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ORIGINAL ARTICLE

Meaningful Living to Promote Complete Mental Health Among University Students in the Context of the COVID-19 Pandemic

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Abstract
Maintaining positive mental health can be challenging during the COVID-19 pandemic which undoubtedly caused devastating consequences on people's lives. There is need to determine factors contributing to mental health of people during the pandemic. The current study aims to examine the effect of meaning in life on complete mental health, which represents the presence of positive functioning and the absence of psychopathological symptoms. The participants of the study included 392 (70.9% female) undergraduate students, ranging in age from 18 to 43 years ($M = 20.67$ years, $SD = 3.66$) and they have predominantly been imposed stay-at-home orders for coronavirus right after announcement of COVID-19 restrictions in Turkey. Latent variable path analyses demonstrated significant paths from meaning in life to all components of psychological distress, positive mental health, and subjective well-being. Multi-group analysis showed significant gender differences across the study variables. These findings corroborate the critical role of meaning in life in promoting complete mental health and shed further light on why people high in meaning in life tend to have better mental health than those low in meaning in life within the context of COVID-19.

Keywords Meaning in life · Complete mental health · Psychological distress · Psychological well-being · Subjective well-being

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The COVID-19 outbreak initially started in December 2019 in China and spread rapidly to other countries by affecting almost all aspects of human life such as health, social, education, and economy (Tanhan 2020; Tanhan et al. 2020). According to daily statistics published by the Johns Hopkins University, as of 2 October 2020, there have been more than 34 million people confirmed with COVID-19 globally and more than 1 million deaths touching 188 countries and territories (Center for Systems Science and Engineering 2020). In Turkey, many measures were put in place to control the COVID-19 through the closure of borders, the restriction of travel, public gatherings, and spending time outside of the home. While hospitals managed unprecedented pressure on the healthcare system, the country experienced the loss of lives, economic stress, job losses, illness, and social isolation spurred on by quarantine measures (Arslan 2020a; Yıldırım and Arslan 2020; Yıldırım and Güler 2020a). As of 02 October 2020, there were more than 321,500 people confirmed with COVID-19, and 8300 deaths (Center for Systems Science and Engineering 2020).

Studies reported that measures taken to control the COVID-19 pandemic (e.g., quarantine) have significant effects on individuals both in short-term and long-term such as experience of fears of infection, frustration, and boredom (Tian et al. 2020). Similar to previous research on infectious diseases like MERS where high levels of mental health problems (e.g., anxiety, aggression) were reported (Jeong et al. 2016), recent evidence on COVID-19 demonstrated that people suffer from a wide range of mental health problems including panic attacks, anxiety, and depression (Ahorsu et al. 2020; Qiu et al. 2020). However, psychological strengths like meaningful living, resilience, and hope were found to significantly promote mental health during the pandemic (Yıldırım and Arslan 2020; Arslan et al. 2020).

Individuals' perception of meaning in life has become one of the main study areas with emergence of positive psychology. Meaning in life is as a subjective concept that includes several key components such as success, love, and inevitable suffering (Frankl 1985). The concept of meaning in life constitutes the basic motivation source of individual in an existential approach (Sharf 2012). Search for meaning in life is one of the fundamental psychological needs of human being. According to Frankl (1985), people differ in their levels of meaning in life. In times of difficulties, those who have meaning and purpose in life can survive much longer than those who lack in meaningful living. Despite the wide variety of stressors that people can experience in the face of adversities such as the current pandemic, they can still function positively by turning into their own essence of finding meaning in life. Many studies have supported the importance of meaning in life to various mental health indicators such as social and physical functioning, subjective well-being, psychological well-being hope, depression, social support, and anxiety (Jim and Andersen 2007; Kleftaras and Psarra 2012; Lin 2020; Mascaro and Rosen 2005; Minkkinen et al. 2020; Zika and Chamberlain 1992; Wang et al. 2006). Although limited, meaning in life was also found to be related with emotional well-being (Garrosa-Hernández et al. 2013). Meaninglessness can cause psychopathology and psychological disorders (Maccallum and Bryant 2019). It has also been found to act as a protective factor against intrusive thoughts and psychological distress among breast cancer survivors who need to adjust to new situations (Vickberg et al. 2000). These results suggest that meaning in life is a critical ingredient of human functioning.

