most steps of the intervention. However, 2 participants indicated that they completed almost no steps of the intervention (see Appendix A). Thus, to test if it makes a difference to only include the participants that truly participated in at least most of the intervention, the 2 participants that barely participated were taken out of the intervention condition and the manipulation check was done again. The mixed ANOVA showed a significant time effect for both the signature training group and the control group on strengths awareness ($F(1,41) = 19.519$, $p < .001$, $\eta p^2 = .323$). There was no significant main effect of group on strengths awareness ($F(1,41) = .382$, $p = .540$, $\eta p^2 = .009$). There was a significant time x group interaction effect ($F(1,41) = 4.562$, $p = .039$, $\eta p^2 = .100$). Descriptive statistics showed that the participants in the intervention increased more in strengths awareness (mean t0 = 4.800, SE = .350; mean t1 = 6.133, SE = .257) than the participants of the control group (mean t0 = 5.036, SE = .256; mean t1 = 5.500, SE = .188). This means that the changes in strengths awareness over time significantly differed between the participants that completed most or all of the signature strengths intervention and the participants of the control group. Thus, the

manipulation check was successful if only the participants are included in the intervention that completed most or all of the steps.

To see if the results of the mediation analysis would change if only the participants of the intervention were included that completed most or all steps of the intervention, another mediation analysis was done. In the mediation analysis, completing most or all of the intervention was the independent variable, meaning in life (t1) was the dependent variable, and state authenticity (t1) was the mediator. Control variables were authenticity and meaning in life at the baseline measurement (t0). The full results can be found in Table 3 (see also Figure 5). The mediation analysis showed that participating in the signature strengths intervention had a significant direct effect on meaning in life at the post-test measurement (t1) (β =.449, t(41) = 2.175, p = .035). Participating in the signature strengths intervention did not have a significant effect on authenticity (β =.199, t(42) = 1.054, p = .298). Authenticity (t1) was positively associated with meaning in life at t1 (β =.394, t(41) = 2.369, p = .023). Furthermore, the effect of the signature strengths intervention on authenticity, mediated by strengths awareness, was not significant (effect: .079, BootSE: .084, BootLLCI: -.040 and BootULCI: .284).

Figure 5

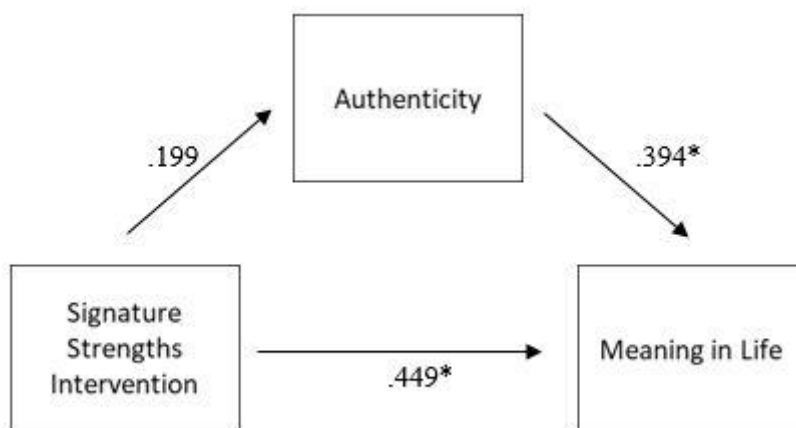*Mediation Model (Completed Intervention)*

Table 3

Mediation Analysis Authenticity and Meaning of Life with Completed Steps

Variable	B	SE	t	p	%CI
DV: Authenticity t1					
$F(3,42) = 12.909^{**}$					
$R^2 = .480$					
Constant	1.648	.573	2.874	.006	[.491, 2.805]
Intervention (Completed)	.199	.189	1.054	.298	[-.182, .581]
Authenticity t0	.472	.109	4.337	.000	[.252, .691]
Meaning in Life t0	.191	.096	1.987	.054	[-.003, .386]
DV: Meaning in Life t1 $F(4,41) = 21.489^{**}$					
$R^2 = .677$					
Constant	.001	.675	.002	.998	[-1.363, 1.365]
Intervention (Completed)	.449	.206	2.175	.035	[.032, .866]
Authenticity t1	.394	.166	2.369	.023	[.058, .729]
Authenticity t0	-.117	.141	-.831	.411	[-.402, .167]
Meaning in Life t0	.680	.108	6.28	.000	[.461, .899]
Indirect Effect	Effect	BootSE	-	-	BootCI
Authenticity t1	.079	.084			[-.040, .284]

