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Emotional intelligence and its association with working environmental factors and spiritual intelligence: testing the instruments among Malaysian Ministry of Health government doctors

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Abstract

Emotional intelligence has been cited as one of the innovations in this century particularly valuable in testing the low-order personality trait, of which is the trait model of emotional intelligence. Another set of emotional intelligence test lies in the ability model, which is not assessed in this study. This study investigates the trait emotional intelligence and its association with working environmental factors, namely organisational culture, cultural competence and cultural awareness; and spiritual intelligence among 166 doctors working in five different state hospitals in Malaysia. The state hospitals chosen were from the 5 different regions in Malaysia, namely the Hospital Pulau Pinang, Hospital Raja Perempuan Zainab 2, Hospital Kuala Lumpur, Hospital Sultanah Aminah Johor Bahru, and Hospital Umum Sarawak. The results showed that the Schutte Self-Report Emotional Intelligence Test (SSEIT), Competing Value Framework (CVF), Cultural Competence Assessment (CCA), Spiritual Intelligence Self-Report Inventory (SISRI), Interpersonal Support Evaluation List-12 (ISEL-12), are significant, whereas Ten-Item Personality Inventory (TIPI) is mediocre in the Kaiser–Meyer–Olkin (KMO) test, and Bartlett's test of sphericity shows that all are

significant for Principal Component Analysis. The construct validity and reliability were tested for all these items and results were as shown. In conclusion, this pilot study has been successful in helping to form a desirable tool to measure emotional intelligence among doctors in government hospitals in Malaysia and its associated working environmental factors and spiritual intelligence.

Keywords: emotional intelligence, working environmental factors, spiritual intelligence, MOH doctors

Introduction

Emotional intelligence has been categorised as one of the most innovative in terms of psychological constructs in the field of medicine and psychology within this century, and at this moment the research surrounding the topic has become a huge boom (Mercader-Rubio et al. 2022; Cowden 2020; Lee & Chelladurai 2018; Mohammadi Orangi et al. 2020; Riberiro et al. 2018). In a short description, there are two models that becomes the huge determinants of one's emotional intelligence, they are the ability model and the traits model (Mercader-Rubio et al. 2022). The differences between these two have been explained in numerous literatures and centre around the concepts provided by each model, the goals which they set out to pursue, the methods of assessment for each of the model, and the different dimensions which mould the measured construct (Mayer, Salovey, & Caruso 2000; 2008). Daniel Goleman, is a renowned world psychologist who has his share of glory in introducing the Goleman Model of Emotional Intelligence. He has produced multiple books and researches on emotional intelligence and even has his own scale in measuring emotional intelligence. However, as has been stated by Daniel Goleman, there are similarities in both models, and these are evident in the dimensions each model intends to measure, the identification of one's emotions, how the emotions are expressed in each individual, the regulation of an individual's emotions, and the utilisation of emotions in tackling specific circumstances (Zeidner, Matthews, & Roberts 2009). In the purpose of this study, we have chosen to utilise the latter model, which is the traits model to measure the emotional intelligence among a set of doctors working in the government sector, namely the Ministry of Health of Malaysia. Trait emotional intelligence has been categorised under the low-order personality trait, which basically points to a group of emotional-related dispositions and self-contemplation and the method of measurement relies on self-reports (Chen et al. 2022).

It is noted that in the lives of doctors, especially the junior doctors starting out in their residency, it is often a stressful period, with overwhelming workload, and having to work long hours. Other than these, they also have to go through immense academic pressure in the name of knowledge accumulation, and have the lives of patients depend on them at the same time as increasing their knowledge exponentially. Doctors are often burdened with immense responsibilities at their workplace. However, they have very little autonomy besides having a high degree of interference in terms of work-home responsibilities, personal, and interpersonal commitments. It is no wonder that these doctors, who are deemed as life-saving machines, develop perceived stress, which in turn progressively turns into burnout. The increasing perceived stress commonly occurs among the primary caregivers in the tertiary care settings, and these often involve the residents, which will translate to dissatisfaction and stress-induced morbidities, eventually leading to patient dissatisfaction (Mitra et al. 2018; Thomas 2004). The main aim of this study is to investigate the trait emotional intelligence

and its association with working environmental factors and spiritual intelligence among 165 doctors working in five different state hospitals in Malaysia. This study is meant to investigate the validity and reliability of the questionnaire.