Complete mental health refers to the presence of positive functioning and the absence of psychopathological symptoms (Arslan and Allen 2020). Complete mental health consists of both mental well-being and ill-being. Mental ill-health embodies a wide variety of difficulties experienced by people such as depression, anxiety, stress, worries, loneliness, and adjustment problems that diminishes optimal functioning (Allen and McKenzie 2015; Arslan and Allen

2020; Spiker and Hammer 2019; Tanhan 2019). Mental well-being, on the other hand, includes the presence of fulfillment with emotional, social, and psychological experiences (Keyes 2014; Seligman and Csikszentmihalyi 2000; Smith et al. 2020). The absence of mental illness does not completely reflect the presence of well-being or vice versa (Keyes 2014). Researchers suggested the continuity of mental health to describe one's fully functioning in social, emotional, and psychological domains (Diener et al. 1999; Keyes 2014). A complete mental health can be achieved by considering both positive and negative states of mind and body. Thus, as there are differentiated conceptualization of well-being, researchers have suggested to simultaneously measure different types of well-being (e.g., subjective and psychological well-being) and mental illnesses (e.g., depression and anxiety) to comprehensively understand mental health (Ryan and Deci 2001). Complete mental health is linked to coping, self-esteem, optimism, psychological flexibility, feeling of control, resilience, functioning, and adjustment (Arslan 2018; Arslan and Allen 2020; Bieda et al. 2017; Keyes 2002; Keyes 2005; Moore and Diener 2019; Peterson and Seligman 2004).

Well-being typically refers to "optimal psychological functioning and experience" and is a multidimensional construct including hedonic and eudaimonic dimensions (Ryan and Deci 2001). Hedonic well-being typically reflects subjective well-being (SWB) that incorporates satisfaction with life, positive affect, and negative affect while eudaimonic well-being is conceptualized as positive skills that promote living a life of virtue in pursuit of human excellence. Eudaimonic well-being is best represented with psychological well-being (PWB) that includes six dimensions of optimal functioning: purpose in life, environmental mastery, autonomy, personal growth, positive relations, and self-acceptance (Ryff and Keyes 1995; Ryff et al. 1999). Although SWB and PWB are conceptually overlap to some extent, they are empirically distinct concepts (Ryan and Deci 2001). Research has shown that both SWB and PWB are associated with psychosocial and physical outcomes. For example, in a systematic review study, Lyubomirsky et al. (2005) documented that there are various tangible benefits of well-being such as better general health, effective coping strategies, fulfilling social relationships, and success. More recently, similar findings have been reported concerning the link between well-being and health outcomes (Gruber and Bekoff 2017; Huang and Humphreys 2012; Kansky and Diener 2017), and self-productivity, success, subjective vitality, meaning, self-esteem, and marital satisfaction (Akdağ and Cihangir-çankaya 2015; Braaten et al. 2019).

Given that the perception of meaning in life and mental health of individual may be adversely affected during difficult times like the COVID-19 pandemic, it is necessary to understand the link between meaning in life and complete mental health in such times. Therefore, the main purpose of this study is to examine the association between meaning in life, psychological health problems, positive mental health, and subjective well-being. We hypothesized that meaning in life would be a significant predictor of all indicators of complete mental health and the predictive effect of meaning in life on indicators of complete mental health would differ across female and male participants.

Method

Participants

The participants included 392 (70.9% female and 29.1% male) undergraduate students attending a public university in an urban city of Turkey. They ranged in age from 18 to

43 years ($M = 20.67$ years, $SD = 3.66$). The unique characteristic of the participants is that 68% of them were under 20 years old who have been imposed stay-at-home orders for coronavirus right after announcement of COVID-19 restrictions. Most of them considered themselves at medium-risk for coronavirus (low = 31.3%; medium = 60.9%; high = 7.7%). All participants were informed about the aims of study and their rights to withdraw at any time from the online survey. A convenience sampling method was used to collect data. Participants were not paid for their involvement.

Measures

Meaning in Life Meaningful Living Measure (MLM) was used to assess the meaning in life with a 6-item self-report measure that is scored based on a 7-point Likert-type scale from *strongly disagree* (1) to *strongly agree* (7) (e.g., "As a whole, I find my life meaningful"). Previous research has revealed that the MLM provided good data-model fit and strong internal reliability estimates with Turkish adults (Arslan 2020b). The scale had also a strong internal reliability estimate with the current sample ($\alpha = .82$).