Note. $^{*}p < .05$. $^{**}p < .01$. Intervention (0 = control condition, 1 = intervention condition)

        To test if strengths awareness was related to authenticity, even though the intervention did not increase authenticity, another mediation analysis was conducted. In this analysis completing most or all of the intervention was the predictor, strengths awareness (t1) was the mediator, and authenticity (t1) was the dependent variable. Control variables were authenticity and strengths awareness at the baseline measurement (t0).The mediation analysis showed that participating in the signature strengths intervention did not have a significant direct effect on authenticity at the post-test measurement (t1) ($\beta = .034$, t(38) = .169, p = .867).

Participating in the signature strengths intervention had a significant effect on strengths awareness (β = .698, t(39) = 2.399, p = .021). Strengths awareness (t1) was positively associated with authenticity at t1 (β = .276, t(38) = 2.702, p = .010). Furthermore, the effect of the signature strengths intervention on authenticity, mediated by strengths awareness, was not significant (effect: .192, BootSE: .125, BootLLCI: -.017 and BootULCI: .455). The full results can be found in Table 4.

Table 4

Mediation Analysis Strengths Knowledge and Authenticity

Variable	B	SE	t	p	%CI
DV: Strengths Awareness t1 $F(3,39) = 5.189^{**}$ R² = .285					
Constant	3.280	.855	3.836	.000	[1.550, 5.009]
Intervention (Completed)	.698	.291	2.399	.021	[.109, 1.286]
Strengths Awareness t0	.305	.108	2.813	.008	[.086, .524]
Authenticity t0	.135	.158	.852	.399	[-.185, .454]
DV: Authenticity t1 $F(4,38) = 12.344^{**}$ R² = .565					
Constant	.801	.639	1.253	.218	[-.493, 2.094]
Intervention (Completed)	.034	.198	.169	.867	[-.368, .435]
Strengths Awareness t1	.276	.102	2.702	.010	[.069, .482]
Strengths Awareness t0	.017	.076	.222	.826	[-.137, 170]
Authenticity t0	.521	.102	5.134	.000	[.315, .726]
Indirect Effect	Effect	BootSE	-	-	BootCI
Strengths Awareness t1	.192	.125			[-.017, .455]

Note. $^*p < .05.$ $^{**}p < .01.$ Intervention (0 = control condition, 1 = intervention condition)

Discussion

The aim of the present study was to investigate the effects of a signature strengths intervention on feelings of authenticity and meaning in life and to find out if the effect of the signature strengths intervention on meaning in life is partially mediated by authenticity. The findings of this study indicate that the signature strengths intervention increased meaning in life and that authenticity is positively associated with meaning in life. However, in the present study, the intervention did not increase authenticity and authenticity also did not mediate the relationship between participating in the intervention and experiencing meaning in life. Furthermore, strengths awareness increased for those participants in the intervention condition, who completed most or all steps of the intervention, and strengths awareness was also positively associated with authenticity.

One unexpected finding from the study is that the signature strengths intervention did not increase feelings of authenticity. Authenticity is implicitly linked to the theory of the character strengths, as Peterson and Seligman (2004) have said that authentic happiness emerges from identifying and using strengths in everyday life. While this link has been proposed in the literature, it has not been tested much by previous studies (Matsuo, 2020). To our knowledge only one study tested strengths use as an antecedent of authenticity and found a significant link (Matsuo, 2020). Strengths awareness is an antecedent of strengths use and increased in our study for the participants that completed the intervention (Bakker & van Woerkom, 2018). However it was not measured whether the strengths usage of the participants actually increased compared to the control group. Some participants indicated that they completed all the steps of the intervention, but sometimes forgot to practice using their strengths in their everyday life. Other participants sometimes struggled with applying the strengths they had picked for the intervention in their everyday life (see Appendix D). This is in line with a study by Merritt et al. (2019), who emphasize the importance of having opportunities to use one's signature strengths in order to gain their positive outcomes. In the

present study it might be possible that strengths awareness was enough to increase meaning in

life, but that using one's strengths is necessary to increase authenticity. This is in line with a

study by Green (2021), who found that a character strengths intervention that focused on

becoming aware of and observing one's strengths increased meaning in life. Kernis and

