



## Research article

## Role of emotional intelligence and grit in life satisfaction

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## ABSTRACT

**Background:** There is a pressing need to study life satisfaction in the context of collectivistic culture, particularly of undergraduate students. Various socio-cultural factors influence the level of emotional intelligence and grit of an individual. Even though a wide array of research on life satisfaction is available, it hasn't been studied in relation to grit and emotional intelligence (as conceptualized by Bar On), both of which can be acquired and enhanced over time. To the best of researcher's knowledge, a research that collectively studies emotional intelligence, grit and life satisfaction in the context of a collectivistic culture has not been carried out

**Method:** The study discusses the relationship between emotional intelligence (as conceptualized by Bar-On), grit and life satisfaction. Scales employed to investigate the relationship between each of the constructs include Scale of Emotional Intelligence (SEI), 12-item Grit scale and Satisfaction with Life Scale (SWLS). 350 undergraduate students were selected through random sampling. Statistical analyses included Pearson Product Moment Coefficient of correlation, Independent Sample t-test, one-way between group analysis of variance (ANOVA) and multiple regression.

**Results:** The study concludes that the two constructs, i.e. emotional intelligence and grit, are weakly related to life satisfaction,  $r(348) = .25, p < .01$  and  $r(348) = .22, p < .01$  respectively. A moderately strong association is found between emotional intelligence and grit  $r(348) = .46, p < .01$ . Significant gender differences are found in emotional intelligence. Emotional intelligence and grit are not influenced by academic majors and academic years. Emotional intelligence and grit can influence life satisfaction by a variance of 15.6%. Participant's age ranged from 18 to 26 years ( $M = 21.20, SD = 1.62$ ).

**Conclusion:** The study concludes that emotional intelligence and grit have a moderately strong association with one another. Emotional intelligence and grit positively influence the level of satisfaction experienced by an individual, however small it maybe. The study presents important insight into each of the primary constructs within the cultural context of Pakistan. The results also highlight the importance of educating Pakistani individuals regarding improving emotional intelligence and grit. Both emotional intelligence and grit are learnable and teachable, which means that individuals can be educated to help them improve their performance and subjective well-being. Parents, educators and health professionals can also benefit from findings of this study, in a way that they can identify areas of emotional intelligence and grit that can be enhanced in order for the children, students and clients, respectively, to achieve better well-being and individual effectiveness.

## 1. Introduction

Life satisfaction is greatly influenced by the more valued areas of an individual's life. It is an assumption that undergraduate students lay a great deal of importance on their academic performance and overall undergraduate experience. This is mainly due to the cultural and social mindset prevalent in society that academics determine the success of one's future. Increasing competition in academia causes the arousal of stress among undergraduates. Due to the subjective nature of the concept

'life satisfaction', it becomes increasingly difficult to study all factors that affect it. However, it is possible to study the relationship of different factors with life satisfaction. A thorough meta-analysis of grit (Hasan et al., 2020) highlights the importance of considering the cultural context of a study sample while analyzing grit in relation to other constructs. It poses the idea that manifestation of two dimensions of grit (i.e., Perseverance of effort and consistency of interest) might be different depending on the cultural context. For example, in collectivistic cultures perseverance of effort may be linked to not failing other's expectations

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and maintaining self-image as an individual who persists during difficult times or as someone who's ready to give up. Similarly, consistency of interest will only remain as long as the group value is prioritized and met. The study also implores to evaluate the conceptualization of grit in specific cultural contexts. Scant research has been conducted that has studied the relationship between grit, emotional intelligence (EI), as conceptualized by Bar-On, and life satisfaction (Jain 2015; Palmer et al., 2002) especially among undergraduates in Pakistan. Therefore, findings from the present study are considered to be valuable contributions to the field of psychological research in Pakistan, as well as in enhancing our understanding of the constructs 'grit', 'emotional intelligence' and 'life satisfaction' according to socio-cultural context of Pakistan.

## 2. Literature review

### 2.1. Emotional intelligence

Three eminent models of emotional intelligence exist; Goleman's breakdown of emotional intelligence, Mayer-Salovey's ability-based model and lastly, Bar-On's model. One popular method in drawing a distinction in classification of EI is to focus on the assessment measures of EI. According to this, emotional intelligence has been classified into 1) ability EI, assessed by ability measures, 2) trait EI, assessed by self-report questionnaires and 3) Mixed EI, assessed by measures that include a combination of items related to traits, competencies and skills. Bar-On model is more inclined towards a mixed model of EI, rather than trait EI or ability EI (O'Connor et al., 2019). The present study looks at EI as conceptualized by Bar-On. Bar On's model of emotional intelligence addresses the limitation(s) of other models by grouping together social and emotional competencies that determine the individual's emotional intelligence.

Emotional Quotient Inventory (EQ-i) is a self-report questionnaire that operationalizes the Bar-On model. It consists of all 5 meta-components and 15 sub-components as presented by the Bar-On model. The five meta-components in EQ-i scales include: i) intrapersonal, ii) interpersonal, iii) stress management, iv) adaptability and v) general mood (Bar-On, 2006). The model lays great emphasis on the pivotal role of emotions in our interpersonal relationships. Therefore, making it even more necessary to control and manage our emotions in order to benefit from them in our social life. It is for this reason the Bar-On model is also popularly known as 'emotional-social awareness'.

Emotional intelligence shows a substantial conceptual overlap with personality assessment. However, this conceptual overlap does not influence the unique variance found in life satisfaction by emotional intelligence i.e. 1.3% in addition to 34% variance brought about by personality in life satisfaction (Gannon and Ranzijn, 2005). Emotional intelligence encompasses domains such as interpersonal & intrapersonal competencies, stress management, adaptability and general mood. Therefore, it is not surprising that emotional intelligence impacts mental health hygiene (Bibi et al., 2016; Bibi et al., 2020). Emotional intelligence is assumed to drive an individual's behavioral manifestations and choices in life, such as rate of illegal drug abuse, alcohol addiction and other deviant behaviors. Similarly, EI has the potential to positively influence social skills and relationships with friends.