Psychological Distress Brief Symptom Inventory (BSI-18) was used to measure mental health difficulties of individuals (Derogatis and Fitzpatrick 2004). The scale is an 18-item self-report questionnaire and includes three 6-item subscales: depression, anxiety, and somatization (e.g., "Pains in heart or chest," "Feeling no interest in things"). All items are responded using a 5-point Likert-type scale, ranging from *not at all* (0) to *very much* (4). Although psychometrics of the previous versions (SCL-90 and BSI-53) of the scale have been examined with Turkish samples, psychometric properties of current version are still not available. Therefore, the psychometric adequacy of the BSI-18 was investigated using the sample of this study. Confirmatory factor analysis results, which structured the 18 observed BSI items as indicators of three subscales, indicated that the measurement model yielded adequate data-model fit statistics ($\chi^2 = 414.99$, $df = 130$, $p < .001$, TLI = .90, CFI = .92, RMSEA [90% CI] = .075). Factor loadings of the scale were strong ranging from .49 to .85 (somatization λ range = .57–.74; depression λ range = .49–.85; anxiety λ range = .50–.79; covariance = 3–11 items and 16–17 items), and internal reliability coefficients (overall BSI-18 $\alpha = .93$; somatization $\alpha = .84$; depression $\alpha = .83$; anxiety $\alpha = .86$). These results provided good evidence for a three-factor model of the BSI–18 that could be used to measure psychological distress among young adults.

Positive Mental Health Mental Health Continuum Short Form (MHC-SF) is a 14-item self-report measure developed to assess individuals' social, emotional, and psychological well-being representing the level of positive mental health (e.g. "In the past month, how often did you feel that our society is becoming a better place for people?"; Keyes et al. 2008). All items are scored using a 6-point Likert scale, ranging between *never* (0) and *almost* (5). Previous research has provided evidence supporting good psychometric properties in different cultures (Keyes et al. 2008; Petrillo et al. 2015) including Turkish culture (Demirci and Ahmet 2015). The scales had also strong internal reliability estimate with the present sample (α range = .83–.88, see Table 1).

Subjective Well-being The Scale of Positive and Negative Experience (SPANE) (Diener et al. 2010) and the Satisfaction with Life Scale (SWLS) (Diener et al. 1985) were combined to

Table 1 Descriptive statistics and correlations

Scales	Mean	Std. deviation	Skewness	Kurtosis	α
Meaning in life	34.20	5.75	− 1.52	3.43	.82
Subjective well-being					
Life satisfaction	21.25	6.12	− .28	− .42	.85
Positive affect	20.40	4.36	− .36	.09	.90
Negative affect	15.99	3.61	− .15	.04	.77
Positive mental health					
Emotional well-being	9.62	2.94	− .55	.34	.83
Social well-being	14.02	5.08	− .25	− .13	.86
Psychological well-being	21.86	5.80	− 1.10	1.47	.88
Psychological distress					
Somatization	5.19	4.76	1.11	.92	.84
Depression	8.04	5.47	.54	− .39	.83
Anxiety	6.49	4.64	.94	.54	.86

measure individuals' subjective well-being. The SPANE is a 12-item self-report questionnaire used to assess individuals' emotions and moods and includes two 6-item subscales: positive feeling experience (e.g., "Pleasant," "Good") and negative feeling experience (e.g., "Unpleasant," "Negative"). All items are rated on a 5-point Likert scale, ranging from *very rarely or never* (1) to *very often or always* (5). Research indicated that the scale had good psychometric properties and strong internal reliability estimates for Turkish samples (Telef 2013). The SWLS was also used to assess individuals' cognitive assessments of well-being. The scale is a 5-item self-report instrument (e.g., "The conditions of my life are excellent") that is answered using a 7-point Likert-type scale, ranging from *strongly agree* (7) to *strongly disagree* (1). Previous research showed that the reliability coefficients of the SWLS were adequate for Turkish sample (Dağlı and Baysal 2016). The internal reliability estimate of the scale was strong in the present study (α range = .77–.90, see Table 1).