Goldman (2006) define authenticity as knowing and acting as one's true self. In this regard,

strengths awareness might be considered knowing one's true self, while acting as one's true

self might include strengths usage. Thus, if the intervention did not increase strengths usage,

strengths awareness alone would not be enough to increase feelings of authenticity. However,

this is simply speculation, since the study did not include a measure of strengths usage.

Another possible explanation why participating in the intervention did not increase

authenticity might be that the average level of authenticity was already quite high for both the

intervention and the control group. This is in line with previous research that indicates that on

average people feel authentic most of the time and experience more authenticity than

inauthenticity in everyday life (Huber et al.,2022; Lenton et al., 2013). Thus, it is possible that

the signature strengths intervention did not have an effect on state authenticity because

individuals experience authenticity most of the time anyway. Furthermore, the questionnaire

used to measure authenticity asked how the participants feel in that moment. The

questionnaire is based on a study by Lenton et al. (2013) who used it to measure state

authenticity. However, it might not accurately reflect how authentic the participants felt over

the course of the intervention because they were only asked how they felt at a specific

moment before and after the intervention. Thus, the findings might be different with the use of

a different questionnaire or a daily measurement over the course of the intervention, such as

experience sampling method. Contrary to our expectation, no mediation effect was found

because participating in the intervention did not increase authenticity. Thus, while the

signature strengths intervention increased meaning in life, and authenticity and meaning in

life are positively associated with each other, there is not enough evidence to draw conclusions that these effects might be mediated.

Theoretical Implications

The present study supports and extends previous empirical studies on signature strengths interventions. While the classification of the VIA character strengths remains one of the most well-studied topics in positive psychology, more research about the effects and mechanisms of signature strengths interventions is needed (Peterson & Seligman, 2004; Quinlan et al., 2012). Previous studies have replicated the effects of signature strengths interventions on happiness, but to our knowledge no study has tested the effect of such intervention on experiencing meaning in life (Proyer et al., 2015). Strengths usage has been linked to meaning in life, but the present findings are a first promising indicator that interventions specifically targeting using one's signature strengths can increase meaning in life (Harzer & Ruch, 2012; Littman-Ovadia & Steger, 2010). Furthermore, our study contributes to previous findings that indicate that experiencing meaning in life can be increased through daily experiences and activities, rather than only global predictors of meaning, such as religion (Hadden & Smith, 2019; Heintzelman & King, 2014). While much research on meaning in life describes it as something fundamentally lacking in human life, Heintzelman and King (2014) offer a different perspective: Life seems to be quite meaningful and the average scores on the Presence of Meaning subscale in diverse samples are "at or above the midpoint" (Cohen & Cairns, 2012; Dogra et al., 2008; Heintzelman & King, 2014). Our study support these findings, as the average levels of meaning were above the midpoint and increased for the participants in the intervention. These findings are important because previous research indicates that meaning in life is important as a major contribution to subjective well-being and physical health (Czekierda et al., 2017; Li et al., 2021; Seligman 2002). Moreover, Heintzelman and King (2014) argue that the fact that experiencing meaning on average seems to be quite common does not take away its importance for human

functioning and flourishing. It rather shows that experiencing meaning in life is fundamental

for human survival and adaptation (Heintzelman & King, 2014). At the same time, there is

still a gap in research on how meaning can be increased through interventions (Chan, Ho, &

Chan, 2007). The present findings indicate a first step how meaning can be increased through

cost-efficient, flexible, and easily conducted online-based interventions (Ouweneel et al.,

2013; Tate & Zabinski, 2004). The signature strengths intervention in the present study did

not increase authenticity, but strengths awareness was positively associated with authenticity.

