



# The Body–Mind–Spirit Dimensions of Wellness Mediate Dispositional Gratitude and Life Satisfaction

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## Abstract

This study analyzed the mediating effect of the body–mind–spirit dimensions of wellness between dispositional gratitude and life satisfaction among bachelor’s students enrolled at a mid-sized private university in Islamabad. Rooted in the Broaden-and-Build theory, the study explains how the positive emotion of gratitude may develop personal resources in terms of wellness behaviors or resources, which subsequently foster life satisfaction. The study sample of 779 students was divided into subsample 1 ( $n=389$ ) and subsample 2 ( $n=390$ ) through a randomizer to obtain solid results. As predicted, the results from a parallel mediation analysis using Model 4 of the PROCESS macro indicated that the body, mind, and spirit dimensions of wellness mediated the dispositional gratitude → life satisfaction link in the two subsamples. The implications of the results for interventions and future research are discussed.

**Keywords** Dispositional gratitude · Body–mind–spirit dimensions of wellness · Life satisfaction · Broaden-and-Build theory · Emotionalized learning experiences

## 1 Introduction

Life satisfaction is the cognitive component of subjective well-being (Diener 1994) entailing the positive evaluation of one’s quality of life (Diener et al. 1985) in the global context—life as a whole—as well as in the domain-specific context—work, education, health, finances, and relationships (Albuquerque 2016). Life satisfaction is generally considered as

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the best indicator of a person's perceived quality of life, as it is a more stable construct as compared to the other two components of subjective well-being, namely positive affect and negative affect (Huebner et al. 2006). Research indicates that life satisfaction may enable university students to achieve positive outcomes. For instance, university students with high life satisfaction have lower academic stress as well as higher engagement, academic self-efficacy, and approach-oriented achievement goals as compared to those with average or low life satisfaction (Antaramian 2017). Moreover, life satisfaction predicts career decision-making self-efficacy among university students (Sari 2017). At the same time, gratitude has shown to have a positive effect on life satisfaction (Lyubomirsky and Layous 2013). Gratitude is "a sense of thankfulness and joy in response to receiving a gift, whether the gift be a tangible benefit from a specific other or a moment of peaceful bliss evoked by natural beauty" (Emmons 2004, p. 554). Research suggests that students who express gratitude—through the use of a gratitude list—over a period of 2 weeks demonstrate greater optimism and thereby feel more satisfied with life (Kashdan and Ciarocchi 2013). Besides, gratitude (an essential positive emotion as well as representing the empathic emotions; Lazarus and Lazarus 1994) allows individuals to savor positive life experiences to derive the maximum possible fulfillment from them to experience greater life satisfaction (Sheldon and Lyubomirsky 2006). Individuals high on gratitude regularly experience positive emotions, which enable them to cultivate a positive mindset (Wood et al. 2008). According to Diener (1984), gratitude as a positive experience minimizes the influence of negativities from other experiences to contribute to greater life satisfaction. Furthermore, albeit sparse, the indirect effect of gratitude on life satisfaction has also been studied. For instance, *social support* (Kong et al. 2014; McCanlies et al. 2018), *perceived stress* (Yildirim and Alanazi 2018), and *positive and negative affect* (Sun and Kong 2013) mediate the relation between gratitude and life satisfaction. The predominant aim of this study was to extend the literature by analyzing the mediating effect of the body–mind–spirit dimensions of wellness between dispositional gratitude and life satisfaction among university students. The body–mind–spirit dimensions were predicted to serve as mediators, as they represent an all-encompassing approach to practicing wellness behaviors. These dimensions aptly cover various aspects of emotional, psychological, intellectual, physical, and spiritual wellness to enable students to make positive life style choices and realize their potential (Mareno and James 2010). The several aspects of wellness embodied in the mind–body–spirit mediation model provide greater explanatory power to the relationship between dispositional gratitude and life satisfaction as compared to the earlier models covering a single aspect of social wellness (i.e., social support or social connectedness), emotional wellness (i.e., stress or positive and negative effect), or spiritual wellness (i.e., meaning in life). This model therefore advances our understanding of the pathways, which may link dispositional gratitude to life satisfaction in a much comprehensive manner. It is also noteworthy that the sample size of the aforementioned mediation studies is much smaller than that of the current study. Besides, in this study, the main sample ( $N=779$ ) is divided into two subsamples through a randomizer to test the mediation model for obtaining solid results.

Previous scholarly work has also demonstrated different mechanisms through which gratitude may be related to subjective well-being (i.e., life satisfaction as well as positive and negative affect). These mechanisms are also useful in understanding the indirect effect of dispositional gratitude on life satisfaction. For instance, according to the *Positive Affect mechanism*, the positive emotion of gratitude and positive affect function in a direct upward spiral towards increasing subjective well-being (Fredrickson and Joiner 2002). Further, gratitude may be related to well-being through *adaptive coping* leading to decreased stress and enhanced subjective well-being (Wood et al. 2007). Also, *appraisal*

*schemes* may improve subjective well-being; for example, *help* perceived by grateful individuals as something costly, valuable, and altruistic (Wood et al. 2008). Additionally, based on the *Broaden-and-Build mechanism* of positive emotions (Fredrickson 2013), gratitude as a positive emotion builds social and cognitive resources in terms of *social connectedness* and *meaning in life* that in turn function as resources to contribute to subjective well-being (Liao and Weng 2018). The present study is also based on the Broaden-and-Build mechanism. It is perhaps the first study to have considered the mediating effect of the mind–body–spirit dimensions of wellness between dispositional gratitude and life satisfaction among university students.

## 1.1 Broaden-and-Build Theory

According to the broaden-and-build theory by Fredrickson (2013), positive emotions broaden thought-action repertoires (novel and creative thoughts and actions, wider visual search patterns, and more flexible mindsets; Fredrickson and Cohn 2008), which contribute to the development of essential personal resources that can be conjured up whenever needed. The broadening effect occurs in the short-term, as people experience positive emotions to broaden their mindset. The building effect has a more long-term perspective, as people accumulate a rich reservoir of positive emotions over time to build essential personal resources. It should be noted that positive emotions promote upward development spirals towards self-improvement, positive change, and greater well-being (Fredrickson 2004), that is, the gains of positive emotions not only broaden thinking options, but also build resources to promote greater life satisfaction (Fredrickson 2003). Based on the theory, this study examines whether dispositional gratitude—a relatively stable tendency to experience gratitude as an emotion (McCullough et al. 2002)—may broaden university students' habitual modes of thinking and acting to build psychological, intellectual, social, and physical resources (i.e., the body–mind–spirit dimensions or wellness resources as mediators), which subsequently contribute to their life satisfaction (Fig. 1).