Data Analysis

Prior to examining the predictive power of the meaning in life on complete mental health indicators, descriptive statistics and the assumption of normal distribution were investigated. Following excluding the messing scores (6 participants), skewness and kurtosis scores were used to investigate the normality assumption, and the estimates $\leq |3|$ were considered as adequate for normality (D'Agostino et al. 1990; Kline 2015). Then, Pearson's correlation analysis was conducted to examine the association between the study variables. Subsequently, a pair of latent variable path analysis (LVPA) was conducted to examine the predictive effect of the MLM on student's complete mental health identified by positive mental health, psychological distress, and subjective well-being indicators. Findings from path analyses were interpreted using the standardized regression estimates (β values) and squared-multiple correlations (R^2), with traditional decision rules: .01–.059 = small, .06–.139 = moderate, $\geq$ .14 = large (Cohen 1988). Findings from this analysis were also evaluated using several data-model fit statistics and their cut-scores: comparative fit index (CFI) and Tucker Lewis index (TLI) values $\geq$ .90 were considered an adequate data-model fit; the root mean square error of approximation (RMSEA; with 90% CI) values between .05 and .08 were viewed as a good data-model fit (Hooper et al. 2008; Hu and Bentler 1999). Furthermore, multi-group analysis was conducted to investigate gender differences on the study variables. All statistical analyses were performed using SPSS version 25 and AMOS version 24.

Results

Findings from descriptive analysis showed that skewness and kurtosis scores ranged between − 1.52 and 3.43, suggesting that all variables provided relatively normal distribution (D'Agostino et al. 1990; Kline 2015). Internal reliability estimates of the study variables were adequate-to-strong, ranging from .77 to .90, as shown in Table 1. Further, correlation analysis was performed to investigate the association between variables, indicating that meaning in life was positively and significantly correlated with life satisfaction ($r = .58$, $p < .001$), positive feelings ($r = .42$, $p < .001$), and emotional ($r = .46$, $p < .001$), social ($r = .50$, $p < .001$), and psychological well-being ($r = .61$, $p < .001$), ranging from moderate to large effect sizes. Meaning in life had also significant and negative correlations with negative feelings ($r = -.23$, $p < .001$), somatization ($r = -.30$, $p < .001$), depression ($r = -.47$, $p < .001$), and anxiety ($r = -.32$, $p < .001$), ranging from small to large effect sizes, as shown in Table 2.

Following conducting the descriptive and correlation analyses, the LVPA was performed to investigate the predictive effect of the measurement model on student mental health and well-being. Overall, results of this analysis provided good data-model fit statistics ($\chi^2 = 153.39$, $df = 54$, $p < .001$, RMSEA = .069 [90% CI .58–.82], CFI = 97, and TLI = .93). Standardized regression estimates indicated that meaning in life significantly and moderately-to-largely predicted subjective well-being components, ranging from .06 to 41 effect sizes: life satisfaction ($\beta = .64$, $t = 11.80$, $p < .001$), positive feeling ($\beta = .45$, $t = 8.20$, $p < .001$), and negative feelings ($\beta = -.24$, $t = -4.28$, $p < .001$). Subsequently, meaning in life had significant and strong predictive effects on positive mental health indicators, ranging from .25 to 44 effect sizes: emotional ($\beta = .50$, $t = 9.18$, $p < .001$), social ($\beta = 54$, $t = 9.82$, $p < .001$), and psychological well-being ($\beta = 66$, $t = 12.21$, $p < .001$). Lastly, findings of the study indicated the significant and large predictive effects of meaning in life on student psychological difficulties, ranging from .11 to 26 effect sizes: somatization ($\beta = -.33$, $t = -5.95$, $p < .001$), depression ($\beta = -.51$, $t = -9.40$, $p < .001$), and anxiety ($\beta = -.35$, $t = -6.41$, $p < .001$), see Table 1 and Fig. 1.

Multi-group analysis was also performed to investigate the differences between male and female students. Findings from the analysis showed that the model yielded good data-model fit statistics ($\chi^2 = 264.72$, $df = 108$, $p < .001$, RMSEA = .061 [90% CI .52–.70], CFI = 95, and TLI = .90). Standardized regression estimates showed that meaning in life had a strong

Table 2 Correlations between the study variables

Scales	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Meaning in life	1	.58**	.42**	− .23**	.46**	.50**	.61**	− .30**	− .47**	− .32**
2. Life satisfaction		1	.45**	− .29**	.58**	.56**	.55**	− .33**	− .54**	− .34**
3. Positive affect			1	− .36**	.61**	.48**	.56**	− .23**	− .44**	− .31**
4. Negative affect				1	− .28**	− .23**	− .34**	.31**	.44**	.46**
5. Emotional well-being					1	.69**	.68**	− .25**	− .51**	− .33**
6. Social well-being						1	.70**	− .27**	− .48**	− .32**
7. Psychological well-being							1	− .26**	− .52**	− .36**
8. Somatization								1	.61**	.70**
9. Depression									1	.75**
10. Anxiety										1

