

PREDICTING WELL-BEING OF BULGARIAN UNIVERSITY STUDENTS IN HEALTH SCIENCES: THE ROLE OF RELIGIOUS AND SECULAR MEANING-MAKING COPING

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Abstract

Students in the health sciences are exposed to intense daily stressors that negatively affect their well-being. Meaning-making coping is widely recognized as a protective factor for well-being during acute stress, but understanding of its effects in the face of everyday difficulties is more limited. This study aimed to examine the effects of religious and secular (non-religious) meaning-making coping on the well-being domains of health science students and the role of perceived stress as a mediator in these relationships. A total of 227 Bulgarian university students participated in the study (M age = 30.27; SD = 10.91). Analyses revealed that secular meaning-making coping directly positively predicted subjective, psychological and social well-being, with medium to large effect sizes. Perceived stress emerged as a partial mediator of these relationships. Religious coping did not predict well-being either directly or indirectly via perceived stress. The study highlights the positive influence of a non-religious way of making sense of everyday stressors on students' well-being, and identifies perceived stress as a mechanism through which this influence is partially realized. The findings suggest that the inclusion of secular meaning-making may be appropriate in programs designed to promote the well-being of these students.

Keywords: coping, meaning, religion, stress, well-being

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Introduction

Health sciences students are exposed to higher levels of stress than students in other disciplines due to academic workload, high competitiveness, being in a hospital environment, and increasing responsibilities during training (e.g., Khazir et al., 2019). Stress leads to difficulties in interacting with patients, poor academic performance, and a high prevalence of stress-related disorders among these students worldwide (e.g., Quek et al., 2019). According to a meta-analysis of longitudinal studies, stress was one of the factors with a strong negative impact on the dynamics of student well-being (du Toit et al., 2022). Well-being is considered an indicator of positive mental health, along with the absence of psychopathological symptoms (Keyes & Martin, 2017). Well-being is associated with optimal psychosocial functioning, and has been operationalized as: subjective, referring to the experience of life satisfaction and happiness; psychological, referring to a sense of optimal fulfillment of personal potential, self-acceptance, self-efficacy, and autonomy; and social, referring to the experience of positive relationships and a sense of belonging to a community (Keyes & Martin, 2017). High levels of student well-being have been positively associated with academic performance and college retention (Kryza-Lacombe et al., 2019), and given the negative impact of stress on well-being, it is important that students use coping styles that promote well-being.

In addition to problem-focused and emotion-focused coping, the extended transactional model of stress emphasizes the role of meaning-making as coping in the context of extreme stress (Park & Folkman, 1997). According to the meaning-making model, meaning operates at two levels: global - based on the individual's core beliefs, goal hierarchy, and values; and situational - related to the ascribed meaning of a specific context or situation. Stressful events disrupt global meaning, which causes distress, but meaning-making improves the correspondence between the two levels of meaning and reduces distress (Park & Kennedy, 2017). Meaning-making uses reappraisal strategies based on different sources of meaning and, depending on these sources, can be religious and secular (non-religious) in nature. Religious meaning-making is based on religion as a primary source of global meaning and creates situational meaning according to a religious meaning system (Park, 2011). Specifically, stressful events can be interpreted as having potentially beneficial implications for the individual's relationship with God and the religious community, i.e., positive religious coping (PRC), or the stressor can be seen as God's punishment for the person's sins, lack of commitment, and unsatisfactory relationship with God and the religious community, i.e., negative religious coping (NRC) (Pargament, 1997). In secular (non-religious) meaning-making coping (SMMC), events are viewed according to sources of meaning of an existential nature, such as the person himself, nature, or other people (Lloyd, 2018). Religious and non-religious forms of meaning-making are closely related and interact with each other, but have been shown to have different effects on student well-being (Ahmadi et al., 2022).