Previous research shows inconclusive differences in emotional intelligence among genders; male and female. Wang and Kong (2014) found male undergraduates to have greater emotional intelligence as compared to female undergraduates. Contrastingly, Bibi et al. (2016), found higher emotional intelligence among Pakistani female undergraduate students. In dispute with all such claims, a study by few researchers yielded insignificant gender differences in EI among Pakistani undergraduate students (Bibi et al., 2020). Bar-On states that little evidence exists that could further advance our understanding of gender differences in overall emotional intelligence, however males and females show distinct differences in EI sub-components; females have a relatively strong domain of interpersonal skills, empathy and emotional self-awareness. Whereas

men are more adept at managing emotions, adapting to frivolous situations and have more enhanced and strengthened concepts of self-regard, self-reliance, conflict-handling, coping skills and optimism. Strengths and weaknesses in respective areas of EI may explain the prevalence of psychopathy among men and anxiety issues among women (Bar-On, 2006).

Researchers have shown the significantly positive role of EI in life satisfaction. From EI, self-awareness and 'clarity of emotions' (sub-domain of self-management) show more profound links to life satisfaction (Palmer et al., 2002). Jain (2015) reported a moderate positive,  $r = .34$ , correlation between EI and life satisfaction among women in Mumbai. It has now been determined by many researchers that emotional intelligence increases with age (Bar-On, 2006; Batool and Khalid, 2011). Previous studies (Bar-On, 2006) utilizing Bar-On model have shown robustness of mixed EI model by predicting several factors associated with human behavior and performance etc. The average predictive validity coefficient of EQ-i is .59. In addition to this, subjective well-being (encompassing concept of life satisfaction) is highly correlated (.76) with emotional intelligence (Bar-On, 2005). A few main contributors of EI to subjective well-being include self-regard ("the ability to accurately perceive, understand and accept oneself"), self-actualization ("the ability to pursue personal goals and actualize one's potential"), stress tolerance ("the ability to effectively and constructively manage emotions"), optimism ("the ability to be positive, hopeful and look at the brighter side of life") and happiness ("the ability to feel content with oneself, others and life in general") (Bar-On, 2005).

### 2.2. Grit

Grit is characterized by perseverance and passion for long term goals (Duckworth et al., 2007). It enables an individual to continue working for higher-order goals by a consistent input of effort and maintenance of interest for long periods of time for achievement of goal, against all odds. It is not influenced by factors such as successful outcomes, difficulty level of tasks or intellectual rewards like pleasure attained (Duckworth et al., 2007), hence making the concept of grit unique. Organismic valuing theory of growth, by Carl Rogers, states strong goal orientation, emotional-awareness and interpersonal skills lead to a "fully functioning" human being, primarily due to the individual's innate nature of moving towards actualization (Vainio and Daukantaite, 2016). Rogers' belief may be extrapolated to presence of greater self-awareness in relevance to goal pursuits and ultimately grit. Human beings' intrinsic inclination to positive growth means that achievement of self-concordant goals directly increases one's sense of satisfaction and overall well-being (Vainio and Daukantaite, 2016). So far the most leading research on grit provides sufficient evidence claiming grit to be the foremost predictor of lifelong achievement (Duckworth et al., 2007). Furthermore, grit is positively related to goal pursuits such as educational achievement (Duckworth et al., 2007), college retention (Duckworth and Quinn, 2009), academic performance and career success (Li et al., 2018). Higher level of grit is characterized by high self-relevance. Duckworth et al. (2007) reports grit to influence success outcomes by variance of 4% in contrast to minute roles of intelligence, academic performance and appearance.

Evidently, research shows that individuals who have a tendency to be easily discouraged by challenges and have an ambivalent approach to their interests or goals, in fact, are less gritty (Duckworth and Eskries-Winkler, 2013). Being easily disappointed by setbacks and not achieving a complete sense of purpose can influence the level of satisfaction in life. Hence, findings by Duckworth and Eskries-Winkler (2013) can be extrapolated to deduce that life satisfaction and grit may be related to one another-the belief that grit and life satisfaction may share a relationship. Previously researchers (Li et al., 2018) have explained that self-esteem plays a significant mediating role between grit and life satisfaction. Furthermore, Vainio's and Daukantaite's study (2016) gives a comprehensive explanation regarding the significant relationship between grit and life satisfaction with mediating factors such as

authenticity and sense of coherence. It describes the connection between feelings of satisfaction and different pursuit aspects such as its relevance and meaning to oneself, as well as a strong foundation of true motives resulting in the creation and attainment of goals. Moreover, [Vainio & Daukantaite \(2016\)](#) uplift the importance of association between positive constructive emotions and life's purpose with the extent of satisfaction on each day and life satisfaction as a whole. Doctors, engineers, lawyers, teachers and bankers are perceived as academically successful careers. [Khan and Khan \(2017\)](#) studied a sample of individuals with similar occupational backgrounds in Pakistan and found a moderate positive relationship between grit and life satisfaction as well as grit and happiness, respectively. Similar results were found by [Singh and Jha \(2008\)](#), showing a positive correlation between grit and life satisfaction ( $r=.32$ ), grit and positive affect ( $r=.44$ ). Self-regard and goal pursuit are also strongly related to one another, positively impacting life satisfaction ([Judge et al., 2005](#)). Grit is a trait that can be learned and improved since it has shown to enhance with age and higher education level ([Duckworth et al., 2007](#)).