## 1.2 Dispositional Gratitude and Life Satisfaction

Dispositional gratitude refers to a tendency to perceive and appreciate the positive aspects of life (Wood et al. 2010), that is, interpreting daily life experiences positively based on a generally grateful response to life circumstances (Janoff-Bulman and Berger 2000). According to McCullough et al. (2002), dispositional gratitude is a general tendency to acknowledge and emotionally respond with thankfulness and appreciation after accrediting the benefits received to an external source, such as another person, a situation, an event, and/or the world. It embodies four facets or elements, namely intensity, frequency, span, and density of grateful experiences in individuals' lives (Froh et al. 2011). As compared to those less inclined towards gratitude, dispositionally grateful individuals (1) experience gratitude to a much greater extent (intensity), (2) feel thankful many times a day (frequency), (3) feel grateful for many aspects of their lives (e.g., family, job, friends, and even the simple things in life) at a given time (span), and (4) feel thankful to a greater number of people for their success or a particular positive outcome (density). Individuals with a higher disposition to gratitude demonstrate the four facets more intensely and therefore experience more positive emotions and greater satisfaction with life (McCullough et al. 2002).

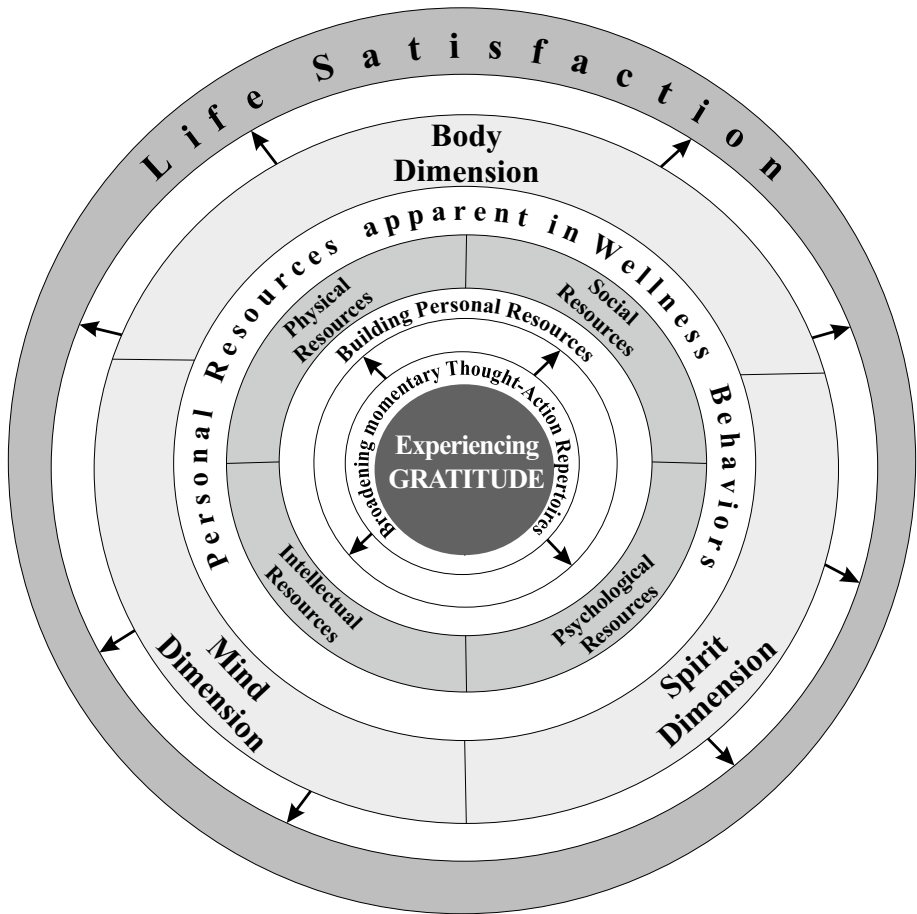


Fig. 1 The mind–body–spirit mediation model

Several studies indicate that gratitude is positively related to life satisfaction (e.g., Datu and Mateo 2015; Emmons and McCullough 2003; Froh et al. 2009; Hill and Allemand 2011; McCullough et al. 2002; Toepfer et al. 2012; Watkins et al. 2003; Wood et al. 2008). Additionally, intervention studies have also shown the positive effect of gratitude on life satisfaction (Boehm et al. 2011; Lyubomirsky and Layous 2013).

### 1.3 The Body–Mind–Spirit Dimensions of Wellness as Mediators

The High Level Wellness model by Dunn (1959) is one of the pioneering influential models of wellness integrating the body, mind, and spirit dimensions. High level wellness is an integrated or interrelated method of functioning geared towards augmenting a person's potential of which he or she is capable. It enables the person to maintain a continuum of balance and meaningful direction within the environment in which he or she is functioning (Dunn 1977). Another popular and well-established model is Bill Hettler's hexagonal model of wellness introduced in 1980. It comprises the physical, emotional, intellectual,

social, spiritual, and occupational dimensions of wellness. It was developed for the college campus environment and later adopted by the National Institute of Wellness.

This study uses the Body–Mind–Spirit Wellness Behavior and Characteristic Inventory (BMS-WBCI) developed by Hey et al. (2006) to assess the mediation between dispositional gratitude and life satisfaction. It is efficient and useful for assessing wellness behaviors of university students. The BMS-WBCI aptly integrates the physical, emotional, intellectual, social, and spiritual dimensions of wellness to enable students to reach their potential and live life to the fullest (Mareno and James 2010). The body dimension related to the BMS-WBCI comprises such wellness behaviors as limiting risky behaviors, exercising regularly and maintaining one's weight, eating a balanced and healthy diet, consuming eight glasses of water daily, participating in recreational activities, being active and physically fit, and keeping company with physically healthy individuals. The mind dimension is conceptualized as taking meaningful decisions, setting achievable goals, learning from one's mistakes, accepting responsibility for one's actions, being practical and adaptable to change, relying on social support, practicing tolerance, handling different social settings, making the best of challenging situations, and living by ethical standards. The spirit dimension based on the inventory encompasses experiencing peace of mind and self-satisfaction as well as harmony and happiness within, expressing one's spirituality in healthy ways, being aware of the contribution of faith to the quality of one's life, studying spiritual literature, knowing one's life purpose, having a positive outlook on life, accepting oneself as one is, and being loved by others (Hey et al. 2006).

Research has also indicated the indirect effect of gratitude on relevant variables via various mediators. For instance, *psychological resources* and *emotion-focused coping* mediate the relation between gratitude and psychological distress (Lau and Cheng 2015), *relatedness* and *competence needs satisfaction at school* mediate the relation between gratitude and subjective well-being at school (Tian et al. 2016), and *social support* mediates the relation between gratitude and depression (Wood et al. 2008b) as well as gratitude and well-being (Chen et al. 2012). In addition, *connectedness*, *elevation*, *humility* (positive emotions), *indebtedness*, *guilt*, and *discomfort* (negative emotions) mediate the relation between gratitude and self-improvement (Armenta et al. 2017). The mediators in these models indicate that the emotion of gratitude may have social and psychological effects, whereas, the body–mind–spirit dimensions as mediators seek to present its multifaceted role in enabling individuals to demonstrate physical, intellectual, psychological, social, and spiritual wellness behaviors. Hence, the body–mind–spirit dimensions of wellness as mediators add to the existing body of knowledge on positive psychology.