According to a systematic review, SMMC serves as a mechanism by which individuals maintain, restore, or even improve their mental health during a negative event (Métais et al., 2022). Focusing on the potentially beneficial effects of distress on personal growth, social relationships, or knowledge development reduces the negative mental health consequences of multiple intense stressors. For example, a meta-analysis of cross-sectional studies found that the SMMS was negatively associated with psychological distress during pandemic stress (Eisenbeck et al., 2022; Cheng et al., 2024) and was much more predictive of distress than the specificity of stressors

and demographic characteristics combined (Milman et al., 2020; Negri et al., 2023). Use of the SMMS has predicted higher positive affect and lower negative affect as an aspect of subjective well-being in longitudinal studies of people who have experienced a traumatic event (Fitzke et al., 2021; Paquin et al., 2021). Among college students, this coping has also directly and prospectively predicted lower negative affect and more pronounced positive affect, in addition to higher life satisfaction, during major life stressors (Wang et al., 2019; Lachnit et al., 2020; Yang et al., 2021; Arslan, & Yildirim, 2021).

Under conditions of highly intense and poorly controlled stress, the propensity to use SMMC increases, including among college students (e.g., Yang et al., 2021), and SMMC has been shown to be the strongest positive predictor of psychological well-being compared to problem-focused and emotion-focused coping in a large-scale cross-cultural and multinational study (Eisenbeck et al., 2022). However, there is evidence in the literature that meaning-making coping has been used in addition to highly stressful events in situations that do not significantly disrupt global meaning (George & Park, 2022). An experimental study inducing acute stress also found no differences in the use of meaning-making coping, despite significant differences in levels of perceived stress and valence of experienced affect between experimental and control groups (Petagna, 2021). This coping style was shown to be one of the most commonly used by medical students to cope with daily stress during training, and was applied to both moderate and high levels of stress (Labrague et al., 2017). Another study in a large group of medical students found that SMMC reduced the negative impact of study- and practice-related stress on subjective well-being (Leipold et al., 2019) and facilitated adaptation to daily difficulties, even when they were of low intensity (Lau & Tov, 2023). These findings suggest a broader link between such coping and well-being, not only for traumatic stress, but also for everyday stress.

In contrast to the overwhelmingly positive associations of SMMC with well-being in the scientific literature, religious meaning-making has shown inconsistent associations. For example, a systematic review and meta-analysis of cross-sectional studies conducted in different countries, mainly with student populations, found a weak, inconsistent negative relationship between NRC and subjective well-being, and a weak but consistent positive relationship between PRC and subjective well-being under intense and prolonged stress (Pankowski & Wytrychiewicz-Pankowska, 2023). Similar relationships have been found in other cross-sectional studies including medical students (Francis et al., 2019; Counted et al., 2022; Skalski-Bednarz et al., 2022). A meta-analysis of 42 studies with 25438 participants from 24 countries also found negative associations of NRC with subjective well-being (Cheng et al., 2024). According to a longitudinal study, these associations were found not only for subjective but also for psychological well-being, with NRC having a negative predictive effect, while the effect of PRC was positive, and these effects persisted over time (Park et al., 2018). However, other studies present inconsistent or even contradictory findings, such as that NRC, but not PRC, significantly negatively predicted psychological well-being (Pagán-Torres et al., 2021; Moussa et al., 2023), that PRC, but not NRC, positively predicted it (Fatima et al., 2022), or that both NRC and PRC negatively predicted psychological well-being among college students during acculturative stress (Somos, 2020). According to other authors, there were no significant relationships between PRC and domains of well-being during stressful events in either longitudinal or cross-sectional studies (Garssen et al., 2021; Surzykiewicz et al., 2022), suggesting that the influence of religious meaning-making coping on well-being may manifest indirectly through stress appraisals. For example, some authors found that under extreme

stress, NRC correlated positively with perceived stress, leading to a more threatening perception of stress (DeRossett et al., 2021), and PRC correlated negatively with perceived stress, reducing its subjective severity (Mahamid & Bdier, 2021), and furthermore, through perceived stress, PRC increased subjective well-being in emerging adults (Krok et al., 2023).