**$p < .001$

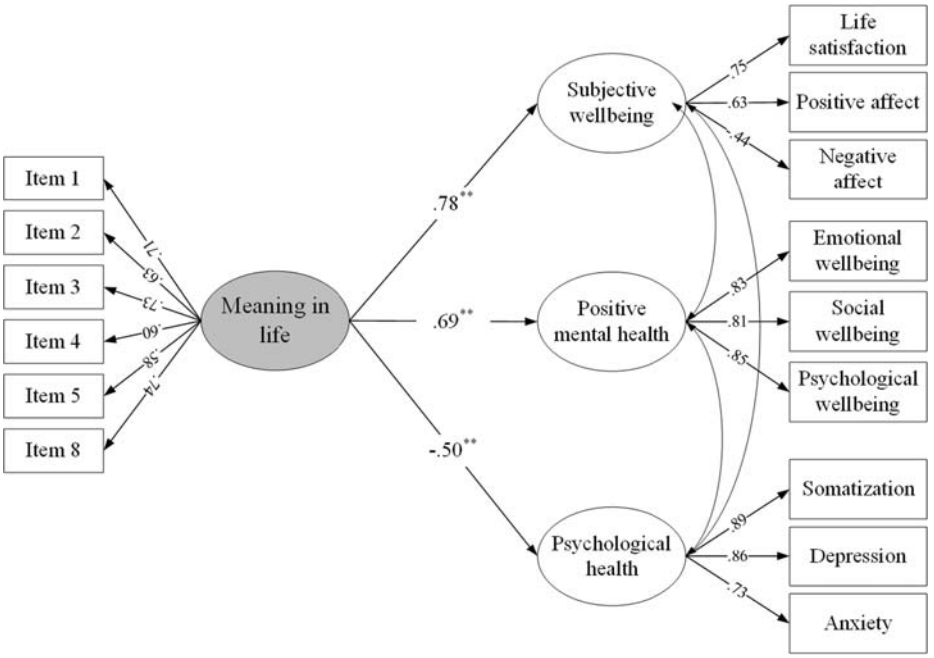


Fig. 1 The predictive effect of meaning in life on complete mental health indicators. *Note.* $^{**}p < .001$

predictive effect on psychological distress and positive mental health components in male students, compared with female students, as shown in Table 3. This evidence suggests that the predictive effect of meaning in life differs across female and male students; thus, caution may be warranted in comparing these groups.

Table 3 Standardized direct effects

Outcomes	Meaning in life							
	Total sample (BC 95% CI)				Female		Male	
	β	R^2	Lower	Upper	β	R^2	β	R^2
Subjective well-being								
Life satisfaction	.64**	.41	.53	.73	.64**	.41	.63**	.39
Positive affect	.45**	.20	.32	.56	.46**	.21	.43**	.18
Negative affect	− .24**	.06	− .34	− .11	− .24**	.06	− .26**	.07
Positive mental health								
Emotional well-being	.50**	.25	.35	.63	.46**	.24	.58**	.33
Social well-being	.54**	.29	.42	.64	.48**	.23	.66**	.44
Psychological well-being	.66**	.44	.52	.77	.63**	.40	.72**	.52
Psychological distress								
Somatization	− .33**	.11	− .44	− .21	− .31**	.10	− .41**	.17
Depression	− .51**	26	− .63	− .37	− .47**	.22	− .61**	.37
Anxiety	− .35**	.12	− .46	− .23	− .32**	.10	− .48**	.23

$^{**}p < .001$, BC 95% CI for standardized direct effects = bootstrapped bias-corrected and accelerated confidence interval with sample 5000

Discussion

The COVID-19 epidemic becomes the most challenging global health crisis in the twenty-first century. Although countries take necessary measures such as quarantine and self-isolation to decelerate, COVID-19 is much more than a health crisis. It has the potential to create devastating psychological, social, economic, and political crises that will leave deep wounds as it has been continuing to affect many societies unprecedentedly. This can be a severe source of stress and anxiety for everyone. Therefore, it is crucial for the individual to cope with stressors, adjust to the changes in general lifestyle due to COVID-19, and maintain their mental health. (Rosenberg 2020). Meaning in life is one of the most important components of coping with stressors in difficult times. It is very important to develop an existential source of flexibility such as sense of meaning and purpose in this difficult process (Kim et al. 2005).