## 1.4 Dispositional Gratitude and the Body–Mind–Spirit Dimensions

Dispositional gratitude is an affective trait that enables people to respond to their life circumstances with such positive emotions as admiration, trust, respect, warmth, goodwill, and joy (Ting, 2017). Dispositionally grateful individuals are inclined to dwell on the positive, as they have a shield that protects them against negativities (e.g., regret, unhappiness, and disappointment; Roberts 2004). Research on gratitude (e.g., Armenta et al. 2017; Emmons and Mishra 2011; Emmons and Shelton 2002; McCullough et al. 2004) enables us to infer that it is an ensemble of positive emotions experienced by the beneficiary as a result of: a gift (e.g., pleasure, happiness, and contentment), his or her appreciation of the benefactor (e.g., admiration, fondness, wonder, awe, and respect), and the kindness bestowed upon him or her by the benefactor (e.g., affection, good will, and consideration).

According to Gruszecka (2015), the common denominator in each instance of gratitude is that it is first and foremost a positive emotion both in substance and intensity. Furthermore, several researchers have noted that gratitude has a positive emotional valence (e.g., Lazarus and Lazarus 1994; Mayer et al. 1991; Weiner 1986). From this pertinent finding, McCullough et al. (2002, p. 113) have deduced that dispositional gratitude is “rooted in the basic tendencies to experience positive emotions.” As such, based on the Broaden-and-Build theory (Fredrickson 2013), dispositional gratitude may broaden individuals’ momentary thought–action repertoires, which may help to build pertinent psychological, intellectual, social, and physical resources in terms of attaining wellness pertaining to the body–mind–spirit dimensions. For instance, when individuals experience gratitude they may be more inclined towards positive activities, such as exercising, strengthening relationships, engaging in altruism, or studying spiritual material. This is perhaps because gratitude is more than a pleasant feeling. It is a positive state of mind that leads to positive action, as it motivates and rejuvenates individuals (McCullough et al. 2001) to seek self-improvement (Armenta et al. 2017). With regard to the resource building process by gratitude, Fredrickson et al. (2003) assert that gratitude mitigates negativities and contributes to the development of psychological resources (e.g., building inner strength and fortitude). Moreover, Emmons and McCullough (2003) have found that gratitude strengthens physical resources (e.g., spending more time exercising), social resources (e.g., offering social support), and psychological resources (e.g., experiencing greater levels of positive affect and cultivating a positive outlook on life). Their research also indicates that dispositional gratitude increases overall physical, psychological, and social wellbeing. Dispositional gratitude may therefore contribute to individuals’ wellbeing based on the body–mind–spirit dimensions. The empirical evidence reviewed in the following sections indicates the role of gratitude in nurturing major wellness behaviors related to the body–mind–spirit dimensions. It also sheds light on the relationship of gratitude with various wellness behaviors pertaining to these dimensions.

### 1.4.1 Gratitude and the Body Dimension

Emmons and Mishra (2011) suggest that feeling grateful for the good things in one’s life may promote more efficient physical functioning (physical resources) by mitigating unhealthy attitudes or advancing health-enhancing inner states (psychological resources). Research shows that gratitude is related to physical health (Hill et al. 2013; McCullough et al. 2002). Those practicing gratitude report fewer physical complaints (Froh et al. 2009) and more regular physical exercise (Emmons and McCullough 2003). There is also evidence that gratitude-based interventions improve healthy eating behaviors (Fritz et al. 2019).

### 1.4.2 Gratitude and the Mind Dimension

Dispositional gratitude has shown to be positively related to empathy, forgiveness (McCullough et al. 2002), and willingness to help others (McCullough et al. 2002; Puente-Diaz and Meixueiro 2016). Primarily, the actions inspired by gratitude build and strengthen social bonds and friendships (Emmons and Shelton 2002; Fredrickson 2004) to enable individuals to have satisfying relationships (Algoe et al. 2010; Froh et al. 2009). According to the *Find-Remind-Bind Theory* (cf. Algoe 2012), the emotion of gratitude induces the initiation of new social relationships (find), directs individuals to their existing

social relationships (remind), and helps to strengthen these relationships by investing in them (bind). The theory implies that experiencing gratitude promotes a wide array of outcomes benefitting both parties (benefactor and beneficiary) in a social relationship. Algoe et al. (2008) have also tested the theory by determining the effect of gratitude on relationship quality and social support among college freshmen adjusting to their new school life. Additionally, resilience, goal achievement, and moral behavior are important components of the mind dimension. Research by Lyubomirsky et al. (2005) has indicated that grateful individuals are more resilient, as they can cope with challenging situations. Furthermore, an experimental study by Emmons and Mishra (2011) has demonstrated that gratitude improves effortful goal striving. Also, there is experimental evidence that gratitude nurtures moral behavior (Bartlett and DeSteno 2006).

### 1.4.3 Gratitude and the Spirit Dimension

Dispositionally grateful individuals are more spiritually and religiously inclined (Emmons and Mishra 2011). This is probably because most religions of the world consider gratitude as an essential human trait. Analyses of multiple religious traditions also indicate that gratitude is consistently and prominently featured in them (Emmons and Crumpler 2000). Also, different forms of prayer, meditation, and worship likely induce gratitude (Seaward 2005) and religious teachings encourage cultivating a grateful outlook on life (Emmons and Mishra 2011). Moreover, gratitude is inspired as a goal for interpreting positive experiences as God's blessings (Smith et al. 2012). Furthermore, empirical evidence indicates that dispositional gratitude is positively related to religiousness and spirituality (McCullough et al. 2002), meaningful life orientation, happiness (Chan 2010), and purpose in life (Froh and Bono 2008). There is also evidence that people who regularly feel grateful feel loved and cared by others (McCullough et al. 2001).

## 1.5 The Body–Mind–Spirit Dimensions and Life Satisfaction

Research by Cohn et al. (2009) on the Broaden-and Build theory helps in understanding that individuals who experience gratitude on a regular basis are more satisfied with life not just because they are enjoying life, but because they build resources for living well. The following sections elucidate the empirical evidence supporting the relationship of major wellness behaviors in each dimension with life satisfaction.

### 1.5.1 The Body Dimension and Life Satisfaction

Research has indicated that physical health is positively related to life satisfaction (e.g., Bae et al. 2017; Gottfredson and Deary 2002; Lohr et al. 1988). Individuals who engage in some form of physical activity three times a week are more satisfied with life than those who do not (Brodáni et al. 2015). Also, diet quality is positively associated with life satisfaction (Schnettler et al. 2015) and those who consume healthy food have a higher life satisfaction than those who do not (André et al. 2017). Furthermore, a study consisting of students (aged 17–30 years) from 21 countries has concluded that there is a bidirectional relationship between life satisfaction and health-promoting behaviors (e.g., physical exercise, eating fruits, and limiting fat intake; Grant et al. 2009).



### 1.5.2 The Mind Dimension and Life Satisfaction

The mind dimension focuses chiefly on different aspects of intellectual, emotional, and social wellness based on the BMS-WBCI (Mareno and James 2010).