In summary, the literature highlights the positive impact of meaning-making in dealing with difficult life circumstances, loss, traumatic events, or serious threats to health. Research consistently highlights the positive association of SMMC with subjective well-being and the negative association of NRC with subjective and psychological well-being. However, the relationships of PRC with domains of well-being and those of SMMC with psychological and social well-being are underrepresented or inconsistent. In addition, research has predominantly demonstrated the effects of SMMC on well-being under conditions of high intensity and traumatic stress, but its effects on well-being under everyday stress have been less studied. Furthermore, despite the established associations of religious coping with appraisals of significant adversity, the role of perceived stress as a mechanism by which both types of meandering coping influence well-being under everyday stress remains unclear. Health professions students are not only exposed to higher levels of daily stress than their counterparts in other disciplines, but also to more intense work stress, with increased manifestations of burnout (Caneca Murcho & Palma Pacheco, 2020). This highlights the need to identify the factors and mechanisms that support optimal functioning of future health professionals, as measured by domains of well-being. The results could help develop interventions for this type of student to prevent stress-related disorders and promote their positive mental health, not only during their studies but also in their future work. Therefore, the first aim of this study was to examine the effects of religious coping and SMMC on health science students' domains of well-being, and the second was to examine the mediating role of perceived stress in the relationship between both types of meaning-making coping and well-being.

It was hypothesized that:

H1: SMMC positively predicts subjective, psychological and social well-being.

H2: PRC positively predicts subjective, psychological and social well-being, and NRC negatively predicts these domains.

H3: Perceived stress mediates the relationships of PRC, NRC, and SMMC with the domains of well-being.

Methods

Participants

The study was carried out with 227 Bulgarian university students aged between 18 and 56 years ($M = 30.27$; $SD = 10.91$). The respondents were distributed by gender: male - 38 (16.7%), female - 189 (83.3%); by specialty: medicine - 55 (24.2%), nursing - 97 (42.8%), midwifery - 33 (14.5%), medical assistant - 42 (18.5%); by religious affiliation: Christian - 155 (68.3%), Muslim - 60 (26.4%), other - 4 (1.8%), atheist - 8 (3.5%); by self-assessed religiousness: strongly religious - 25 (11%), moderately religious - 123 (54.2%), weakly religious - 62 (28.2%), not religious - 15 (6.6%).

Instruments

Data about age, gender, major studied, self-reported religiosity, and self-reported religious affiliation were included in the survey.

Perceived Stress Scale (PSS; Cohen et al., 1983). The scale assessed the extent to which life situations are perceived as threatening, unpredictable, uncontrollable without specify the stressors. It contains 14 items, each one being evaluated by respondents about frequency of occurrence in the last month on a scale from 1 = “Never” to 5 = “Very often”. Higher results indicated higher perceived stress level. Internal consistency of the scale in the study was Cronbach’s $\alpha = .65$.

The Brief Multidimensional Measure of Religiousness and Spirituality (BMMRS; Fetzer, 2003). The Religious Coping subscale was used to meet the objectives of the study. The term “God” was replaced with “Higher Power” to make the statements appropriate for all religions. Respondents were asked to indicate their agreement with the statements on a four-point response scale ranging from 1 (very) to 4 (not at all). Four items measured PRC as being related to a person’s tendency to rely on a Higher Power in coping with difficulties (e.g., „I rely on a Higher Power for support and guidance.“). The Cronbach’s α reliability of PRC for the study was 0.76. Three items measured NRC as a tendency to perceive difficulties as punishment or abandonment by a Higher Power and to not rely on support in resolving them (e.g., „I wonder if a Higher Power has abandoned me.“). The Cronbach’s α reliability of NRC for the study was 0.56.

Meaning-Centered Coping Scale (MCCS; Eisenbeck et al., 2022). Scale measured coping focused on creating personal meaning from stressful situations. It consisted of 9 items that were focused on appreciation of one’s life in general (e.g., “I am grateful for my life as it is.”), on the tendency to positively reframe difficulties (e.g., “I will come out of this situation stronger than I was before.”), to maintain hope and courage, to engage in meaningful and pro-social activities also (e.g., “I am helping others through this time.”). Statements were rated on a 7-point Likert scale from 1 (do not agree at all) to 7 (strongly agree). The Cronbach’s α reliability for the study was 0.86.