A growing body of literature has questioned the close similarity between many components of grit (i.e. perseverance of effort and consistency of interest) and other popular constructs in academia such as future time perspective, conscientiousness and self-control. [Muenks et al. \(2017\)](#) compare [Lens' \(1986\)](#) concept of 'future time perspective' and perseverance of effort. Conscientiousness, from Big Five Personality traits, is closely driven by characteristics such as self-discipline, hard work and cautiousness. Even though appearing to be similar, grit is highly distinct from conscientiousness due to its key characteristic of striving passionately for long term goals ([Muenks et al., 2017](#)). Another serious criticism is that grit appears to be a functional measure of conscientiousness. [Duckworth and Quinn \(2009\)](#), provide a strong refutation to this claim explaining that grit has a strong role in achievement outcomes and long term goals, demonstrating incremental predictive validity beyond conscientiousness. Referring to the doubts regarding conceptual overlap between grit and self-control, researchers have dismissed this challenge on the grounds that self-regard is limited to temptations that are short-term in nature contrary to grit which focuses heavily on consistency of effort and perseverance for long term goals.

### 2.3. Life satisfaction

Subjective well-being is a popular concept by Diener, that comprises three major parts: 1) positive affect, 2) negative affect and 3) life satisfaction. While the first two parts are about feeling emotions, the third part i.e. life satisfaction is the cognitive side to subjective well-being. Therefore, subjective well-being and life satisfaction are similar with only minor differences between the two.

[Diener et al. \(1985\)](#) describe life satisfaction as the level of positive evaluation of life's quality by an individual. Even though a widely popular concept, the construct of life satisfaction has been under critical speculation of researchers who highlight the, apparently, vital role of ambitions and the importance of others in an individual's life satisfaction.

[Behlau \(2010\)](#) studied the difference in extent of life satisfaction between undergraduate students and graduate students, accounting for both overall life satisfaction and specific domains. This study was based on the assumption that life satisfaction was affected by external factors such as an increase in the individual's roles in life as one moved on into higher and more demanding stages of life. Contrary to the author's expectations, in comparison to graduate students, undergraduates presented greater levels of life satisfaction. They also showed a higher average score of assertiveness, interpersonal relationship domain (both are important areas of emotional intelligence) and decision making ([Diener and Diener, 2009](#)). Remarkably, self-regard (another important sub-component of self-awareness in EI) has shown strong links to life satisfaction, in addition to being a

fundamental predictor ([Diener and Diener, 2009](#)). Self-regard is the evaluation of a positive self-perception, which has shown direct strong correlation with life satisfaction in individualistic cultures. Few researchers have also highlighted life satisfaction as a salient notion in collectivistic cultures, hence it is likely to show lower levels of correlation with predictor variables. The primary reason behind this is that life satisfaction is conceptualized as being vulnerable to "momentary or normative factors", hence lacking some degree of soundness in the judgement being made to evaluate life satisfaction (as cited in [Diener and Diener, 2009](#)). Interestingly, self-esteem and life satisfaction show low covariation levels in collectivistic culture ([Diener and Diener, 2009](#)). This result also broaches the confusion of the two constructs being closely similar to one another, later clarified by the evidence that higher life satisfaction among participants did not guarantee higher self-esteem, therefore confidently concluding the distinct nature of the two constructs and their ability to influence one another ([Diener and Diener, 2009](#)). In Pakistan, most individuals have a weak sense of self prioritization in various matters of life. The authors of the current paper consider this as an opportunity to study the extent of variation in results with respect to the prevalent collectivistic culture.

### Hypotheses

1. Emotional intelligence, grit and life satisfaction will be significantly associated.
2. Emotional intelligence and grit will be significantly different in males and females.
3. There will be significant differences in emotional intelligence and grit among academic years (freshmen, sophomore, junior and senior) and academic majors (social sciences, humanities and pure sciences).

### 3. Method

#### 3.1. Research design

This study is designed to be a correlational study, bearing close similarity with a few other researchers' ([Jain, 2015](#); [Palmer et al., 2002](#)) approach to the same constructs.

#### 3.2. Participants

A statistical power analyses was carried out using sample size estimation, based on data from pilot study and previous studies-G\*Power 3.1 was used to compute the sample size. A total sample of 350 undergraduate students, from a private university in Lahore, Pakistan, were recruited to carry out the investigation following the random sampling method. A total of 153 males and 196 females participated. Participants of this study were bilingual; proficient in both English and Urdu. The sample was not gender specific. The study targeted undergraduate adults belonging to Pakistani community. The nature of study did not require any kind of psychological screening to be carried out. The mean age of sample was found to be approximately 21 years ( $M=21.20$ ,  $SD=1.62$ ). Sample included a collection of heterogeneous academic years (Senior year = 34.1 %, Junior year = 20.6%, Sophomore year = 26.9% and Freshmen year = 18.3%), academic majors (Humanities = 16%, Science and Mathematics = 34.9%, and Social and Behavioral Sciences = 49.1 %). Family systems were also taken into account, with 70.9% of participants living in a nuclear family system. Majority of students belonged to Punjabi ethnicity (86.8%). 43.7% of undergraduate student participants showed to belong to the middle tier in birth order and 29.1% identified themselves as first born.

### 3.3. Instruments

#### 3.3.1. 12-item grit scale

Constructed by Duckworth et al. (2007), the 12 item scale measures two dimensions of grit; (i) Trait perseverance, and (ii) consistency of interest. The 5-point Likert scale ranges from 1 to 5, representing a range of responses such as *not at all like me* to *very much like me*, respectively. The scale has an excellent overall internal consistency ( $\alpha=0.85$ ), as well as for each of the dimensions; Consistency of Interest, = 0.84; Perseverance of Effort, = 0.78 (Duckworth et al., 2007). A mean score of 5 represents an extremely gritty individual whereas a mean score of 1 represents a person who's not at all gritty. Grit Scale has been used by a few studies within Pakistani population, studying its relationship with different factors such as depression (Majeed et al., 2019) and burnout (Cheema et al., 2020).