In the context of intellectual wellness, researchers have found that looking for viable alternatives for taking considered decisions (Moyano-Díaz et al. 2014), decision-making styles (Cenkseven-Önder 2012; Deniz 2006), practical mindedness (Chen et al. 2006), and cognitive flexibility (Odaç and Cikrikci 2018) are positively related to life satisfaction. Furthermore, research has shown that achievement goals (Wang et al. 2017) and personal goal setting (Grégoire et al. 2012) are related to life satisfaction. Also, openness to experiences has shown to be related to life satisfaction (Stephan 2009).

Regarding emotional wellness, research has indicated that people who possess higher emotional intelligence are able to aptly handle their emotions (e.g., being tolerant and accepting of others, being calm and composed in challenging situations, demonstrating strong morals, and maintaining stability in life) to nurture a greater sense of life satisfaction (Sun et al. 2014; Urquijo et al. 2015; Wang and Kong 2014). Research has also indicated a correlation between being responsible and life satisfaction (Chen et al. 2006).

Relating to social wellness, sociability and social involvement (Shaheen 2015), social sensitivity (Chen et al. 2006), intensity and quality of friendships (Amati et al. 2018), and emotional support from family and friends (Wan et al. 1996) have shown to be related to life satisfaction.

### 1.5.3 The Spirit Dimension and Life Satisfaction

As per the BMS-WBCI, the spirit dimension encompasses spiritual wellness as well as some pertinent aspects of emotional wellness (Mareno and James 2010).

The all-embracing theme in the literature related to spirituality suggests that spiritual wellbeing is related to life satisfaction because of the sense of meaning and direction it provides to people (Vitale 2015). There is evidence that various aspects of the spirit dimension are related to life satisfaction. For instance, spiritual beliefs (Sargent 2015), spiritual wellbeing (Alorani and Alradaydeh 2017; Bester et al. 2015; Perrone et al. 2006; Skarupski et al. 2013), and religious practice or personal spirituality (Fabricatore et al. 2000; Shara-jabad et al. 2017) are related to life satisfaction.

With respect to emotional wellness, optimism has shown to be associated with life satisfaction (Chen et al. 2006; Heo et al. 2016). There is also evidence that self-acceptance is related to life satisfaction (Zhou and Xu 2018). Furthermore, several studies have indicated that self-esteem (i.e., “a sense of self-worth, self-respect, and self-acceptance generally associated with an expectation of success in life”; Skodol 2010, p. 378) and life satisfaction are positively related (e.g., Arrindell et al. 1999; Diener and Diener 1995; Shaheen 2015; Leung and Zhang 2000). Studies have also suggested that happiness and life satisfaction are related constructs (Peterson et al. 2005; Shaheen 2015).

## 1.6 Hypothesis

Based on the literature review, this study tests the following hypothesis:



**H:** The body–mind–spirit dimensions of wellness will mediate the relation between dispositional gratitude and life satisfaction.

## 2 Methods

### 2.1 Participants

Seven hundred and seventy-nine bachelor's students enrolled at a midsized private university in Islamabad participated in the study. Predominantly belonging to the middle upper socio-economic group of Pakistan, the average age of the 349 women (45%) and 430 men (55%) in the study sample was 22.35 years ( $SD=1.68$ ). They were enrolled in these disciplines: Business Administration (27%), Computer Science (21%), Psychology (20%), Physics (10%), International Relations (9%), Economics (7%), and Biology (6%). This sample was divided into two subsamples through a randomizer to check whether the findings of the first subsample replicated in the second. The first subsample comprised 389 students—162 women (42%) and 227 men (58%)—and the second 390 students—187 women (48%) and 203 men (52%). The average age in the first subsample was 22.29 years ( $SD=1.75$ ) and that in the second 22.40 years ( $SD=1.61$ ).

### 2.2 Measures

#### 2.2.1 Dispositional Gratitude

Developed by McCullough et al. (2002), the Gratitude Questionnaire-Six Item Form (GQ-6) was used for the current investigation. It has been used in several studies related to college students in different countries (e.g. Chen et al. 2009; Kashdan and Breen 2007; Neto 2007). The questionnaire (e.g., “If I had to list everything that I felt grateful for, it would be a very long list”) uses a 7-point Likert-type scale (1 = *strongly disagree*; 7 = *strongly agree*) and has shown to have a good internal reliability with alpha values ranging between 0.76 and 0.87 (McCullough et al. 2002). This study however used a 5-point Likert-type scale (1 = *strongly agree*; 5 = *strongly agree*) for the GQ-6. Pilot testing determined the validity and reliability of the GQ-6. CFA revealed a good model fit,  $\chi^2(9, N=259)=18.17$ ,  $p=.031$ ;  $\chi^2/df=2.02$ ; RMSEA=0.059; CFI=0.96; TLI=0.95; IFI=0.96; RFI=0.90; SRMR=0.040. The factor loadings ranged from 0.46 to 0.80. Cronbach's alpha indicated a good internal consistency of the scale ( $\alpha=0.84$ ). Higher scores on the GQ-6 show a greater disposition towards gratitude.

#### 2.2.2 Body–Mind–Spirit Dimensions of Wellness

This study used the Body–Mind–Spirit Wellness Behavior and Characteristic Inventory (BMS-WBCI) developed by Hey et al. (2006). The inventory uses a 3-point Likert-type scale (1 = *rarely/seldom*; 3 = *often/always*). However, this study used a 5-point Likert-type scale (1 = *strongly disagree*; 5 = *strongly agree*) for the BMS-WBCI. Sample items in the scale include: “I eat a balanced diet low in saturated fat and cholesterol” (body), “I accept responsibility for my actions” (mind), and “I recognize the positive contribution faith can make to the quality of my life” (spirit). As determined by Hey et al. (2006), Cronbach's alpha values for body, mind, and spirit were 0.81, 0.88, and .91 respectively. Further, as

reported by Mareno and James (2010), the global BMS-WBCI has an excellent internal reliability ( $\alpha=0.91$ ), an acceptable internal reliability for the body dimension ( $\alpha=0.69$ ) and a good internal reliability for the mind (0.87) and spirit (0.88) dimensions. Pilot testing revealed that the 44-items 3-factor scale was a good model fit,  $\chi^2(557, N=259)=1034.86$ ,  $p<.001$ ;  $\chi^2/df=1.86$ ; RMSEA=0.052; CFI=0.94; TLI=0.93; IFI=0.94; RFI=0.89; SRMR=0.064. Cronbach's alpha for the global scale was 0.90, whereas it was 0.87, 0.85, and 0.82 for the body, mind, and spirit dimensions respectively. The three factors moderately correlated with each other and factor loadings ranged from 0.37 to 0.84. Higher scores on the BMS-WBCI indicate higher levels of wellness related to the body–mind–spirit dimensions.