Mental Health Continuum Short Form (MHC-SF; Keyes et al., 2008). Scale consisted of fourteen items that assessed three domains of well-being. The three-items subjective well-being subscale (SbWB) measured overall affect and general satisfaction with life. Social well-being subscale (ScWB) consisted of five items that represent social contribution, social integration, social actualization, social acceptance, and social coherence. Psychological well-being (PsWB) consisted of six items that represent self-acceptance, environmental mastery, positive relations with others, personal growth, autonomy and purpose in life. Participants were required to respond to items on a 6-point Likert-type scale based on the experiences they had had over the last month (never, once or twice, about once a week, 2 or 3 times a week, almost every day, or every day). In our study internal consistencies were about SbWB - 0.82, ScWB- 0.73, PsWB- 0.81.

Procedure

The research was conducted in accordance with the ethical standards of the institutional research committee and with the Declaration of Helsinki from 1965 and its later amendments (World Medical Association, 2013). Prior to participating in the study, students were informed of the purpose of the study and that participation was voluntary and anonymous. All participants provided written informed consent. The study was conducted online via a Google form sent via

email, and the form took approximately 15 minutes to complete. Participants received no reward or credit and could withdraw from the study at any time without consequence.

Data analysis

Preliminary analyses were conducted to examine observed scale characteristics, assumption of normality, and correlation estimates between the study variables. Normality was investigated using Kolmogorov-Smirnov test. Pearson product-moment correlation analysis was conducted to explore the associations between the variables of the study. Further, stepwise regression analyses were carried out. Durbin Watson (DW) test was used to check multicollinearity in the regression models. A mediational analyses were conducted using the PROCESS macro (Model 4 for SPSS version 4.2 (Hayes, 2018) while controlling age. The bootstrap method with 10 000 resamples to estimate the 95% confidence interval (CI) was investigated for indirect effect. The data were analyzed using the SPSS IBM software (Version 26).

Results

The assumption of normality of the distribution of results was accepted ($p > .05$). Correlation analysis found that perceived stress correlated weakly to moderately negatively with domains of well-being, weakly negatively correlated with SMMS, and no significant correlations were found between perceived stress and RC. There was a weak positive correlation between PRC and well-being domains, and a moderate positive correlation between SMMC with well-being (see Table 1). *Insert Table 1 here*

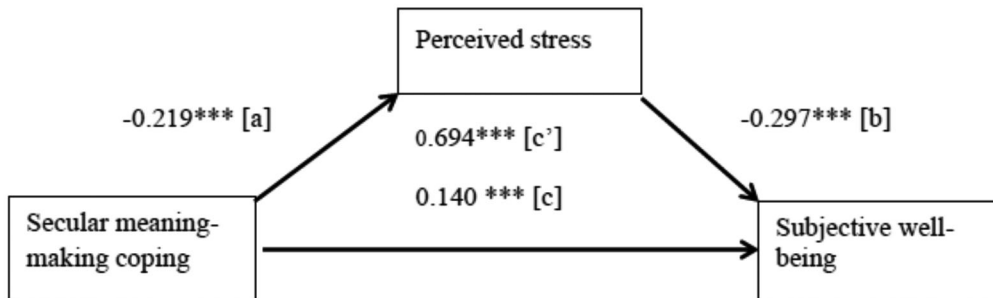
Stepwise regression analyses were conducted with SMMC, PRC, and NRC as independent variables (IV) and domains of well-being as dependent variables (DV). Results indicated that SMMC positively predicted subjective well-being ($\beta = .49$, $p < .001$) with a large effect size. The model was significant $F(1, 223) = 70.561$, $p < .001$ and explained 24% of the variance in DV, $DW = 2.07$. In addition, SMMC positively predicted social well-being ($\beta = .36$, $p < .001$) with a moderate effect size. The model was significant, $F(2, 224) = 32.527$, $p < .001$, and explained 12.7% of the variance in DV, $DW = 2.16$. In addition, SMMC positively predicted psychological well-being ($\beta = .55$, $p < .001$) with a large effect size. The model was significant $F(2, 224) = 99.0011$, $p < .001$ and explained 30.7% of the variance in DV, $DW = 1.99$.

