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Psychometric Properties of Scale for Emotional Intelligence (Short-Form)

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Abstract

The study established psychometric properties of the *Scale for Emotional Intelligence* (SEI)-Short form developed by Dawood et al. (2007) by employing a cross-sectional research design. The data were collected from students at four public universities of Pakistan representing four provinces. A sample of n = 776 men and n = 1124 women university students was taken with age range of 18-25 years (M = 21.73, SD = 1.65). Confirmatory factor analysis reflected five themes: *Self-Awareness* (17 items); *Self-Regulation* (9 items); *Motivation* (28 items); *Empathy* (23 items); and *Social Skills* (31 items). Reliabilities of SEI-Short-form ranged from (Cronbach α = .58 to .92). It is concluded that SEI-Short form is a reliable tool for the assessment of emotional intelligence.

Keywords: *Emotional intelligence, factor structure, Goleman's model, university students*

Introduction

Emotional intelligence (EI) was introduced in psychological literature somewhere 20 years ago by Salovey and Mayer (1990) and since then has gained extensive attention as an explanatory variable for important health and life outcomes such as psychological well-being, marital adjustment, and occupational success (Batool & Khalid, 2012; Benzo et al., 2016; Hurley et al., 2018; Shahzad et al., 2011). Emotional intelligence (EI) is a multidimensional construct broadly defined as a set of competencies, abilities, and dispositions related to perceiving, understanding, expressing, and managing one's own and others emotions (Bar-On & Parker, 2000) with three models viz., *ability/intelligence model* (Mayer & Salovey, 1993), *mixed or performance model* (Goleman, 1995), and *personality trait model* (Bar-On & Parker, 2000).

Early studies led to the development of various emotional intelligence (EI) tests (e.g., Bar-On, 1997, Schutte et al., 1998; Mayer et al.,1999), which assessed different yet related underlying constructs about EI. Petrides and Furnham (2000) initially classified EI measures into two types: Ability EI measures and trait EI measures. Ability EI measures were based on performance items similar to cognitive intelligence and captured the ability to use emotions and emotional knowledge; while trait EI measures were based on self-report items that captured what an individual does to perceive emotional abilities in others.

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On the other hand, Ashkanasy and Daus (2005) classified EI measures into three streams which comprised of ability EI measures (Stream 1) and trait EI measures (Stream 2) based on Salovey and Mayer (1990) model; and mixed model (Stream 3) measures that included items that resembled items of the two measures above and additionally comprised of a mixture of behavioral and personality items. Despite rapid growth, concerns about EI assessment methods have been a recurring theme of many critical commentaries (Murphy, 2006). One criticism that is generally held against applied EI research is its failure to take into account conceptual construct of EI multidimensionality (Smith et al., 2009). Several theoretical models have explained the nature of EI and proposed its different dimensions, multiple psychological systems, processes, and domains (Bar-On, 1997; Goleman, 1995; Salovey & Mayer, 1990). When applied EI researches do not take into account the non-homogenous nature of EI such as different EI models and questionnaires are treated as mutually interchangeable and different EI domains are combined into a single composite score, it can result in inaccurate decisions for test-takers (Smith et al., 2009; Zeidner et al., 2008). Using such EI measures in studies that have inadequate psychometric properties is another criticism that needs to be received with due attention. Besides many better validated scales are all fairly long, i.e., have over 100 statements and research participants find it difficult to complete such scales due to time constraints (Ackley, 2016; O'Connor et al., 2019; Parker et al., 2011). Lastly, it is important to take into account cross-cultural validity of the EI construct and measures. Researchers (Matsumuto et al., 2008) maintain that cultural heritage and contexts influence emotional responses of individuals and that people's emotional understanding and expressions can vary across cultures. Different theoretical models of EI when developed did not pay much attention to cross-cultural evidence to validate their theoretical positions (Bar-On, 2006; Goleman, 1995; Mayer et al., 2004). It is possible that some domains of EI are more culture-specific while other EI domains contain pan-cultural characteristics. Hence, generalizability across language and culture is important for the

assessment of an EI structure or taxonomy (Parker et al., 2005; Sharma et al., 2009).