### 2.2.3 Life Satisfaction

This was measured using the Satisfaction with Life Scale (SWLS) by Diener et al. (1985). The scale (e.g., “The conditions of my life are excellent”) uses a 7-point Likert-type scale (1 = *strongly disagree*; 7 = *strongly agree*). As reported by the developers, the Cronbach's alpha value for this 5-item scale was 0.87. This study however used a 5-point Likert-type scale (1 = *strongly agree*; 5 = *strongly disagree*) for the SWLS. Pilot testing determined the validity and reliability of the SWLS. CFA revealed a good model fit,  $\chi^2(5, N=259)=8.96$ ,  $p=.011$ ;  $\chi^2/df=1.79$ ; RMSEA=0.055; CFI=0.97; TLI=0.96; IFI=0.97; RFI=0.91; SRMR=0.042. The factor loadings ranged from 0.40 to 0.72. Cronbach's alpha indicated a good internal consistency of the scale ( $\alpha=0.86$ ). Higher scores on the SWLS indicate a greater satisfaction with life.

## 2.3 Procedure

The head of the university was formally contacted and briefed about the aims and scope of the investigation. After the approval, the Programs Department informed the students in all bachelor programs about the research study through email, posters (displayed on the campus noticeboards), and notices to faculty members. As a result, interested bachelor's students reported to the allotted classroom to complete the three instruments anonymously between 12:30 PM and 3:30 PM on five consecutive days. The study assigned three coordinators who were trained to professionally administer the instruments as well as answer students' queries. Appropriate informed consent was obtained from all the participants. They were provided an overview of the study as well as a written explanation of its purpose and scope. In addition, the study participants were assured about the confidentiality of the collected data.

## 3 Results

### 3.1 Preliminary Analyses

Skewness (range =  $-1.77$  to  $-0.89$ ) and Kurtosis (range =  $0.75$  to  $1.61$ ) for each variable in the first subsample and Skewness (range =  $-1.82$  to  $-0.95$ ) and Kurtosis (range =  $0.68$  to  $1.54$ ) for each variable in the second subsample demonstrated appropriate normality, as the Skewness values were less than 2 and Kurtosis values less than 4. Table 1 shows the means

**Table 1** Means, standard deviations and bivariate correlations related to the study variables (N = 779)

Measure	1	2	3	4	5	Subsample 1 (n = 389)		Subsample 2 (n = 390)		Subsample 1 (n = 162)		Subsample 2 (n = 227)		Subsample 1 (n = 187)		Subsample 2 (n = 203)	
						M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
1 Body dimension	–	0.41	0.22	0.20	0.33	3.33	0.97	3.13	0.85	3.29	0.98	3.35	0.90	3.10	0.82	3.18	0.88
2 Mind dimension	0.32	–	0.39	0.46	0.49	4.05	0.52	3.99	0.49	4.03	0.54	4.05	0.49	3.99	0.48	4.00	0.49
3 Spirit dimension	0.27	0.46	–	0.31	0.34	3.91	0.89	3.94	0.74	3.84	0.89	3.94	0.91	3.98	0.69	3.91	0.78
4 Dispositional gratitude	0.23	0.51	0.22	–	0.45	4.04	0.60	4.04	0.58	4.05	0.65	4.04	0.56	4.06	0.60	4.01	0.58
5 Life satisfaction	0.47	0.50	0.37	0.43	–	3.61	0.68	3.57	0.66	3.47	0.73	3.71	0.62	3.57	0.65	3.58	0.69

All correlations are significant at  $p < .001$ . Correlations for the Subsample 1 are above the diagonal. Correlations for the Subsample 2 are below the diagonal

and standard deviations as well as the correlations among the study variables for the two subsamples. All variables were positively intercorrelated.

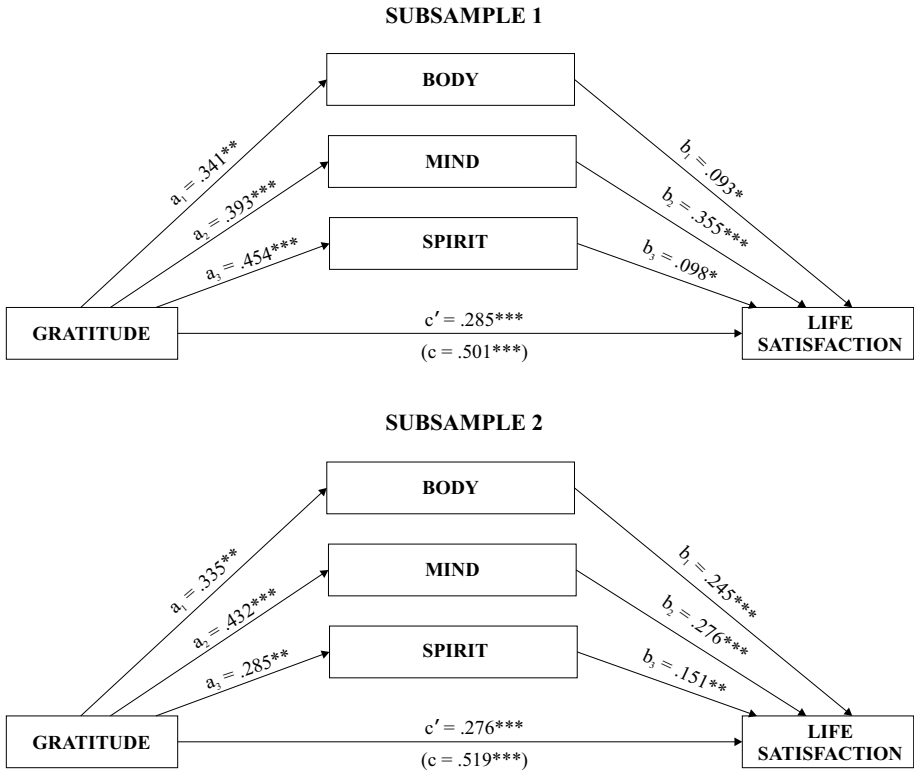
Testing for multicollinearity for all analyses as suggested by Tabachnick and Fidell (2007) revealed that the tolerance values were greater than 0.20, the variance inflation factors were less than 10, and the condition indexes were less than 30. Hence, multicollinearity did not pose any problems.