To test Hypothesis 3, mediation analyses were conducted and the direct and indirect effects were estimated. The direct effect referred to the pathway from IV to DV while controlling for the mediator. The indirect effect described the pathway from IV to DV through the mediator. The bootstrapping technique was used, and a significant effect was considered if the 95% CI did not include zero. Age was entered as a covariate so that the mediation effects obtained were not confounded by age.

Results showed that SMMC predicted subjective well-being both directly ($\beta = .14$, $p < .001$) and indirectly ($\beta = .07$, Boot CI (.0393-.0921) (see Figure 1).

FIGURE 1

Mediating effect of the perceived stress on the relationship between secular meaning-making coping and subjective well-being

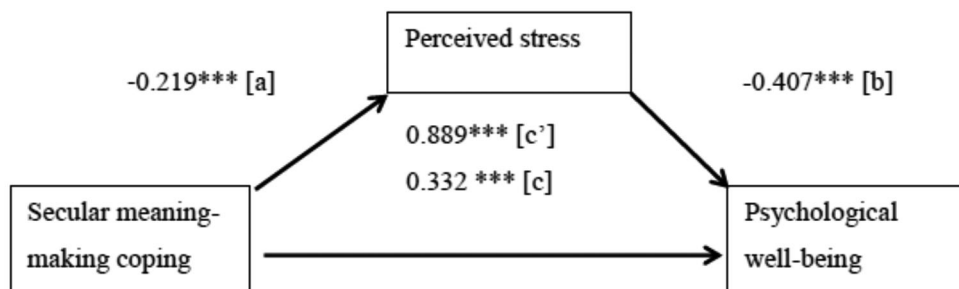


Note: [a] = is the effect of the IV on the mediator; [b] = is the effect of the mediator on the DV; [c] = total direct effect of IV on the DV without including the mediator variable. [c'] = indirect effect of IV on DV considering the effect of the mediator variable. *p < .05; **p < .01; ***p < .001

Analyses also showed that SMMC directly predicted psychological well-being ($\beta = .33$, $p < .001$), and the indirect effect through perceived stress was significant ($\beta = .09$, Boot CI (.0488-.1363) (see Figure 2).

FIGURE 2

Mediating effect of the perceived stress on the relationship between secular meaning-making coping and psychological well-being

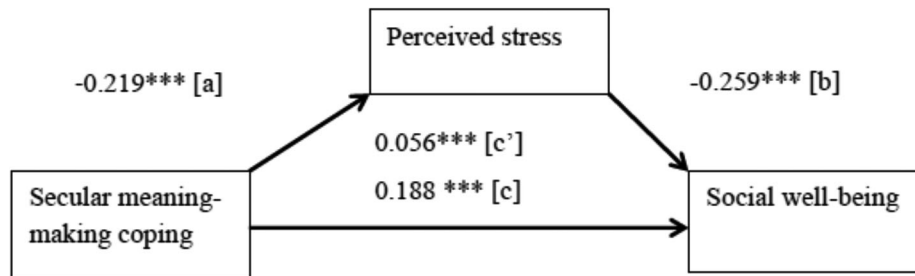


Note: [a] = is the effect of the IV on the mediator; [b] = is the effect of the mediator on the DV; [c] = total direct effect of IV on the DV without including the mediator variable. [c'] = indirect effect of IV on DV considering the effect of the mediator variable. *p < .05; **p < .01; ***p < .001

There was a significant direct effect of SMMC on social well-being ($\beta = .19$, $p < .001$) as well as a significant indirect effect on well-being via perceived stress ($\beta = .06$, Boot CI (.0250-.0938) (see Figure 3).