#### 3.3.2. Scale of emotional intelligence (SEI)

SEI (constructed by Batool & Khalid, 2011) is a self-report indigenous scale with respect to Pakistan's cultural context. The 56-item scale assesses 10 domains of EI: (i) interpersonal skills, (ii) self-regard, (iii) assertiveness, (iv) emotional self-awareness, (v) empathy, (vi) impulse control, (vii) flexibility, (viii) problem solving, (ix) stress tolerance and (x) optimism. The scale utilizes a 4-point Likert method to measure participant responses, ranging from 1 = *never true*, to 4 = *always true*. It also represents a high Cronbach alpha coefficient of 0.95, indicating high internal consistency. SEI and EQ-i (urdu version) are strongly correlated to one another ( $.69, p<.01$ ) (Akram and Ghous, 2004, as cited in Batool and Khalid, 2011).

#### 3.3.3. Satisfaction with life scale (SWLS)

SWLS (constructed by Diener et al., 1985) is a well-known 5-item scale, with a high degree of internal consistency (Cronbach  $\alpha=0.87$ ). It evaluates the overall satisfaction of individuals based on the calculation of mean scores across the 7-point-likert scale. The SWLS scale was constructed by Diener et al. (1985) which not only measures satisfaction in the broader sense of global satisfaction but also covers more specific aspects of appraisal such as self, relationships, finance etc. The scale successfully suppresses any chances of the occurrence of social desirability in participants' responses. A few other studies have also used this scale to study life satisfaction of Pakistani population (Naseem, 2018). Urdu version of SWLS has Cronbach alpha reliability of 0.90, showing that SWLS is useful to assess life satisfaction in Pakistani population (Barki et al., 2020).

### 3.4. Procedure

Data collection was carried out upon approval of the Forman Christian College University Institutional Review Board (IRB), IRB-108/12-2018. The participants were selected using simple random sampling method; every third person entering from four selected areas of the institute were approached by the researcher. The primary investigator explained research aims, i.e. to investigate the role of emotional intelligence and grit in life satisfaction among undergraduates in Pakistan, to the participant. The researcher also informed the participant about their right to participate on voluntary basis and right of withdrawal in case of any induced distress while responding to the questions. Furthermore, commitment to preserve participant's confidentiality and anonymity was also explained by the researcher. Upon brief explanation of all information, a written consent was sought prior to the administration of questionnaires. The participants proceeded to fill the questionnaire booklet in the following order: demographic sheet, 12-item grit scale, SEI (Scale of Emotional Intelligence) and lastly, SWLS (Satisfaction with Life Scale). Participation in this study was on a voluntary basis. Anonymity was strictly maintained by assigning code numbers to all participant questionnaires. The respondent took an average of 10–15 min to fill all the

questionnaires. In total, it took approximately two months to complete data collection.

### 3.5. Statistical technique

Main statistical analyses included Pearson product-moment coefficient of correlation, in order to evaluate the relationship of emotional intelligence and grit with life satisfaction. Independent Sample t-test and one-way between group analysis of variance (ANOVA) are calculated in order to assess the relationship of emotional intelligence and grit with demographic variables. All statistical analyses were performed by using SPSS 20.

## 4. Results

The three scales; SEI, 12-item grit scale and SWLS were utilized to evaluate emotional intelligence, grit and life satisfaction respectively. Cronbach alpha value of the aforementioned scales was also computed for the sample in this study and was found to be 0.86, 0.71 and 0.81 respectively. Upon analysis of the data collected, noteworthy results were found.

In order to gain better insight, mean was calculated for both the domains of grit: Perseverance of Effort and Consistency of Interest. As evident in Table 1, 'consistency of interest' has a higher mean than 'perseverance of effort'.

Similarly, an average of the 10 components of emotional intelligence was calculated. As shown in Table 2, 'impulse control' domain had the least mean value whereas, interpersonal skills showed the highest mean score in emotional intelligence.

Pearson product-moment correlation was used to determine the relationship between emotional intelligence, grit and life satisfaction. As predicted in the first hypothesis, grit and emotional intelligence are significantly associated with life satisfaction. A moderate positive correlation between emotional intelligence and grit was observed,  $r(348)=.46, p<.01$ , whereas emotional intelligence and life satisfaction ( $r(348)=.25, p<.01$ ), and, grit and life satisfaction ( $r(348)=.22, p<.01$ ), exhibited a weak but positive correlation (Table 3).

In order to assess gender differences in emotional intelligence and grit, Independent T-test was carried out. Significant gender differences were observed in emotional intelligence,  $t(347)= 2.98, p<.003$ . Men showed higher emotional intelligence ( $M=165.16, SD=16.29$ ) as compared to women ( $M = 159.81, SD=17.00$ ). Difference in mean of emotional intelligence between the two genders was found to be moderate ( $\eta^2=.025$ ). Thus, a variance of 2% justifies the difference in emotional intelligence on the basis of gender. However, gender differences do not explain the discrepancy in mean grit score i.e. females ( $M=3.12, SD=.58$ ) and males ( $M=3.10, SD=.55$ ),  $t(347)=.41, p<.68$ .

Table 4 shows the relationship between the components of emotional intelligence and grit. Out of the two domains of grit, perseverance of effort shares a more dominant correlation with EI competencies as compared to consistency of interest domain of grit. Perseverance of effort domain of grit has a highly positive and moderately strong correlation with some EI domains including interpersonal skills, self-regard, problem solving, stress tolerance and optimism. On the other hand, consistency of interest domain of grit shows a comparatively higher, yet weak,

**Table 1.** Ranking of 2 domains of grit in ascending order, n = 350.

	# of items	M*	SD
PoE	6	2.70	.80
CoI	6	3.52	.65

Note. PoE = Perseverance of Effort, CoI = Consistency of Interest.

\* 1 = not like me at all, 2 = not much like me, 3 = somewhat like me, 4 = mostly like me, 5 = very much like me.