Multivariate analysis of variance (MANOVA) conducted to compare the mean scores of men and women on the BMS-WBCI revealed no statistically significant difference for gender [ $F(3, 385) = 0.438, p = .363, \text{Wilks}' \Lambda = 0.997, \eta_p^2 = 0.003$ ] in the first subsample. In addition, the univariate  $F$  tests showed no statistically significant difference between men and women for the body [ $F(1, 387) = 0.35, p = .557, \eta_p^2 = 0.001$ ], mind [ $F(1, 387) = 0.23, p = .618, \eta_p^2 = 0.001$ ], and spirit [ $F(1, 387) = 1.19, p = .276, \eta_p^2 = 0.003$ ] dimensions of wellness in the first subsample. Additionally, differences were also not statistically significant for gratitude [ $F(1, 387) = 0.05, p = .742, \eta_p^2 = 0.000$ ] and life satisfaction [ $F(1, 387) = 0.11, p = .685, \eta_p^2 = 0.000$ ] in the first subsample. Similarly, a MANOVA conducted to compare the mean scores of men and women on the BMS-WBCI showed no statistically significant difference for gender [ $F(3, 386) = 0.980, p = .402, \text{Wilks}' \Lambda = 0.992, \eta_p^2 = 0.006$ ] in the second subsample. Also, the univariate  $F$  tests indicated no statistically significant difference between men and women for the body [ $F(1, 388) = 0.78, p = .378, \eta_p^2 = 0.002$ ], mind [ $F(1, 388) = 0.43, p = .512, \eta_p^2 = 0.001$ ], and spirit [ $F(1, 388) = 1.26, p = .263, \eta_p^2 = 0.003$ ] dimensions of wellness in the second subsample. Furthermore, differences were also not statistically significant for gratitude [ $F(1, 388) = 0.04, p = .763, \eta_p^2 = 0.000$ ] and life satisfaction [ $F(1, 388) = 0.27, p = .594, \eta_p^2 = 0.000$ ] in the second subsample. Thus, gender differences were not taken into account in the hypothesized mediation model.

### 3.2 Testing the Hypothesis

A parallel mediation analysis using Model 4 of the PROCESS macro by Hayes (2013) for the first subsample indicated that gratitude was indirectly related to life satisfaction through its relationship with the body–mind–spirit dimensions. As per Fig. 2, gratitude was related to the body ( $a_1 = 0.341; p = .005$ ), mind ( $a_2 = 0.393; p < .001$ ), and spirit ( $a_3 = 0.454; p < .001$ ) dimensions. Next, the three dimensions of wellness were related to life satisfaction [body ( $b_1 = 0.093; p = .027$ ), mind ( $b_2 = 0.355; p < .001$ ), and spirit ( $b_3 = 0.098; p = .036$ )]. A 95% bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect through each mediator, while holding the other two mediators constant, did not contain any zero value in its confidence interval range, i.e., body [mean indirect (unstandardized) effect = 0.032;  $SE = 0.017$ , 95% CI (0.007, 0.074),  $\beta = 0.032$ ], mind (mean indirect (unstandardized) effect = 0.139;  $SE = 0.044$ , 95% CI [0.064, 0.236],  $\beta = 0.139$ ), and spirit (mean indirect (unstandardized) effect = 0.045;  $SE = 0.028$ , 95% CI [0.003, 0.114],  $\beta = 0.044$ ) dimensions mediated the dispositional gratitude → life satisfaction link. Finally, the variables in the model accounted for 33.76% of the variance in the scores related to the dimensions of body, mind, and spirit scales (BMS-WBCI).

Furthermore, a parallel mediation analysis for the second subsample also indicated that gratitude was indirectly related to life satisfaction through its relationship with the body–mind–spirit dimensions. Figure 2 also shows that gratitude was related to the body ( $a_1 = 0.335; p = .001$ ), mind ( $a_2 = 0.432; p < .001$ ), and spirit ( $a_3 = 0.285; p = .002$ ) dimensions. Next, the three dimensions of wellness were related to life satisfaction [body ( $b_1 = 0.245; p < .001$ ), mind ( $b_2 = 0.276; p < .001$ ), and spirit ( $b_3 = 0.151; p = .009$ )]. A 95%



**Fig. 2** Path model of direct and indirect relations of variables of interest predicting life satisfaction for the two subsamples. Values reflect standardized coefficients. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

bias-corrected confidence interval based on 10,000 bootstrap samples indicated that the indirect effect through each mediator, while holding the other two mediators constant, did not contain any zero value in its confidence interval range, i.e., body (mean indirect (unstandardized) effect = 0.082;  $SE = 0.031$ , 95% CI [0.033, 0.156],  $\beta = 0.082$ ), mind (mean indirect (unstandardized) effect = 0.119;  $SE = 0.047$ , 95% CI [0.043, 0.233],  $\beta = 0.119$ ), and spirit (mean indirect (unstandardized) effect = 0.043;  $SE = 0.023$ , 95% CI [0.01, 0.106],  $\beta = 0.043$ ) dimensions mediated the dispositional gratitude → life satisfaction link. Finally, the variables in the model accounted for 41.81% of the variance in the scores related to the dimensions of body, mind, and spirit scales (BMS-WBCI).

Hence, results confirm the hypothesis, as the body–mind–spirit dimensions of wellness mediated the relation between dispositional gratitude and life satisfaction in both the subsamples.

### 3.3 Supplementary Analyses

The mediating effect of the body–mind–spirit dimensions of wellness was also tested between life satisfaction and dispositional gratitude, that is, by exchanging the IV with the DV. Results of the first subsample indicated that only the *mind* dimension mediated the association between life satisfaction and dispositional gratitude, i.e., mean indirect

(unstandardized) effect = 0.129;  $SE = 0.041$ , 95% CI [0.061, 0.219],  $\beta = 0.129$ . The same held true for the *mind* dimension in the second subsample, i.e., mean indirect (unstandardized) effect = 0.174;  $SE = 0.044$ , 95% CI [0.099, 0.275],  $\beta = 0.174$ . These results suggest a partial revision in the study hypothesis discussed in the following section.

## 4 Discussion

Based on a sample of bachelor's students in Pakistan, the study analyzed the mediating role of the body–mind–spirit dimensions of wellness between dispositional gratitude and life satisfaction. Results of the proposed mediation model related to the two subsamples indicated that the indirect effect of gratitude on life satisfaction via the body, mind, and spirit dimensions of wellness was significant among university students. The Broaden-and-Build theory (Fredrickson 2013) provides a mechanism for gaining insights into how gratitude may influence wellness. In line with the theory, experiencing gratitude may expand university students' range of thinking and acting to help them build valuable wellness resources. For instance, university students' physical resources may include such wellness behaviors as consuming a healthy nutritious diet, exercising on a regular basis, avoiding risky behaviors, and engaging in fitness sports (body dimension). Additionally, their intellectual resources may manifest themselves in behaviors related to ethical decision-making, realistic goal setting, and openness to new experiences (mind dimension). Furthermore, fulfilling interpersonal relationships, introspection, handling challenges, and tolerance may form important aspects of their social and psychological resources (mind dimension). Finally yet importantly, their psychological resources may be apparent in their contentment or joy, meaningful life purpose, and enriched spiritual health (spirit dimension). It is noteworthy that university students may experience gratitude based on the warmth and cooperation of their loved ones and friends to achieve their goals as well as the kindness, dedication, and sage counsel of their teachers/mentors to perform well in their studies and excel in life. Research also suggests that social support (as a valuable resource) may strengthen people's dedication and commitment towards weight loss and physical fitness (Wing and Jeffery 1999) as well as enable them to become more supportive and thoughtful (Nelson et al. 2015) and follow through on their resolutions (Norcross and Vangarelli 1989), such as practicing positive thinking, adopting a healthy life style, being less judgmental, or making prudent decisions.