Methodology

In this study, 166 doctors in five state hospitals in Malaysia are conveniently sampled to answer a set of questionnaires. These questionnaires included are Schutte Self-Report Emotional Intelligence Test (SSEIT), Competing Value Framework (CVF), Cultural Competence Assessment (CCA), Spiritual Intelligence Self-Report Inventory (SISRI), Interpersonal Support Evaluation List-12 (ISEL-12), and Ten-Item Personality Inventory (TIPI). Five state hospitals each from different zones were chosen for this study. These five state hospitals were chosen as they are located in the five different zones of Malaysia and represent each zone. The maximum number of items in this questionnaire is 33, which translates to a sample size of 165 for the study to be statistically valid. This is in accordance to the guidelines by Tsang, Royse, & Terkawi (2017), which stated that the guidelines for respondent to item ratio is 5:1.

Instruments

This study utilises a combination of questionnaires in order to produce a final questionnaire which serves the purpose of investigating all the variables stated in the objectives and hypothesis. This questionnaire consists of 7 parts. Part A consists of the sociodemographic questions. In this part, there are 9 questions, which are gender, age, marital status, race, level of education, number of children, number of dependents, doctor grade, and total amount of income.

Part B is the adaptation of the Competing Value Framework (CVF) in order to assess organisational culture. This part consists of 14 organisational culture questions adapted from the Quality Improvement Implementation Survey (Helfrich et al. 2007; Shortell et al. 1995). Participants scored each item on a five-point Likert scale measuring agreement or disagreement with how well the statement describes their facility. Convergent-divergent properties of the items were tested by assessing the item-rest correlation and then compares it to the correlation of the item to each of the three subscales which it did not belong to. An item-rest correlation of 0.20 is considered minimum acceptable level for retaining items in a subscale. In any case, item-rest correlation should be more than the correlations of the item of the other three subscales of which it did not belong to. Cronbach's alpha was also calculated, which reflects both the length of a scale and the average correlation among items within a scale. An alpha of 0.80 or greater is considered an acceptable scale reliability (Bernard 2000). Item-rest correlations fulfilled conventional minimum thresholds of 0.20 for all four subscales, which indicates that no individual items had exceptionally poor correlations with their subscales. The team, entrepreneurial, and rational subscales met conventional minimum thresholds for Cronbach's alpha statistics of 0.80, but the hierarchical subscale did not, alpha = 0.69 (Helfrich et al. 2007).

Part C is the Cultural Competence Assessment (CCA). This part consists of 25 questions, with 17 cultural competence questions and 8 assessing cultural awareness. These questions are scored on a 4-point Likert scale ranging from high to low. Final scale internal consistency reliability for the 25-item CCA was 0.92. Internal consistency for the 17-item cultural

competence (behaviour) subscale was 0.93 and internal consistency for the 8-item awareness and sensitivity subscale was 0.75 (Schim et al. 2003).

Part D is the spiritual intelligence scale, also called SISRI (Antunes, Silva & Oliveira 2018). It consists of 24 items designed to measure various behaviours, thought processes, and mental characteristics. It is scored on a 5-point Likert scale ranging from not at all true of me, to completely true of me. The Cronbach's alpha score was 0.88 and the content and face validity of the scale was verified by experts in psychology (Antunes, Silva & Oliveira 2018). Its four subscales are:

1. Critical Existential Thinking: Existential thinking tends to the capacity that functions as a severe element in observation to creation of life, actuality of things, the existing universe, time, area, and other metaphysical experiential troubles. Further critical existential thinking may include the potential that could contemplate the non-existential matters that are present in one's existence.

2. Personal Meaning Production: All the physical and intellectual experiences are linked with capability and the purpose that may include the purposive life standard or lifestyle that an individual tends to create according to his capacity.

3. Transcendental Awareness: The ability to become aware of transcendent dimension/patterns of the self and others, and of the physical global throughout states of recognition, observed by the ability to become aware of their courting to one's self and the bodily.

4. Conscious State Expansion: A potential-1 in conscious state expansion includes a refined and improved state of consciousness that might include pure attention, a proper cohesion process, and a sense of oneness. Further personal discretion and different other states such as deep contemplation, prayer, and much more could be included in it.