**Table 2.** Ranking of 10 domains of emotional intelligence in ascending order, n = 350.

	# of items	M*	SD
Impulse Control	8	12.47	2.59
Stress Tolerance	6	13.06	2.69
Optimism	7	13.67	2.48
Flexibility	5	14.13	2.84
Emotional Self Awareness	5	14.37	2.32
Problem Solving	5	14.52	2.91
Empathy	5	16.33	2.56
Self-Regard	5	17.18	2.61
Assertiveness	5	20.40	2.74
Interpersonal skills	5	25.99	3.71

\* 1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree.

correlation with EI competencies such as self-regard, emotional self-awareness and impulse control.

Multiple regression was used to extend the scope of this study and determine whether emotional intelligence and grit predict life satisfaction. Results show that 15.6% of variance in life satisfaction can be accounted for by emotional intelligence and grit, collectively,  $F(12,337)=5.189, p<.001$ . Examining the unique contribution of the predictors, the findings show that subscales of emotional intelligence; optimism ( $\beta=.209, t=2.84, p=.005$ ) self-regard ( $\beta=.153, t=2.33, p=.020$ ) and emotional self-awareness ( $\beta=.130, t=2.068, p=.039$ ) positively predict life satisfaction. The results suggest that individuals who find themselves to be more satisfied in their life are those who have an optimistic approach in different situations of life, have greater self-regard, and are more aware of their emotions.

### 5. Discussion

The goal of the present study was to investigate the relationship between emotional intelligence, grit and life satisfaction within a non-clinical sample of undergraduate students. Preliminary research lacks a body of literature that analyzes all three of the aforementioned constructs hence the current study is a step forward to bridge this gap. Results indicate the first hypothesis presented by this study to be correct.

The second hypothesis predicted significant gender differences in emotional intelligence and grit. An analysis of this hypothesis revealed intriguing results. Significant difference was found between emotional intelligence of men and emotional intelligence of women, such that men showed a higher level of emotional intelligence (Shahzad and Bagum, 2012; Wang and Kong 2014). This challenges Bar-On's (2006) findings, which reject the notion of varying differences in overall emotional intelligence between men and women. This difference of results between western and eastern society is a very intriguing revelation. A possible explanation for the current finding is the presence of a higher self-perception bias in males as compared to females. It has been already established that men and women differ in terms of EI competencies, both showing a set of strengths and weaknesses (Bar-On, 2006). This also holds true for collectivistic cultures (Gökçen et al., 2014). Women show

**Table 3.** Pearson Product-Moment correlation between emotional intelligence, grit and life satisfaction.

Measures	SEI	Grit Scale	SWLS
SEI	-		
Grit Scale	.463**	-	
SWLS	.246**	.221**	-

Note. SEI = Scale of Emotional Intelligence, SWLS = Satisfaction with Life Satisfaction Scale.

n = 350, \*\*p < .01.

more enhanced understanding and performance in competencies involving interpersonal skills, emotional self-awareness and empathy. In comparison, men perform better in domains of emotional management, self-regard, optimism, flexibility and attuning to difficulties (Bar-On, 2006). This directs the results to infer that the innate social and cultural mediating factors discriminate expressions of EI competencies on the basis of gender (Fischer et al., 2004). At this point, it is also important to consider the ability of 'self-concept' and its influence on emotional intelligence and the monumental impact of cultural norms and ideas on the development of 'self-concept' (Sharma et al., 2009). For example, Matsumoto, 1995, highlights the reservations and inhibitions of collectivistic societies regarding openly expressing negative affect (as cited in Sharma et al., 2009). Another important consideration to be made, with regard to understanding gender differences in any concept, is the association of gender with other factor variables. For example, one factor could be the difference of the nature of emotions generally experienced by men and women. Generally, women tend to experience emotions that are perceived as weak and powerless and men show a more strengthened association with emotions that are perceived as powerful (Fischer et al., 2004), hence the power-dynamics of emotions come into play. Needless to say, gender stereotypes further propagate such gender differences in emotional experiences and expressions.

Contrary to expectations, the results did not support the prediction regarding significant gender differences occurring in grit. Even though a wide array of literature review supports this result (Bowman et al., 2015; Duckworth and Quinn, 2009; Li et al., 2018), the present finding is of particular value in terms of gender differences in grit not showing prominence in collectivistic culture (Ali and Rahman, 2012). Hence it is deduced that perseverance of effort and consistency of interest while

**Table 4.** Pearson product-moment correlation between subscales of emotional intelligence and subscales of grit.

Subscales of SEI	Subscales of Grit	
	POE	COI
Interpersonal skills	.364**	.162**
Self-Regard	.391**	.256**
Assertiveness	.238**	.155**
Emotional Self-Awareness	.271**	.27**
Empathy	-	-
Impulse Control	.170**	.206**
Flexibility	.268**	-
Problem Solving	.451**	.176**
Stress Tolerance	.395**	.199**
Optimism	.392**	.156**

Note. SEI = Scale of Emotional Intelligence, POE = Perseverance of Effort, COI = Consistency of Interest.

n = 350, \*\*p < .01.

striving for long term goals are not substantially impacted by gender differences. This also implies that ultimately women and men share similar internal challenges in order to keep themselves persistently engaged and in order to overcome setbacks throughout the pursuit of their goal. This finding also questions the common idea that patriarchal society does not enable women to succeed or achieve their goal, thus shifting the focus of goal attainment on to internal factors like grit.

As expected, the present study demonstrates a significant relationship between (i) emotional intelligence and grit, (ii) emotional intelligence and life satisfaction, and (iii) grit and life satisfaction. In disagreement with previous researches (Palmer et al., 2002; Jain, 2015; Gannon and Ranzi, 2005; Li et al., 2018; Khan and Khan, 2017; Singh and Jha, 2008), it was found that EI and grit shared a weak positive relationship with life satisfaction. Diener and Diener (2009) have pointed out the difference in the foundational criteria for forming a judgement regarding life satisfaction in collectivistic cultures. The definition of 'self' in collectivistic cultures is dependent on different roles individuals experience in life, the norms and rules set by the society. It is noteworthy to draw attention to an important aspect of life satisfaction i.e. it is a judgement that does not have an objective criterion and it largely relies on the subjective criteria of the individual. This directs the focus to the prevalent culture of preferring the perceived normative value in societies, abiding by the collectivistic approach. Emotional experiences or personal attributes of oneself remain relatively ignored in collectivistic cultures, unlike in individualistic cultures. Normative desirability, or simply put, social norms and perception of others regarding one's own behavior have shown to strongly affect life satisfaction in collectivistic culture. Normative desirability is responsible for 40% of variance in life satisfaction whereas inner feelings and emotional experiences account for 39% of variance in life satisfaction (Suh et al., 1998).