The present study sought to examine the role of meaning in life in enhancing the mental health and well-being of undergraduate students during the COVID-19 outbreak. We hypothesized that meaning in life would be a significant predictor of all indicators of complete mental health. The study results revealed that meaning in life negatively and significantly predicted negative effect and positively and significantly predicted positive affect and life satisfaction. Similar to the findings of the present study, previous studies revealed that meaning in life was positively associated with positive affectivity and life satisfaction while negatively related to negative affectivity, which are essential components of subjective well-being (Doğan et al. 2012; Galang et al. 2011; Santos et al. 2012; Yıldırım and Güler 2020b). Arslan and Allen (2020) reported that meaning in life was a significant predictor of life satisfaction and mediated the negative effect of coronavirus stress on well-being. Santos et al. (2012) found that meaning in life was positively related to positive emotion and life satisfaction and negatively associated with negative emotions. Cohen and Cairns (2011) found a negative and significant correlation between searching for meaning in life and subjective well-being and a positive and significant correlation between the presence of meaning in life and subjective well-being.

Findings of the study additionally showed that meaning in life positively and significantly predicted positive mental health including emotional well-being, social well-being, and psychological well-being. This study has supported previous findings indicating that individuals with high level of the sense of meaning in life have grater emotional, psychological, and social well-being (Damasio et al. 2013; García-Alandete 2015; García-Alandete et al. 2018; Mulders 2011). Meaning in life significantly predicted psychological well-being (García-Alandete 2015; García-Alandete et al. 2018). Despite the literature supporting the importance of meaning in life to improve positive mental health, specifically psychological well-being, few studies have focused on the predictive effect of meaning in life on emotional and social well-being (Garrosa-Hernández et al. 2013). Therefore, the present study provides further evidence indicating that meaning in life is an important factor to promote not only psychological well-being but also emotional and social well-being.

Lastly, the results indicated that meaning in life had a negative and significant predictive effect on psychological health problems (i.e., depression, anxiety, and somatization), which are negative indicators of complete mental health. Consistent with these results, the literature has indicated that the sense of meaningful living is the key to better psychological health (Kleftaras and Psarra 2012; Mascaro and Rosen 2005, 2008; Steger et al. 2009). For example, Hedayati and Khazaei (2014) found a negative correlation between meaning in life and depressive symptoms. Another study indicated that there was a significant and negative correlation between meaning in life and anxiety, somatic symptoms, social dysfunction, and depressive symptoms. Individuals with depressive symptoms reported lower levels of meaning in life compared with those without (Kleftaras and Psarra 2012).

Implication and Limitations

The current study focused on meaning in life, subjective well-being, and some indicators of positive mental health (emotional well-being, social well-being, and psychological well-being) and of negative mental health (depression, anxiety, and somatization). Future research may investigate the relationships of meaning in life with different variables. As negative correlations were found between meaning in life and depression, anxiety, and somatization in the current study, psycho-educational activities can be conducted with university students to nurture their meaning in life. Also, activities can be organized to increase the subjective well-being of university students so that their search for meaning in life can be supported. In the current study, significant correlations were found between meaning in life, social, emotional, and psychological well-being. In this regard, organization of activities to improve the psychological well-being of university students can contribute to their search for meaning in life.

The current study has several limitations that need to be taken into account when interpreting these results. Firstly, participants were self-selected students studying at a state university, thereby may not be a better representative of the general population. Due to the nature of COVID-19 which imposes people to physically and socially distance from one another (Yıldırım et al. 2020), we collected data using an online survey. However, limitations exist in Internet data collection as it only encompasses Internet users. Next, though using various self-report measures of mental health, well-being, and meaning in life was fruitful in obtaining a broader picture of complete mental health, there may be some factors affecting the reliability of current findings such as social desirability. Future research should use methods that reduce self-report recall biases. Additionally, this study was performed using a cross-sectional design, and longitudinal research could therefore offer additional insights into the associations between the variables. Finally, these findings should be iterated in more countries and cultures, with diverse samples as people may have different views of meaning in life and well-being.

In conclusion, the results suggest that meaning in life can explain increases in positive mental health and decreases in negative mental health. Meaning-centered intervention programs can be utilized in future research and practice to make changes in one's lives and promote their complete psychological functioning.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Consent was obtained from all participants included in the study.

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