The second part of the mediation results indicated that the three dimensions of wellness were related to life satisfaction. According to Fredrickson (2001), the aggregate experience of positive emotions (e.g., gratitude) helps build personal resources to continued growth towards long-term success and well-being. In the same vein, Cohn et al. (2009) assert that positive emotions ultimately consolidate people's personal resources, which enable them to flourish in life. Personal resources—such as wellness resources—are therefore conducive to higher life satisfaction, as they may allow individuals to address life's challenges, seize valuable opportunities, and become happy, healthy, and prosperous in the long-run (Fredrickson et al. 2008). Empirical evidence reviewed earlier also indicates that a host of wellness behaviors or resources pertaining to the body–mind–spirit dimensions are related to life satisfaction.

From limiting risky behaviors to reading spiritual material on a regular basis (BMS-WBCI; Hey et al. 2006), the body–mind–spirit dimensions cover a wide range of positive health behaviors pertinent for university students to experience well-being and reach

their potential. Based on the Broaden-and-Build theory, the body–mind–spirit dimensions provide valuable insights into the pathways, which may link dispositional gratitude to life satisfaction. However, when the IV was exchanged with the DV as per the supplementary analyses, results indicated that only the mind dimension of wellness mediated the relation between life satisfaction and dispositional gratitude. This is probably because life satisfaction leads to greater resources for cultivating the mind dimension, which in turn enables university students to be grateful for having satisfying interpersonal relations, being able to maintain stability in life, managing diverse social settings, or being able to achieve their goals. Hence, there is also a possibility of mediation in the alternate direction suggesting a partial revision in the original hypothesis or model.

Results of the second subsample validated the results of the first subsample for the original hypothesis. Similarly, results of the second subsample validated the results of the first subsample with regard to the mediation of the mind dimension between life satisfaction and dispositional gratitude. Overall results suggest that the body–mind–spirit dimensions of wellness likely mediate the relation between dispositional gratitude and life satisfaction and there is a likelihood that the mind dimension of wellness mediates between life satisfaction and dispositional gratitude. These results demonstrate the relevance of positive psychology in identifying a relevant mechanism through which the life satisfaction of Pakistan's university students may be improved. Based on the results, worthwhile interventions (see the next section for further details) may be devised to enable them to unveil their strengths, plan a future they aspire for, enhance their self-confidence and self-worth, develop inner strength to boldly face life's trials and tribulations, and above all lead a happy, healthy, and meaningful life. The overall study sample consisted of university students predominantly belonging to the middle upper socio-economic group of Pakistan. With a progressive outlook towards life, these university students long for a good life and thus aspire to become economically independent and support their family members. Forming an important segment of the society, most of them value the importance of education in helping them achieve their life goals. As such, research on various constructs related to positive psychology (e.g., gratitude, wellness, well-being, and character strengths) may play a critical role in furthering their all-round growth and development. Previous studies on positive psychology related to university students in Pakistan have been successful in achieving their intended aims. For instance, a strengths-based intervention for developing students' X-Factor (Green 2019a), a career construction training program making use of positive psychology intervention best practices (Green et al. 2019), and a study on the mediating role of well-being (subjective and psychological) between generalized self-efficacy and vocational identity development based on public and private university students (Green 2019b). Thus, positive psychology studies may be particularly beneficial for contributing to students' health and overall well-being in Pakistan.

It is much pertinent to mention here that the body–mind–spirit mediation model may also be relevant for the less privileged Pakistani students studying at public universities or private universities (on scholarship or financial aid). Having limited options and facilities in life than their privileged counterparts, most have a relentless desire to improve their circumstances by becoming financially self-reliant to prosper in life. The gratitude interventions suggested in the following section are as much beneficial for them as they are for the privileged students. In Pakistan, gratitude has a divine significance. Gratitude is at the heart of the Islamic teachings and is one of the core aspects of the religion. In Islam, gratitude is essentially God-centered in thought, feelings, and experiences (Gocen 2016). It is therefore the obligation of every Muslim to express gratitude to God in all situations, as He is the provider of everything—consciousness, family, health, finances, education,



and wisdom—and thus all perceived blessings are associated with Him (Al-Seheel and Noor 2016). Moreover, Islam teaches people to remain thankful to God—even in times of hardship to show acceptance to His will—to enable them to become closer to Him. Essentially, this personal relationship with God helps people in attaining solace, inner peace, and strength of spirit, which act as a buffer against life's trials and tribulations (Mobin-Uddin 2002). As God-centered gratitude is deeply embedded in the fabric of Pakistani society, therefore, expressing gratitude to people for their kindness or good gestures is much appreciated by the general public. It is not only considered polite and respectful, but also demonstrates warmth and appreciation on the part of the beneficiary. As such, implementing various genres of interventions—not necessarily God-centered—in Pakistan for augmenting gratitude may be very beneficial because expressing gratitude based on the benefits derived from the good deeds of others and for the good things in one's life are eventually associated with God's blessings (Gocen 2015). Moreover, many Pakistanis often respond to their benefactors by saying *Jazak Allah* [May God reward you (with) goodness]. As saying thank you is never enough, therefore, all types of gratitude interventions may be well received by the general public and at the same time profit Pakistani students in terms of cultivating happiness and experiencing life satisfaction.

#### 4.1 Practice Implications

Results of this study have potential implications for positive psychologists, education administrators, faculty, instructional design specialists, and on-campus wellness professionals. Relating to the original hypothesis, the body–mind–spirit dimensions of wellness drove the mediation between dispositional gratitude and life satisfaction. This suggests a need to focus on encouraging a sense of gratitude in private and public university students to motivate them to demonstrate wellness behaviors for experiencing life satisfaction. Faculty may play a critical role in inspiring students to express gratitude and count the blessings bestowed on them on a regular basis. In this context, they may first need to model gratitude by sincerely thanking and appreciating the students for their efforts and cooperation in completing various academic and nonacademic tasks. Additionally, faculty may provide students different opportunities to make a difference in the lives of the less fortunate; for example, helping children who live in poverty or people affected by natural calamities. Students may also be encouraged to keep a gratitude journal. According to Emmons (2010), keeping a gratitude journal enables individuals to increase exercise and take good care of their health; experience higher levels of positive emotions; be more alert, alive, and active; experience greater optimism, happiness, joy, and pleasure; feel less lonely, isolated, and depressed; and be more empathetic, generous, forgiving, and outgoing. Thus, gratitude exercises—having a universal application—may be pertinent for promoting wellness behaviors.