Jain (2015) also supports the results of the current research, which further strengthens the conviction that emotional intelligence and life satisfaction are positively associated with one another. In the presence of already established literature review supporting the moderately strong correlation between emotional intelligence and life satisfaction (Runca and Iovu, 2013), while others advocate the mediating effect between EI & life satisfaction rather than a direct relationship (Escoda and Alegre, 2016), it becomes imperative to gain further insight regarding this. Some studies have shown significantly high correlation between 'Trait EI' and life satisfaction (Stamatopoulou et al., 2016; Perazzo et al., 2020). One of the reasons for this could be the difference in measures used. Trait EI measures an individual's self-perception related to one's own emotions and is said to be similar to lower levels of personality hierarchies. While performing a study on undergraduate students of a collectivistic culture i.e. Nigeria, the study of Adewumi and Ajayi (2017) concluded that life satisfaction was higher ( $M=22.14$ ) in students that had higher emotional intelligence and students who were not satisfied with life showed lower levels of emotional intelligence. Similarly, the current study concluded that participants exhibited moderate emotional intelligence ( $n=350$ ,  $M=162.13$ ,  $SD=16.86$ ) and therefore, are slightly satisfied with life ( $n=350$ ,  $M=21.06$ ,  $SD=6.75$ ).

Grit and life satisfaction also show a positive relationship, similar to the results presented by Singh and Jha (2008), meanwhile also showing a weak association (Li et al., 2018). Von Culin et al. (2014) suggest grit to be a mediating factor between psycho-situational experiences and life satisfaction. The interesting relationship between grit and life satisfaction can, once again, be attributed to the difference between understanding and perception of grit in collectivistic versus individualistic cultures. In comparison to collectivistic cultures, individualistic cultures encourage developing a more grounded self-concept instead of group goals and emphasize on pursuing goals that are related to oneself rather than focusing on collective interests of a group. Perseverance of effort domain of grit is more dominant and stable in collectivistic cultures, unlike consistency of interest domain of grit which shows ambivalence due to constant influence by external factors other than self (Datu et al.,

2016; Bowman et al., 2015). Perseverance of effort has a primary role in satisfaction with life (Datu et al., 2016). The present study also corresponds to earlier research, showing a higher mean and a higher positive (even though weak) relationship with life satisfaction ( $M=3.52$ ,  $SD=.65$ ,  $r=.212$ ,  $p<.01$ ). This implicitly supports the assumption that collectivistic cultures are more forbearing in adverse situations. Tolerance against setbacks requires certain skills, and Table 4 provides evidence for the presence of a moderate positive relationship between perseverance of effort with each of the three EI competencies; problem solving, stress tolerance and optimism. It is important to note that the conceptualization of grit may play crucial part in understanding results. As suggested by Hasan et al. (2020), results may be better studied and understood in a particular cultural context when grit is defined as two separate facets of 'perseverance of effort' and 'consistency of interest', as opposed to overall score of grit of these two facets.

Remarkably, grit and emotional intelligence present a highly moderate positive relationship, which indicates that emotional intelligence and grit are directly associated with one another. Furthermore, occurrence of moderately strong relationship between EI competencies and two domains of grit substantiate the overall association between emotional intelligence and grit. Perseverance of effort domain of grit is in concordance with EI competencies including interpersonal skills, self-regard, stress tolerance, problem solving and optimism. Along the same lines, consistency of interest domain of grit is closely associated with positive self-regard, impulse control and emotional self-awareness. These observations can be extrapolated to the idea that EI competencies assist in maintaining grit while dealing with challenging situations. Previous work corroborates with the results of the present study; Parker et al. (2004), provide evidence for emotional intelligence to be a significant driving force to retain students in high school and universities. Thus implying the crucial role of emotional intelligence among students in persevering against adversities and maintaining their interest.

Moreover, concurring with previous research finding, ethnicity was not significantly related to grit (Bowman et al., 2015) or emotional intelligence (Bar-On, 2006). Little is known about the relationship between academic majors and emotional intelligence. These results can be extrapolated to assume that similar results would be found in relation to life satisfaction. Sánchez-Ruiz et al. (2010) extract results showing significant emotional intelligence differences among subject majors: social science, natural science and art. The researchers attribute this significant difference to differences in personality traits.

## 6. Recommendations

The present study attempts to bridge the gap in the understanding of emotional intelligence, grit and life satisfaction in the context of collectivistic culture. It is also a step forward to exploring different factors that affect the life satisfaction of an undergraduate student. The present study suggests the need for clinical psychology and counselling affiliations with academic institutes to support personal growth of students.

Furthermore, it emphasizes the need to incorporate growth programs that can facilitate in improving emotional intelligence and grit through different techniques and exercises. For example, a plethora of research proves that mindfulness plays a significant role in emotional intelligence (Wang and Kong, 2014). Parents and educators can greatly benefit from the findings. This can provide them with a framework to facilitate children and students to grow into emotionally and socially intelligent human beings, who are able to tap into their true potential and the virtue of productivity. The findings are also helpful for health practitioners and HR professionals. Since emotional intelligence and grit are learnable and teachable constructs, this means that by creating a teaching framework or following the existing ones, they can be enhanced in individuals. Particularly for HR professionals, this means that individual as well as organizational effectiveness and efficiency can be increased. It can also prove to be a good employee retention strategy, ultimately increasing it.