There is no scarcity of empirical literature in Pakistan on the construct of EI and many researchers in Pakistan have identified significant correlates and outcomes of EI across different settings and populations (Ahmed et al., 2019; Bibi et al., 2019; Ghafoor et al., 2019; Khan et al., 2018; Khan & Imran, 2019). However, fewer studies in Pakistan has been dedicated to developing EI measures. Hence, a psychometrically sound, culturally embedded, and a conceptually comprehensive measure of EI is needed to further advance the field of EI in Pakistan. Dawood et al., (2007) developed a self-reported Scale for Emotional Intelligence (SEI) in Urdu to measure trait EI. Self-reported EI questionnaires show superior explanatory power and incremental validity over ability EI tests in predicting several outcomes, i.e., job performance (O'Boyle et al., 2011). SEI (Dawood et al., 2007) had 319 items and was developed using analytic approach following theoretical rationale of Goleman's model (1995). SEI consisted of 5 domains (*Self-Awareness, Self-Regulation, Motivation, Empathy, & Social Skills*) and 19 sub-domains. The domain of *Self-Awareness* entails recognizing one's own emotions and their effects, having a sense of self-worth, and knowing one's strengths and weaknesses. The domain of *Self-Regulation* reflects the capacity to control or redirect disruptive emotions and impulses and the tendency to handle conflicts effectively. The domain of *Motivation* indicates use of emotional tendencies such as persistence and energy that help people realize their potentials and goals. The domain of *Empathy* is concerned with ability to understand other people's needs, feelings, and problems. The last domain of *Social Skills* reflects the ability to find common grounds and to induce desirable responses in others. At present, the efforts were made to develop a short-form of SEI which is psychometrically sound and conceptually comprehensive.

Objective of the Study

The objective of present study was to examine the factorial structure and internal consistency of short version of SEI (Dawood et al., 2007).

Method

Participants

776 men and 1124 women (N = 1900) university students were taken from four public universities; one from each province of Pakistan. The age of the university students ranged between 18 to 25 years (M = 21.73, SD = 1.65) (see Table 1). The students with physical disabilities, self-reported or diagnosed psychological disorders or studying in psychology departments were excluded.

Table 1

Demographic Characteristics of the Sample (N=1900)

Variable	*f (%)*
Age (M = 21.73, SD = 1.65)	
Gender	
Men	776 (41%)
Women	1124 (59%)
University Name (Province)	
1) University of Balochistan, Quetta (Balochistan)	120 (6%)
2) Karachi University, Karachi (Sindh)	460 (24%)
3) University of Peshawar, Peshawar (Khyber Pakhtunkhwa)	260 (14%)
4) University of the Punjab, Lahore (Punjab)	1060 (56%)
Degree Program	
Undergraduate	1828 (96%)
Postgraduate	72 (4%)
Religion	
Islam	1871 (99%)
Christianity	29 (1%)

Instruments

Demographic Information Sheet. University students were requested to provide information about their age, gender, religion, degree program, and presence of psychological disorder on this demographic information sheet.

Scale for Emotional Intelligence (SEI) developed by Dawood et al. (2007) was used to assess EI, based on trait based model (Goleman, 1995). The long form of scale consisted of 319 items. Participants responded items on a 5-point Likert scale where '1' meant "*High level of disagreement*" and '5' meant "*High level of agreement*". It has 5 subscales: *Self-Awareness* (73 items); *Self-Regulation* (54 items); *Motivation* (67 items); *Empathy* (49 items); and *Social Skills* (76 items). Higher scores indicated high level of EI.

Procedure

The present study used a cross-sectional research design. Formal permission was sought for the purpose of data collection from respective authorities of all four target universities (see Table 1) and data were collected from those university students who met inclusion and exclusion criteria of the study. University students were requested to give written consent and were also briefed about purpose of the study. They were explained that their data and personal information would remain confidential and anonymous. They were also told about their rights for voluntary participation and withdrawing from the study at any point without penalty. All participants completed demographic sheet and SEI (Dawood et al., 2007). For this study, 2000 participants were approached out of which 20 university students refused to participate due to time limitations and 80 forms were discarded as the forms were incomplete. Response rate of the study was 98%. Hence, the final sample consisted of 1900 university students. The data were collected through group administration of the questionnaire was done.

Results

Factor analysis was run through Statistical Package for Social Sciences (SPSS: Version 22) to make SEI a quicker and easily administered measure with appropriate item size and insured that original information is retained as much as possible. Overall, five principle component analyses with Orthogonal Varimax rotation were carried out on five domains of SEI: *Self-Awareness, Self-Regulation, Motivation, Empathy,* and *Social Skills*. Kaiser-Meyer Olkin values in all analyses were greater than 0.6 indicating that sample size was adequate and factor analysis would produce reliable and distinct factors.

Assumptions of Bartlett's test of sphericity ($p < .05$) was met for all analyses, indicating that items were well correlated with one another. Initially, Eigen values and scree plots were checked to extract sub-domains from five domains of SEI. Those items were retained that had factor loadings ≥ .50 resulting into 17 items for *Self-Awareness*; 9 items for *Self-Regulation*; 28 items for *Motivation*; 23 items for *Empathy*; and 31 items for *Social Skills* with a total of 108 items. Reliability coefficients for *Empathy* and *Social Skills* were higher but moderate for *Self-Awareness*, *Self-Regulation* and *Motivation* domains (see Table 2).