In regard to the overall results of the study, education administrators may need to seek the support of positive psychology interventionists and instructional design specialists to train faculty members in conducting workshops based on emotionalized learning experiences (Green and Batool 2017) for instilling a sense of gratitude in their students, encouraging them to practice wellness behaviors, and enabling them to experience life satisfaction. These experiences are offered when teachers make use of affective outcomes based on the teaching content to enrich the teaching–learning process (Green 2019c). The affective outcomes help in achieving the cognitive and psychomotor outcomes and therefore emotionalized learning experiences focus on a balanced representation of the three domains of

learning to ensure a comprehensive educational evaluation (Patel 2010). Predominantly, based on the Principles of Significant Learning by Rogers (1969) and the Adult Teaching and Learning Assumptions by Knowles (1990), the four dimensions of emotionalized learning experiences—the cognitive setting for learning, the emotional setting for learning, the social setting for learning, and teaching/learning resources—actively engage students in the learning process (cf. Green 2019c). It is noteworthy that emotions are quintessential for learning to occur, as they provide substance and meaning to what students learn (Caine and Caine 1991). Using a wide variety of experiential learning activities (cf. Green 2019a), emotionalized learning experiences engage students emotionally to enable them to demonstrate positive behavioral attitudes, such as gratitude, empathy, appreciation, honesty, self-confidence, self-control, and social competence (Green 2019c; Patel 2010). Fundamentally, the affective domain addresses matters related to students' attitudes, feelings, beliefs, and views (O'Donnell et al. 2009). Helping students acquire the skill of gratitude and how to attain life satisfaction through interactive and practical 2- to 3-h emotionalized learning experiences may therefore be particularly beneficial. Besides, the emotional processes working at each level of the affective domain (e.g., being open to experience, engaging in life, cultivating values, managing oneself, and developing oneself; Pacific Crest 2010) build learning competencies pertinent for amassing personal resources to appropriately deal with daily life situations (Green 2019c) including practicing wellness behaviors. In addition, integrating emotionalized learning experiences into the existing curriculum through meaningful affective content—to impart pertinent life lessons to students—focusing on interesting activities may not only enable faculty members to encourage their students to express gratitude, but also to practice wellness behaviors on a more regular basis to experience greater life satisfaction. Affective content also directs and strengthens students' motivation towards their academic endeavors. According to Green (2019c), relevant, practical, and thought-provoking affective content may help in sustaining students' interest in the prescribed curriculum and gaining their cooperation towards learning.

Furthermore, the support and encouragement of education administrators may be important for teachers to move out of their comfort zones to modify their teaching practices and lesson plans for incorporating emotionalized learning experiences into the prescribed curriculum. Green and Batool (2017) recommend teachers to offer emotionalized learning experiences fifteen to 20 min towards the end of a 3-h class to end it on a high note. They believe that teachers may use this time for short activities ranging from gratitude exercises to teaching valuable life lessons from 2- to 3-min videos. Meaningful videos and presentations related to gratitude, wellness, and life satisfaction may be downloaded from the YouTube as well. The videos may be used to promote guided discussions and self-reflection as well as allow students to answer implied questions about the situations or characters depicted in them.

Additionally, on-campus wellness professionals may play a vital role in encouraging students to practice wellness behaviors. In this regard, they may first need to identify students' wellness needs related to the body–mind–spirit dimensions for devising meaningful wellness interventions (e.g., health and fitness guidance, career guidance, financial counselling, and psychological counselling) accordingly in collaboration with positive psychologists. Further, information about practicing wellness behaviors may be disseminated through a dedicated website developed for the purpose. The website may also help in promoting a wellness culture in the campus. Wellness professionals may also ensure that the university cafeteria offers healthy and nutritious food and snacks. Recommendations by Stringer (2018) for promoting wellness in educational institutions may also be adapted by on-campus wellness professionals. For instance, campuses may provide appropriate spaces

for students to take proper rest. Wellness professionals may advocate for the importance of such spaces in the campus for mindful moments to prompt students to find tranquility amidst their hectic schedule. In addition, wellness professionals may liaise with positive psychologists and faculty members to organize short classroom lectures on such pertinent topics as empathy, meaning in life, personal insight, character strengths, and optimal functioning throughout the year to promote mindful living among the students. Wellness professionals may also need to be careful in bringing treatment and support to students with anxiety, depression, or relationship concerns, as availing mental health services is still considered as taboo in many cultures.

## 4.2 Limitations and Future Directions

A limitation of the current investigation is its cross-sectional nature, which may not provide a conclusive evidence of the mediation analyses although the mediation relationship is based on a sound theoretical perspective and results of the second subsample validate those of the first subsample. The reviewed empirical evidence also supports the relationship among the variables. In addition, a longitudinal design may shed further light on the study's supplementary analyses. Research, in future, may therefore focus on longitudinal or experimental designs to confirm the causality in relation to dispositional gratitude, the body–mind–spirit dimensions of wellness, and life satisfaction as well as life satisfaction, the body–mind–spirit dimensions of wellness, and dispositional gratitude. A second limitation of the study is the use of self-response measures that may have introduced a response bias on account of the effects of social desirability. Therefore, future research may focus on mixed methods studies to explain the quantitative data based on qualitative data to supplement self-response measures. A third limitation of the current study is that it was based on a sample of bachelor's students enrolled at a private university, which may be somewhat different from the one obtained from a public university. Results may therefore need to be interpreted with caution. In future, studies may consider samples of students from both public and private universities to improve generalizability. In spite of the limitations, the detected mediating role of the body–mind–spirit dimensions of wellness—presenting an all-encompassing view of students' wellness—in the current investigation has demonstrated a process through which dispositional gratitude may contribute towards life satisfaction. Hence, the body–mind–spirit mediation model offers greater explanatory power than the previous models with regard to how gratitude may take its indirect effect.

Furthermore, to validate the results of this study, future research may focus on samples of students studying at the secondary, higher secondary, and post graduate levels. In addition, the same design may be applied to samples of different professionals (e.g., teachers, doctors, nurses, and lawyers). Also, future studies may focus on the mediating effect of other constructs that may interact with dispositional gratitude to predict life satisfaction; for instance, the X-Factor, social competence, character strengths, job crafting, and art-of-living (Furnham and Lester 2012; Green 2019a; Lang and Schmitz 2016; Leganés-Lavall and Pérez-Aldeguer 2016; Tims et al. 2012).

## 5 Conclusion

Essentially, by analyzing the mediating effect of the body–mind–spirit dimensions of wellness, this investigation provides pertinent insights into the role of gratitude in advancing life satisfaction. This study is valuable and meaningful, as it explicates the role of dispositional gratitude in contributing to students' wellness behaviors related to the body–mind–spirit dimensions and life satisfaction. It is rooted in the Broaden-and-Build theory (Fredrickson 2013) and hence explains how the positive emotion of gratitude may develop personal resources in terms of wellness behaviors, which subsequently foster life satisfaction. The present mediation model was also found to work in the alternate direction solely with regard to the mind dimension of wellness. This suggests a partial revision in the hypothesized model. The overall results thus lead us to conclude that the body–mind–spirit dimensions of wellness may mediate the relation between dispositional gratitude and life satisfaction, whereas, the mind dimension may mediate the relation between life satisfaction and dispositional gratitude. Results of the study may assist educational administrators, faculty, positive psychology interventionists, and on-campus wellness professionals in developing and implementing result-oriented interventions to promote life satisfaction among university students. All in all, this study advances theory, research, and practice related to positive psychology.

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## Compliance with Ethical Standards

**Conflict of interest** The authors state that they have no conflict of interest.

**Ethical Approval** The research protocol was submitted for consideration, comment, guidance and approval to the university's research ethics committee. All procedures performed in the study were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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

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