Part E, which is the Schutte Self-Report Emotional Intelligence Test (SSEIT), is the main questionnaire measuring emotional intelligence in the participants. It is a 33-item questionnaire scored on a 5-point Likert scale, ranging from strongly disagree to strongly agree. This test questions are further divided into four subscales. They are perception of emotions, managing emotions in the self, social skills or managing others' emotions, and utilizing emotions. The scales are as follows: Perception of Emotion (items 5, 9, 15, 18, 19, 22, 25, 29, 32, 33), Managing Own Emotions (items 2, 3, 10, 12, 14, 21, 23, 28, 31), Managing Others' Emotions (items 1, 4, 11, 13, 16, 24, 26, 30), and Utilisation of Emotion (items 6, 7, 8, 17, 20, 27). The internal consistency reliability as measured by Cronbach's alpha coefficient was 0.90, with a test-retest reliability of 0.78 in two weeks. Convergent and divergent validity were found in this test comparing it with other available emotional intelligence tests. Schutte et al. has recommended this test be used for research purposes (Schutte, Malouff & Bhullar 2009; Schutte et al. 1998).

Part F consists of the Social Support Questionnaire – shortened version (ISEL-12). This part has 12 questions measuring functional social support. The items are scored on a 4-point Likert scale ranging from definitely false to definitely true. Confirmatory factor analyses revealed that the one-factor and three-factor models fit the data equally well. These items are scored on three subscales representing perceived availability of appraisal (advice or guidance), belonging (empathy, acceptance, concern), and tangible (help or assistance, such

as material or financial aid) social support. The Cronbach's alpha coefficient was held well above 0.70. For convergent validity, ISEL-12 scores correlated positively with network integration and life engagement, and inversely with stress, anxiety, and depression (Merz et al. 2014). This part is used to address one of its confounders, which is social support.

The last part is Part G. Part G comprises the Ten-Item Personality Inventory-(TIPI). This is a test of personality and is used to address the confounder of personality traits in affecting emotional intelligence scores. This test is as its name suggests, a 10-item inventory scored on a 7-point Likert scale, ranging from disagree strongly, to agree strongly. TIPI has a Cronbach's alpha coefficient of 0.71 (Umeaku, Nnedum & Nweke 2021). The TIPI also generated comparable structural validity with ten items deemed suitable for Principal Component Analysis (Thørrisen, Sadeghi & Wiers-Jenssen 2021).

Results

The pilot study was analysed using IBM SPSS Statistics version 26. The results obtained is as follows. Table 1 shows the frequency and percentages of the different sociodemographic factors investigated in this study.

Table 1: Frequency and percentages (n=166)

		Frequency	Percent (%)
Gender	Female	101	60.8
	Male	65	39.2
Marital status	Divorced	1	0.6
	Married	92	55.4
	Single	73	44.0
Race	Chinese	67	40.4
	Indian	26	15.6
	Malay	67	40.4
	Others	6	3.6
Highest level of education	Master	40	24.1
	PhD	6	3.6
	Primary degree	120	72.3
Grade of doctor	JUSA A	2	1.2
	JUSA C	7	4.2
	UD41/eq	40	24.1
	UD44/eq	28	16.9
	UD48/eq	40	24.1
	UD52/eq	17	10.2
	UD54/eq	32	19.3
Hospital	Hospital Kuala Lumpur	30	18.0
	Hospital Pulau Pinang	54	32.5
	Hospital Raja Perempuan Zainab II	24	14.5
	Hospital Sultanah Aminah Johor Bharu	22	13.3
	Hospital Umum Sarawak	36	21.7

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Figure 1 shows the histogram of emotional intelligence score among the 166 doctors pooled in this study. This histogram shows that the emotional intelligence score is a normal-curve and the mean is 124.55 with a SD of 18.20.