Thus, while more research is needed to draw conclusions, our study is a first attempt to

empirically test the link between signature strengths and feelings of authenticity.

Limitations

This study had several limitations that should be addressed in future research. First of

all, the study included a very small sample and an extremely high dropout rate, so the

intervention and the control group were not equal in size anymore and the power of the study

was low. Due to the small sample size, it was not possible to conduct a follow-up

questionnaire a month after the intervention, as originally planned. Thus, the present findings

do not show long-term effects of the strengths intervention. Furthermore, a three-week

intervention might be too short and should be prolonged: Previous research has found that

positive outcomes such as life satisfaction were found in a twelve-week strengths

intervention, but not in a three-week intervention (Mitchell et al., 2009; Rust et al., 2009).

Moreover, the intervention was administered via Qualtrics, which was perceived to be very

impersonal, and every week the participants were asked to work on the same tasks, only with

a different signature strength. Thus, some participants found it a bit repetitive and lacked

guidance from the research team as well as interaction with the other participants.

Nevertheless, most participants found the intervention quite helpful and enjoyed doing it (see

Appendix D). Lastly, the sample consisted mostly out of Dutch or German young adults with

an academic background. Therefore, the findings of the study are limited to individuals with a similar background.

Future Research

There are multiple areas in which future studies could build upon our research. First, while the present study focused on a signature strengths intervention, several other character-based strengths interventions exist, such as ideal strengths interventions and happiness strengths interventions. Future research could focus on the effects of these interventions on meaning in life. According to Peterson et al. (2007), meaning in life is particularly associated with some of the happiness strengths (hope, zest, and gratitude). Thus, future research should move beyond signature strengths interventions to explore how other character strengths can boost meaning in life. Second, future research might benefit from focusing on individual differences to find out for whom this intervention works specifically well. One example is that the personality traits of extraversion and openness to experience have been shown to influence the effectiveness of signature strengths interventions (Senf & Liau, 2013). Hence, future studies should include these traits. Third, future studies should also use a more diverse sample and could focus on non-Western countries as well (Hendriks et al., 2018). Lastly, previous studies have found out that character-based strengths interventions are particularly effective if the focus is more on strengths use rather than just strengths awareness (Duan et al., 2019). While the present intervention attempted to focus mainly on strengths use, the participants were simply asked to use their strengths more in their everyday life, but it was not checked if they actually did it. Thus, future studies should include a manipulation check for strengths usage. Based on the feedback from the participants, the intervention itself should also be made more personal and interactive and include more guidance (see Appendix D).

Practical Implications

Meaning in life is an important topic in positive psychology and has a fundamental influence on outcomes, such as well-being, mental health, physical health (Czekierda et al.,

2017; Disabato et al., 2017; Steger & Frazier, 2005). Experiencing meaning can be an important psychological resource to deal with stressful life events and has been shown to be especially important for the mental health of young people, in particular during a crisis, such as the COVID-19 pandemic (Brassai et al., 2011; Park & Folkman, 1997; Yu et al., 2021). However, there is a gap in research about the antecedents and exact mechanisms of meaning in life. Particularly in the target population of young adults (graduate students and job starters), lower levels of meaning in life are often experienced (Steger et al., 2009). By showing that signature strengths interventions can increase meaning in life, this study offers a promising easy way to experience more meaning in everyday life.

Conclusion

The present study attempted to add to the research on signature strengths interventions. The findings show that it might be possible to increase meaning in life through a signature strengths intervention. Furthermore, meaning in life was positively associated with authenticity in our study. In the present study, the signature strengths intervention did not increase authenticity, nor did authenticity mediate the relationship between the strengths intervention and meaning in life. However, more research is needed to test the exact relationship between one's signature strengths and authenticity.

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Appendix A: Completed Steps

Did you successfully completed all steps (1-4) during the last three weeks for every of your

three chosen character strengths? Please answer honestly, it's relevant for our research

☺ - Selected Choice

1 = Yes, I successfully completed every step for every chosen character strength within the

last three weeks.

2 = No, however I at least successfully completed most of the steps for every chosen character

strength within the last three weeks.