The findings are resourceful for health care workers in a way that they can identify the 'areas of growth' in emotional intelligence and grit. Awareness at this level can be tremendously beneficial for health care workers, acting as a protective factor against psychological illnesses and improving general wellbeing.

It is suggested that future studies should include mediating factors such as socio-economic status to gain better insight into individual characteristics, which will provide greater clarity in terms of studying these constructs in collectivistic culture and more specifically Pakistani culture. It is interesting that literature review on emotional intelligence and grit shows a strong association to academic achievement rather than life satisfaction, hence creating a need for a comparative study and a need to study the extent of influence of a student's CGPA on life satisfaction. A similar study following a longitudinal research approach can be of value. Self-report measures fall short due to their inability of completely reducing the risk of self-report biases such as social desirability. In a way, it is deemed inevitable regardless of the scales claiming not to induce any such bias. This adds a risk margin to the internal validity of research. Hence, other data collection methods should also be employed, such as following a mixed method approach. Moreover, validity of English versions of 12-item grit scales and satisfaction with life scales should be examined separately within Pakistani cultural context.

## 7. Limitations

The findings of the present study cannot be generalized to Pakistani population as a whole due to the inclusion of a selected sample i.e. undergraduate students from a specific university. Hence, employing a larger and more diverse population in future study will provide useful information. Socioeconomic status was also not taken into consideration, which could potentially have a role in impacting overall life satisfaction of individuals. Extraneous variables due to participant's settings and experiences were often difficult to control for the researcher. A few researchers in past stated the caveat of Bar-On model of EI in EQ-i; it does not fully pay attention to EI facets such as "emotion perception", "emotion expression", "emotion regulation" (Palmer et al., 2003). Moreover, 12-item grit scale and satisfaction with life scale are not indigenous scales and have been originally constructed for the population representing western and individualistic culture. Predictive validity of grit is little known in the context of Pakistani population.

## 8. Conclusion

The author's research shows that the present study is the first to study all three constructs within Pakistani cultural context. The study concludes that emotional intelligence (as conceptualized by Bar On) and grit positively impact the extent of life satisfaction, regardless of the strength of relationship. Remarkably, a moderately strong relationship was found between grit and emotional intelligence. This also implies that improving and working on one of the aforementioned traits will also enhance the other trait within an individual. Academic year and academic major did not show any significant differences in emotional intelligence and grit. Significant gender differences were exhibited in emotional intelligence but not in grit. The present study assumes the collectivistic nature of culture to be responsible for these findings. SWLS and 12-item grit scale are employed, which can be beneficial for future research to validate the usage of these instruments within Pakistani cultural context.

## Declarations

### Author contribution statement

Noor Ul Ain: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Maryam Munir, Ivan Suneel: Conceived and designed the experiments.

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### Data availability statement

Data will be made available on request.

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The authors declare no conflict of interest.

### Additional information

No additional information is available for this paper.

## References

- Adewumi, B., Ajayi, O., 2017. Psychological Factors Influencing Life Satisfaction of Undergraduates.
- Ali, J., Rahman, A., 2012. A comparative study of grit between male and female fencers of Manipur. *Shield-Res. J. Phys. Educ. Sport Sci.* 7.
- Barki, N., Choudhry, F.R., Munawar, K., 2020. The satisfaction with life scale: psychometric properties in Pakistani population. *Med. J. Islam. Repub. Iran* 34 (1), 1086–1091.
- Bar-On, R., 2005. The impact of emotional intelligence on subjective well-being: research article: general. *Perspect. Educ.* 23 (1), 41–62.
- Bar-On, R., 2006. The Bar-On model of emotional-social intelligence (ESI) 1. *Psicothema* 18, 13–25 (Suplemento).
- Batool, S.S., Khalid, R., 2011. Development of indigenous scale of emotional intelligence and evaluation of its psychometric properties. *Pak. J. Soc. Clin. Psychol.* 9, 66.
- Behlaur, S., 2010. Life Satisfaction: a Study of Undergraduate and Graduate Students.
- Bibi, A., Saleem, A., Khalid, M.A., Shafique, N., 2020. Emotional intelligence and aggression among university students of Pakistan: a correlational study. *J. Aggress. Maltreat. Trauma* 1–15.
- Bibi, S., Saqlain, S., Mussawar, B., 2016. Relationship between emotional intelligence and self esteem among Pakistani university students. *J. Psychol. Psychother.* 6 (4), 1–6.
- Bowman, N.A., Hill, P.L., Denson, N., Bronkema, R., 2015. Keep on truckin' or stay the course? Exploring grit dimensions as differential predictors of educational achievement, satisfaction, and intentions. *Soc. Psychol. Personal. Sci.* 6 (6), 639–645.
- Cheema, S.A., Sajid, A., Hassan, A., 2020. The association of grit and burnout among gynecological post-graduate residents: a cross-sectional study. *Annal. King Edward Med. Univ.* 26 (3), 462–467.
- Datu, J.A.D., Valdez, J.P.M., King, R.B., 2016. Perseverance counts but consistency does not! Validating the short grit scale in a collectivist setting. *Curr. Psychol.* 35 (1), 121–130.
- Diener, E., Diener, M., 2009. Cross-cultural correlates of life satisfaction and self-esteem. In: *Culture and Well-Being*. Springer, Dordrecht, pp. 71–91.
- Diener, E., Emmons, R.A., Larsen, R.J., Griffin, S., 1985. The satisfaction with life scale. *J. Pers. Assess.* 49, 71–75.
- Duckworth, A.L., Eskreis-Winkler, L., 2013. True grit. *APS Obs.* 26 (4).
- Duckworth, Angela, Peterson, Christopher, Matthews Michael, D., Kelly Dennis, R., 2007. Grit: perseverance and passion for long-term goals. *J. Pers. Soc. Psychol.* 92, 1087–1101.
- Duckworth, A.L., Quinn, P.D., 2009. Development and validation of the short grit scale (grit-S). *J. Pers. Assess.* 91 (2), 166–174.
- Escoda, N.P., Alegre, A., 2016. Does emotional intelligence moderate the relationship between satisfaction in specific domains and life satisfaction? *Int. J. Psychol. Psychol. Ther.* 16 (2), 131–140.
- Fischer, A.H., Rodriguez Mosquera, P.M., Van Vianen, A.E., Manstead, A.S., 2004. Gender and culture differences in emotion. *Emotion* 4 (1), 87.
- Gannon, N., Ranzijn, R., 2005. Does emotional intelligence predict unique variance in life satisfaction beyond IQ and personality? *Pers. Individ. Differ.* 38, 1353–1364.
- Gökçen, E., Furnham, A., Mavroveli, S., Petrides, K.V., 2014. A cross-cultural investigation of trait emotional intelligence in Hong Kong and the UK. *Pers. Individ. Differ.* 65, 30–35.
- Hasan, H.E.A., Munawar, K., Khaiyom, J.H.A., 2020. Psychometric properties of developed and transadapted grit measures across cultures: a systematic review. *Curr. Psychol.* 1–19.
- Jain, Divya, 2015. Emotional Intelligence & its Relationship with Life Satisfaction.
- Judge, T.A., Bono, J.E., Erez, A., Locke, E.A., 2005. Core self-evaluations and job and life satisfaction: the role of self-concordance and goal attainment. *J. Appl. Psychol.* 90 (2), 257.
- Khan, B.M., Khan, A.M., 2017. Grit, happiness and life satisfaction among professionals: a correlational study. *J. Psychol. Cognit.* 2 (2), 123–132.