FIGURE 3

Mediating effect of the perceived stress on the relationship between secular meaning-making coping and social well-being



Note: [a] = is the effect of the IV on the mediator; [b] = is the effect of the mediator on the DV; [c] = total direct effect of IV on the DV without including the mediator variable. [c'] = indirect effect of IV on DV considering the effect of the mediator variable. *p < .05; **p < .01; ***p < .001

From the demonstrated significant direct and indirect effects of SMMC on well-being domains, it is concluded that perceived stress is a partial mediator in these relationships. No significant direct and indirect effects of NRC and PRC on well-being domains were found, indicating a lack of mediating effect of perceived stress in these relationships.

Discussion

The study showed that SMMS positively predicted domains of well-being with medium to large effect sizes, consistent with previous findings, albeit in the context of intense adversity (Yang et al., 2021; Eisenbeck et al., 2022). This suggests a role for everyday meaning-making in promoting optimal psychological functioning, regardless of stress characteristics, and proposes it as a general positive contributor to overall well-being. The study showed that SMMS led to higher levels of well-being both directly and indirectly by reducing subjective appraisals of the severity of stressors, supporting Hypothesis 1 and partially supporting Hypothesis 3. Students' tendency to reappraise stressors more frequently based on personal meaning-making predicted higher levels of well-being across all domains, in part due to more positive perceptions of stress. It has been suggested that the predominant stressors for students are academic workloads, which when perceived in terms of their benefits for future development and in line with global meaning as goals and purpose in life, leads to their perception of them as a desirable challenge, thus reducing the negative impact of stressors on well-being. This way of making sense of difficulties leads to greater life satisfaction, positive emotionality, positive social relationships, a positive view of one's own personality, a sense of autonomy, and self-efficacy not only in relation to stressors but beyond. Other authors have identified the role of the SMQM as a mediator of the relationship between personal resources for coping with stress and better student academic performance, as well as a predictor of higher achievement through increased satisfaction with learning (Ortega-Maldonado & Salanova, 2018). These findings suggest that the SMMS facilitates student well-being through its functions of promoting positive appraisals of stress, as well as other contributing functions.

The study found no direct effect of NRC and PRC on well-being, which does not support Hypothesis 2. The results are consistent with previous research, albeit under conditions of intense stress (Surzykiewicz et al., 2022), partially supporting others (Francis et al, 2019, Fattima et al., 2022; Cheng et al., 2024) or not confirming them (Park et al., 2018; Pagán-Torres et al., 2021; Pankowski & Wytrychiewicz-Pankowska, 2023; Moussa et al., 2023). The variability in the effects of religious meaning-making on well-being when reappraising the meaning of stressors of different intensity and duration suggests that its effects on psychological functioning under stress tend to be highly context-dependent. The study showed that perceived stress was not significantly correlated with either positive or negative religious coping, nor did it mediate their relationships with well-being, thus Hypothesis 3 was not supported. The results suggest that appealing to a higher power in the face of daily difficulties, whether in the form of support or by interpreting them as punishment, does not appear to be related to subjective ratings of stress severity and well-being among health science students. This trend differs from the positive relationships of PRC with well-being and its negative relationships with perceived stress under significant hardship outlined in previous research (Mahamid & Bdier, 2021; Fatima et al., 2022). The results suggest that the tendency to make sense of everyday stress through religion, as opposed to its use for traumatic stress, does not affect students' well-being and how they perceive hardship. This may be due to the more passive and avoidant nature of religious coping, which may be inappropriate in situations of presumably more controllable stress in students' daily lives, and which appeals to more active and person-centered ways of making meaning, such as secular ones. Another explanation for these findings relates to academic environments that foster a growth mindset in students (Sisk et al., 2018) and encourage proactive rather than avoidant coping to reduce the negative impact of stress on well-being (Burnette et al., 2020). Another presumed reason may be rooted in the peculiarities of Bulgarian culture, which according to the Inglehart-Welzel cultural map is classified as secular rather than religious (Wvs, 2023). Since religion is not very important for the Bulgarian society, religious meaning-making did not have a significant impact on well-being and stress in the studied sample. According to other authors, in contemporary predominantly secular societies, it is possible that religion is not used at all in making sense of stressful events (Ahmadi & Ahmadi, 2017), and consequently, coping strategies that appeal to existential meaning rather than religious meaning are more likely to be used.