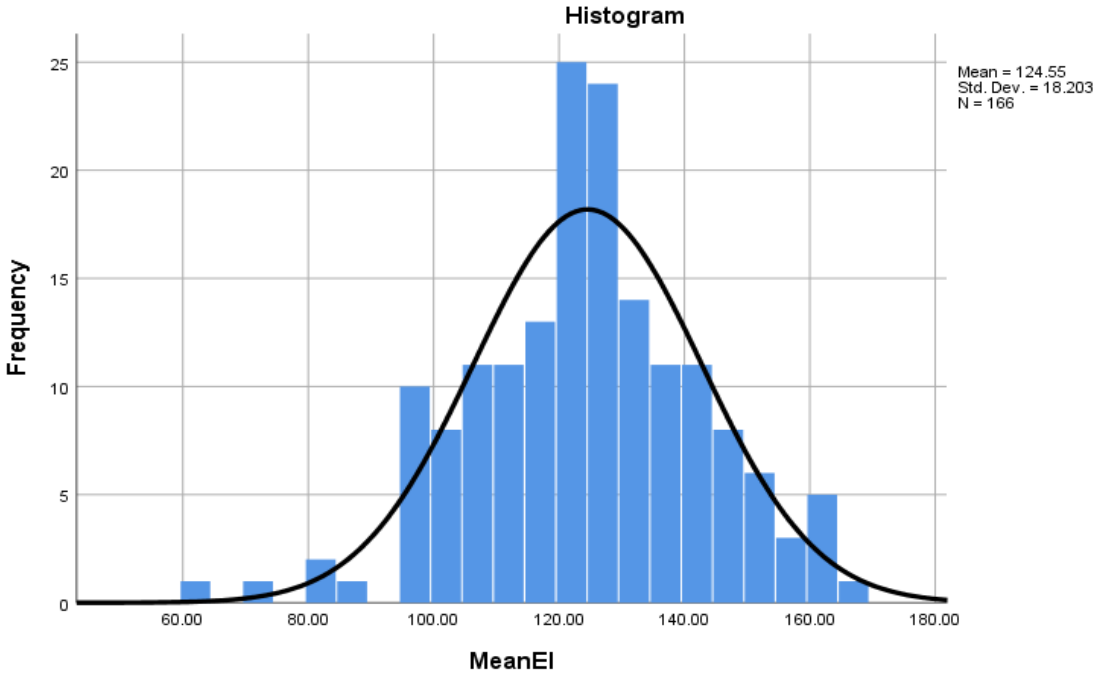

Figure 1: The histogram of Emotional Intelligence Score

Table 2 shows the descriptive analysis with mean, standard deviation, minimum, maximum and percentiles of age, number of children, number of dependents, total invidividual monthly income, and total household monthly income.

Table 2: Descriptive analysis

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles 25	Percentiles 75
Age (in years)	166	34.14	6.68	25.00	62.00	29.50	38.00
Number of children	166	1.07	1.33	0	5.00	0	2.00
Number of dependents	166	1.99	1.66	0	8.00	0	3.00
Total individual monthly income (RM)	166	7,867.01	4,645.74	3,000.00	30,000.00	5,000.00	9,000.00
Total household monthly income (RM)	166	12,011.21	9,575.30	3,000.00	75,000.00	5,000.00	15,000.00

Table 3 shows the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's test of sphericity of all the constructs utilised in this study.

Table 3: Kaiser–Meyer–Olkin (KMO) measure and Bartlett's test of sphericity

Construct	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	p-value
B	0.86	1106.99	91	<0.001
CC	0.88	1397.07	136	<0.001
CA	0.90	686.76	28	<0.001
D	0.92	2650.89	276	<0.001
E	0.90	3475.03	528	<0.001
F	0.80	891.57	66	<0.001
G	0.63	401.84	45	<0.001

Table 4 shows the initial Eigenvalues of the constructs investigated in this study.

Table 4: Initial Eigenvalues

		Component						
Construct	Initial Eigenvalues	1	2	3	4	5	6	7
B	Total	5.71	2.19					
	% of Variance	40.77	15.63					
	Cumulative %	40.77	56.40					
CC	Total	6.97	1.74	1.33	1.01			
	% of Variance	41.02	10.24	7.84	5.97			
	Cumulative %	41.02	51.26	59.10	65.07			
CA	Total	4.64						
	% of Variance	57.94						
	Cumulative %	57.94						
D	Total	10.836	2.00	1.69	1.15	1.08		
	% of Variance	45.150	8.34	7.02	4.79	4.48		
	Cumulative %	45.150	53.49	60.52	65.31	69.79		
E	Total	13.40	2.09	1.85	1.40	1.24	1.20	1.10
	% of Variance	40.62	6.34	5.62	4.25	3.76	3.65	3.35
	Cumulative %	40.62	46.97	52.59	56.84	60.60	64.25	67.60

F	Total	4.76	2.09	
	% of Variance	39.64	17.46	
	Cumulative %	39.64	57.09	
G	Total	2.88	1.59	1.41
	% of Variance	28.78	15.90	14.07
	Cumulative %	28.78	44.68	58.75

Table 5 shows the loading factors of the initial screening stage, where an item's loading factor less than 0.6 is automatically dropped from the table.