3 = No, I honestly have to say that I nearly did not complete any of the steps for the character

strengths during the last three weeks.

4 = None of the response options above apply to me, but I will describe further:

Appendix B: State Authenticity Scale

For each item, please select the answer that best characterizes your attitude, behavior or

feelings right now.

1. Right now, I think it is better to be yourself, than to be popular.

2. Right now, I don't know how I really feel inside.

3. Right now, I am strongly influenced by the opinions of others.

4. Right now, I usually do what other people tell me to do.

5. Right now, I feel I need to do what others expect me to do.

6. Right now, other people influence me greatly.

7. Right now, I feel as if I don't know myself very well.

8. Right now, I stand by what I believe in.

9. Right now, I am true to myself in most situations.

10. Right now, I feel out of touch with the 'real me'.

11. Right now, I live in accordance with my values and beliefs.

12. Right now, I feel alienated from myself.

Authentic Living: 1, 8, 9, 11

Accepting External Influence: 3, 4, 5, 6

Self-Alienation: 2, 7, 10, 12

Appendix C: Meaning in Life (Presence in Life Subscale)

Please take a moment to think about what makes your life feel important to you. Please

respond to the following statements as truthfully and accurately as you can, and also please

remember that these are very subjective questions and that there are no right or wrong

answers. Please answer according to the scale below:

1. I understand my life's meaning.

2. My life has a clear sense of purpose.

3. I have a good sense of what makes my life meaningful.

4. I have discovered a satisfying life purpose.

5. My life has no clear purpose.*

*reverse-coded

Appendix D: Qualitative feedback from the participants

Table 5

Qualitative Feedback from the Participants (Post-test, t1)

Question
Since you have now reached the end of the 3-week character strengths training, we would like to ask you for your feedback. Please share your how you experienced the training and be as honest as possible. 1) How did you like this character strengths training? 2) What would you like to be improved? 3) Did you learn something from it? *We highly appreciate your feedback and will take it into account!*

Answers
Fine, it was useful

1) It was hard for me to follow the character strengths training. In the past, I already had done a strength test and the result was quite similar to this training. The novelty wasn't there anymore. 2) I don't have specific feedback for improvement. 3) It reinforced my view of my strengths!

1) I liked it a lot cause I had to reflect on my strength and actually think about when i already use it and when I could be using it more - it helped to increase my happiness and well-being I think   2) Sometimes it was a bit much to write down things 3x/week and I did not always have time to complete it in time when I had a busy week. Perhaps a more flexible time scheme would have been helpful (that you only get the second email when you completed the first survey etc)   3) I learned about my strength which were a bit different to what I expected!

I enjoyed the training very much. Being able to see my strengths in this way (while at the same time being able to choose which strengths I wanted to work on) was a very enjoyable experience. I liked the intensive examination and reflection of the strengths the most. Unfortunately, setting the implementation intention for the next day did not work out well. Often it felt too forced and I enjoyed it more when I noticed in everyday life that I had used

a strength unconsciously (and thus naturally). Combining the whole thing with a time of day and everyday activity didn't feel coherent for me, unfortunately. Nevertheless, it was helpful to give the weeks "themes" or titles, so to speak, like a motto, which I could then live out during the week. Participating in the training has resulted in such wonderful encounters and insights. As suggestions for change, I would have liked the strength to be concluded with a short reflection at the end of each week. As it was, one week just flowed seamlessly into the next and there was no real closure where one would have had the opportunity to draw a conclusion about the week or, for example, to reflect on how participation in the training contributed to certain events. I then did that for myself. Thank you for the great training and all the effort that went into it! I really believe that many can benefit from it and that participation is simply good for you!

I liked that the training forced me to think further about the character strenghts that I have and that make me unique compared to others. One point of feedback in the questionnaire is that the answers differ among the questions from being from positive to negative or from negative to positive which is a bit confusing when filling it in.