- Li, J., Fang, M., Wang, W., Sun, G., Cheng, Z., 2018. The influence of grit on life satisfaction: self-esteem as a mediator. *Psychol. Belg.* 58 (1).
- Majeed, U., Sardar, Z., Kiran, N., Suqrat, H., Sardar, H., Adil, S., 2019. Association of grit with depression among medical students. *Annal. Punjab Med. Coll.* 13 (4), 260–262.
- Muenks, K., Wigfield, A., Yang, J.S., O'Neal, C.R., 2017. How true is grit? Assessing its relations to high school and college students' personality characteristics, self-regulation, engagement, and achievement. *J. Educ. Psychol.* 109 (5), 599.
- Naseem, K., 2018. Job stress, happiness and life satisfaction: The moderating role of emotional intelligence empirical study in telecommunication sector Pakistan. *J. Soc. Sci. Humanit. Stud.* 4 (1), 7–14.
- O'Connor, P.J., Hill, A., Kaya, M., Martin, B., 2019. The measurement of emotional intelligence: a critical review of the literature and recommendations for researchers and practitioners. *Front. Psychol.* 10, 1116.
- Palmer, B., Donaldson, C., Stough, C., 2002. Emotional intelligence and life satisfaction. *Pers. Individ. Differ.* 33 (7), 1091–1100.
- Palmer, B.R., Manocha, R., Gignac, G., Stough, C., 2003. Examining the factor structure of the Bar-On Emotional Quotient Inventory with an Australian general population sample. *Pers. Individ. Differ.* 35 (5), 1191–1210.
- Parker, J.D., Summerfeldt, L.J., Hogan, M.J., Majeski, S.A., 2004. Emotional intelligence and academic success: examining the transition from high school to university. *Pers. Individ. Differ.* 36 (1), 163–172.
- Perazzo, M.F., Abreu, L.G., Pérez-Díaz, P.A., Petrides, K.V., Granville-Garcia, A.F., Paiva, S.M., 2020. Trait emotional intelligence questionnaire-short form: Brazilian validation and measurement invariance between the United Kingdom and Latin-American datasets. *J. Pers. Assess.* 1–10.
- Runcan, P.L., Iovu, M.B., 2013. Emotional intelligence and life satisfaction in Romanian university students: the mediating role of self-esteem and social support. *Revista Cercetare și Intervenție Socială* 40, 137–148.
- Sánchez-Ruiz, M.J., Perez-Gonzalez, J.C., Petrides, K.V., 2010. Trait emotional intelligence profiles of students from different university faculties. *Aust. J. Psychol.* 62 (1), 51–57.
- Shahzad, S., Bagum, N., 2012. Gender differences in trait emotional intelligence: a comparative study. *Bus. Rev.* 7 (2), 106–112.
- Sharma, S., Deller, J., Biswal, R., Mandal, M.K., 2009. Emotional intelligence: factorial structure and construct validity across cultures. *Int. J. Cross Cult. Manag.* 9 (2), 217–236.
- Singh, K., Jha, S.D., 2008. Positive and negative affect, and grit as predictors of happiness and life satisfaction. *J. Indian Acad. Appl. Psychol.* 34 (2), 40–45.
- Stamatopoulou, M., Galanis, P., Prezerakos, P., 2016. Psychometric properties of the Greek translation of the trait emotional intelligence questionnaire-short form (TEIQue-SF). *Pers. Individ. Differ.* 95, 80–84.
- Suh, E., Diener, E., Oishi, S., Triandis, H.C., 1998. The shifting basis of life satisfaction judgments across cultures: emotions versus norms. *J. Pers. Soc. Psychol.* 74 (2), 482.
- Vainio, M.M., Daukantaitė, D., 2016. Grit and different aspects of well-being: direct and indirect relationships via sense of coherence and authenticity. *J. Happiness Stud.* 17 (5), 2119–2147.
- Von Culin, K.R., Tsukayama, E., Duckworth, A.L., 2014. Unpacking grit: motivational correlates of perseverance and passion for long-term goals. *J. Posit. Psychol.* 9 (4), 306–312.
- Wang, Y., Kong, F., 2014. The role of emotional intelligence in the impact of mindfulness on life satisfaction and mental distress. *Soc. Indic. Res.* 116 (3), 843–852.