Table 2

Factor Loadings, Eigen Values, Percentage Variance, and Alpha Reliabilities for Principal Factor Extractions and Varimax Rotation on SEI Items

No	Item	1	Item	2	Item	3	Item	4	Item	5
1	A2	.50	B1	.54	C1	.58	D1	.59	E2	.58
2	A5	.53	B2	.62	C2	.60	D2	.61	E3	.63
3	A9	.58	B24	.58	C3	.51	D3	.51	E4	.57
4	A13	.52	B26	.50	C5	.57	D4	.61	E7	.55
5	A17	.54	B29	.53	C6	.51	D5	.60	E11	.51
6	A21	.64	B46	.56	C7	.53	D7	.67	E12	.54
7	A22	-.58	B47	.56	C8	.56	D8	.55	E17	.56
8	A25	.50	B49	.55	C12	.59	D9	.51	E18	.53
9	A37	.55	B54	.52	C13	.58	D10	.54	E19	.60
10	A41	.54			C14	.53	D12	.53	E20	.53
11	A45	.63			C21	.54	D14	.57	E26	.53
12	A52	.54			C25	.52	D16	.54	E29	.54
13	A53	.57			C29	.60	D23	.52	E32	.56
14	A58	-.62			C30	.59	D26	.56	E37	.51
15	A60	.52			C32	.54	D28	.67	E40	.51
16	A68	.63			C39	.52	D30	.59	E45	.54
17	A73	.58			C40	.57	D31	.59	E46	.65
18					C42	.58	D33	.55	E55	.60
19					C45	.64	D34	.54	E58	.51
20					C48	.60	D37	.55	E60	.54
21					C50	.57	D38	.65	E62	.54
22					C51	.62	D39	.62	E63	.53
23					C54	.62	D45	.55	E64	.58
24					C57	.64			E67	.51
25					C64	.54			E70	.63
26					C65	.50			E71	.62
27					C66	.57			E73	.67
28					C67	.63			E74	.68
29									E75	.64
30									E76	.68
31									E77	.57
Eigen Value		13.46		18.77		13.54		21.02		28.11
Variance (%)		24.94		25.73		27.61		31.35		36.51
Cronbach α		.63		.58		.84		.79		.92

Note: A = Self-Awareness, B = Self-Regulation, C = Motivation, D = Empathy, E = Social Skills

All domains of SEI positively correlated with each other (Table 3). An overall analysis clearly indicates homogeneity of the construct for short form of SEI which is reflected through positive relationship amongst the scales.

Domains	SR	EMP	MOT	SS
SA	.17†	.44†	.51†	.40†
SR	-	.35†	.36†	.37†
EMP		-	.50†	.65†
MOT			-	.51†

Note: SA=Self-Awareness, SR=Self-Regulation, EMP=Empathy, MOT=Motivation, SS=Social Skills

Discussion

The objective of this study was to extract a brief version of the SEI (Dawood et al., 2007) and to determine its internal consistency. Confirmatory factor analysis was performed and several items from the five domains were removed due to unsatisfactory factor loadings resulting in 108 items compared to original version with 319, indicating a reduction in about two thirds of the items. The final scale showed 5 subscales with following number of items: *Self-Awareness* (17); *Self-Regulation* (9); *Motivation* (28); *Empathy* (23); and *Social Skills* (31). Internal consistency coefficients of all domains of the SEI were adequate and satisfactory (Cronbach α = .58 to .92). Previous studies show similar results (Carson et al., 2000; Boyatzis & Goleman, 2007; Krishnaveni & Ranganath, 2011).

The result of present study showed that all the domains of SEI (such as *Self-Awareness, Self-Regulation, Motivation, Empathy,* and *Social Skills*) had positive relationships with each other. It showed that an individual with high self-awareness would have high self- regulation, motivation, empathy and social skills. In conclusion, the present study supports the theoretical framework given by Goleman in 1995.

Limitations and Future Recommendations

This study is not without its limitations. First, convergent and discriminant validity for SEI were not assessed. Though, factor analysis on SEI reduced the number of items from 319 (Long-form) to 108 (Short-form), but still it's a fairly lengthy scale and when used in certain contexts such as research with clinical population; its length may render it unfeasible to use. Applicability of SEI-Short form across other age groups such as on elderly and adolescent sample is warranted in future studies.

Conclusion

The short-form of SEI (Dawood et al., 2007) is a self-report scale based on the theoretical framework of Goleman (1995), and provides a reliable measure to assess EI in university students of Pakistan. Factor analysis has resulted in a shorter version of SEI which can be an efficient way to assess EI of those who are similar in age of university students, and this instrument would be useful in academia, industry and to use it with clinical population.

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