Conclusions

The study shows that secular, but not religious meaning-making determines the well-being of health science students. Subjective perceptions of stress serve as a mechanism through which the effects are partially realized. Students' tendency to reframe the meaning of daily adversity through meanings focused on personal growth, values, and goals leads to better personal, emotional, and social functioning due to a more positive perception of stress, but also beyond this relationship. The tendency to reframe the meaning of everyday difficulties through their religious significance appears to be irrelevant to the perception of stress and the experience of well-being.

The study contributes to the understanding of meaning-making by highlighting its key role in the processes of assessing ongoing stress and maintaining optimal psychological functioning.

By differentiating the effects of the two types of meaning-making, the study also highlights the positive effect of existential meaning-making on the well-being of health science students. By confirming the effects on well-being already established in the literature under conditions of intense and traumatic stress, it suggests its universal utility as a protective personal resource. The findings suggests that enhancing the tendency to make sense of stressors through their existential and personal benefits may be appropriate for inclusion in stress management programs, as well as those aimed at promoting the well-being of health science students.

Limitations and directions for future research

Several limitations of the present study should be noted, such as the small sample size, the uneven distribution of respondents by gender, and the relevance of the findings only to the cultural context in which they were obtained. To the extent that culture determines people's predisposition to prescribe primarily existential or religious meaning (Ahmadi & Ahmadi, 2017), the impact of secular or religious meaning-making on well-being may be different for students in other cultures. Furthermore, meaning-making is thought to be a multidimensional construct with secular, religious, and spiritual components (Ahmadi & Ahmadi, 2022). Religiosity and spirituality are seen as independent, yet interrelated constructs with different implications for well-being. Religiosity is viewed as culturally grounded, institutionalized, and primarily focused on specific belief systems and rituals, whereas spirituality refers to the experience of connectedness to transcendent realities such as a higher power, the universe, humanity, and the world (Yaden et al., 2022). To the extent that these transcendent experiences can be enacted within or outside a religious context, spirituality encompasses both religious and nonreligious characteristics. However, measures of spiritual meaning-making do not always take these two aspects into account, assuming that religious and spiritual coping are identical (Hill et al., 2000). In addition, secular meaning-making has little to do with the religious meaning system, but may overlap with the search for a connection to a sacred source without any connection to God or a traditional religious context (Ahmadi & Ahmadi, 2022). In support of this, and consistent with the tendency for younger age cohorts to self-identify as spiritual but not religious, other authors have found that spiritual meaning-making is not independent of secular meaning-making among younger and more educated individuals (Cetrez et al., 2020). Therefore, it would be useful for future research to focus on distinguishing secular, religious, and spiritual meaning-making as independent variables, both in terms of measurement and their relationships with well-being and perceived stress. Furthermore, examining these effects across gender, religious salience of culture, and age cohorts may contribute to a more comprehensive understanding of the relationships of interest.

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TABLE 1
Correlational matrix of variables of the study

	1	2	3	4	5	6	7
1. SbWB	-						
2. SocWB	.51***	-					
3. PsWB	.70***	.57***	-				
4. PS	-.61***	-.18**	-.51***	-			
5. PRC	.15 *	.34***	.14**	.09	-		
6. NRC	-.11	-.01	-.05	.11	-.04	-	
7. SMMC	.49***	.36***	.56***	-.33**	.26***	-.06	-

Note: * - $p < .05$; ** - $p < .01$; *** - $p < .001$; SbWB- Subjective well-being; SocWB- Social well-being; PsWB- Psychological well-being; PS- Perceived stress, PRC - Positive religious coping, NRC - Negative religious coping; SMMC- Secular meaning-making coping