1) I liked it! It was well developed, and I liked the videos that were presented before each "level". The questions of each level really made me think and reflect a lot on how I'm currently using my character strengths.   2) It would be more effective if there would be a live/online meeting where we can talk about our experiences and maybe get more tips on how to improve our character strengths. I also like to connect with others and now it felt a little 'distant' sometimes or 'dry'. Furthermore, the 4 days where we focus on bringing our strengths in practice, it would be nice to get reminders via e-mail, or little facts on character strengths, short ted talk videos... to be reminded of the benefits of character strengths. Or maybe a little question on how we are doing or anything else. Just to stay connected with the participants, and to also keep inspiring us! Besides, slides of every "level" (exploring...) to further improve character strengths would also be helpful, to read afterwards and also while we are using them. Last, the emails we get before each survey were not always at the same time (sometimes at 6am, other time at 10 am). I would recommend to send them everyday at the same time. 3) Yes, I've learned that there are many ways to further improve and explore our main character strengths. I become more aware during the days to use them more often, because of the training. It taught me as well that there are way more situations than we would normally think of to use them. It also taught me to see the character

strengths of others more, which made my relationships stronger.   Thank you so much for making this study so that I was able to explore my main character strengths more! I wish you all lots of luck with your thesis and in everything else!

1) I did not really like the training, it feels too 'floaty' for myself. 2) Nothing, I think it is nice that all effort and motivation must stem internally 3) Not too much, predominantly I would say that I have learned the step-appraoch to improving and cultivating my own strengths.

I enjoyed the strengths training, following the three stages got easier as the weeks went on, as I got more into the routine of thinking and applying. I learnt what my top strengths are (some suprised me) and got into detail about how they affect my daily life.

It was good for me to know what my strengths are. Therefore I liked the VIA questionnaire which helped me to describe my strengths in a clear way. It sometimes was difficult for me to come up with ways of applying the strengths in everyday life so my ideas about that weren't that good I believe. Still the awareness and appreciation fase were usefull to me. Furthermore I currently am struggling to find an internship and find out what I will do with my life after my studies, so getting to know my strengths is quite usefull at this time. On the other hand, since I still haven't found an internship yet the questions about how I am feeling and goals in life etc. might be answered a bit more pessimistic than usual.

1) ik vond het heel fijn om te focussen op positieve aspecten van mezelf, dat gaf een goed gevoel. 2) ik vond het wel best veel herhaling dat het elke week dezelfde stappen zijn die je ging onderzoeken bij een andere strenght.   3) ik weet nu meer waar mijn krachten liggen en hoe ik die eventueel kan inzetten in de toekomst. ook ben ik meer bewust dat als ik deze krachten niet kan inzetten het mij minder geluk oplevert.

1) I did not really like the training, because these things i do not do normally. But i think it was not bad for me realizing these things sometimes.   2) The first and last questionnaire are very long, you feel like answering the same question 4 times.   3) Yes I learned a lot from it, especially my strenghts and how to use them better and keep using them.

I found the interaction (questionnaire etc.) was too long. While the interaction in the weeks was too little. It took too much personal responsibility.

So it was nice to think about your strenghts and stuff but the last part of the week was vague like go change yourself in your routine which questions if a routine is that easy to change. Maybe you could be more specific to do that or give advice how to change yourself because i had a lot of struggles with it. Also some strenghts couldn't be used that much in those days which was a shame. I did like the idea of a strenght training and hoping to change my self but the videos were clearly read out loud and did not help that much. I think it would be better to have a apart website to find information about your strengths and what you can do with it instead of the enormous information at the quesitonaires.

It was pleasant to learn more about my strengths, but it would have helped to have an extra motivation to complete step 3 of the intervention (strengths use). For example, the questionnaire could have included a questionnaire at the end of each week that asked how you put the strength to use. I think it would have increased my chances of completing the step and it would give participants a sense of pride and contentment. All in all, I now know better who I am and I feel more proud of the strengths I possess. Thank you for all your hard work and good luck with your research!

It helped a lot that you provided the examples.

1. I liked the training quite a bit. It gave me some room to reflect on my strengths and why these are my strengths in the first place, which is not something I had done before.   2. I think I would have liked it better if the questionnaires were not as long. In addition, the training focused almost entirely on exploring your top 5 strengths, while I would have likes to know more about the strengths that were not as prevalent within me, as I already knew my top 5 reasonably well.   3. I got a better appreciation for my strengths in general.