Table 5: Loading factors

ID	Item	Component						
		1	2	3	4	5	6	7
B1	"1. My facility is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks."	0.79						
B3	"3. Managers in my facility are warm and caring. They seek to develop employees' full potential and act as their mentors or guides."	0.79						
B4	"4. Managers in my facility are risk-takers. They encourage employees to take risks and be innovative."	0.69						
B6	"6. Managers in my facility are coordinators and coaches. They help employees meet the facility's goals and objectives."	0.81						
B7	"7. The glue that holds my facility together is loyalty and tradition. Commitment to this facility runs high."	0.61						
B8	"8. The glue that holds my facility together is commitment to innovation and development. There is an emphasis on being first."	0.75						
B11	"11. My facility emphasizes human resources. High cohesion and morale in the organization are important."	0.70						
B12	"12. My facility emphasizes growth and acquiring new resources. Readiness to meet new challenges is important."	0.67						
B2	"2. My facility is a very formalized and structured place. Bureaucratic procedures generally govern what people do."		0.61					
B5	"5. Managers in my facility are rule-		0.70					

	enforcers. They expect employees to follow established rules, policies, and procedures."				
B9	"9. The glue that holds my facility together is formal rules and policies. People feel that following the rules is important."		0.81		
B13	"13. My facility emphasizes permanence and stability. Keeping things the same is important."		0.67		
C2	"2. I welcome feedback from co-workers about how I relate to others with different cultures."	0.69			
C3	"3. I avoid making generalizations about groups of people (stereotyping)."	0.63			
C4	"4. I act to remove obstacles for people of different cultures when clients and families identify them to me."	0.80			
C5	"5. I act to remove obstacles for people of different cultures when I identify them."	0.79			
C6	"6. I ask clients and families to tell me about their expectations for care."		0.78		
C7	"7. I ask clients and families to tell me about their own explanations of health and illness."		0.78		
C8	"8. I welcome feedback from clients about how I relate to others with different cultures."		0.62		
C11	"11. I recognize potential barriers to service that might be encountered by different people."		0.63		
C9	"9. I document the adaptations I make with clients and families."			0.72	
C10	"10. I document cultural assessments."			0.86	
C12	"12. I use a variety of sources to learn about the cultural heritage of other people."			0.62	
C14	"14. I ask my co-workers not to make comments or jokes about cultural group characteristics in the workplace."				0.69
C15	"15. I learn from my co-workers about people with different cultural heritages."				0.62
C16	"16. I include cultural assessment when I do client or family evaluations."				0.71
C17	"17. I have resource books and other materials available to help me learn about clients and families from different cultures."				0.66
CA18	"18. Even if I know about a person's culture, I assess their personal preferences	0.73			

	for care."				
CA20	"20. Spirituality and religious beliefs are important aspects of many cultural groups."	0.83			
CA21	"21. People with a common cultural background often have individual differences."	0.79			
CA22	"22. I think that knowing about different cultural groups helps direct my work with individual clients and families."	0.85			
CA23	"23. Clients and families may be identified with more than one cultural group."	0.77			
CA24	"24. I believe that everyone should be treated with respect no matter what their cultural heritage."	0.78			
CA25	"25. I understand that people from different cultures may define the concept of "care" in different ways."	0.78			
D7	"7. My ability to find meaning and purpose in life helps me adapt to stressful situations."	0.71			
D11	"11. I am able to define a purpose or reason for my life."	0.70			
D15	"15. When I experience a failure, I am still able to find meaning in it."	0.79			
D19	"19. I am able to make decisions according to my purpose in life."	0.84			
D23	"23. I am able to find meaning and purpose in my everyday experiences."	0.71			
D4	"4. I am able to enter higher states of consciousness or awareness."		0.76		
D8	"8. I can control when I enter higher states of consciousness or awareness."		0.81		
D12	"12. I am able to move freely between levels of consciousness or awareness."		0.77		
D16	"16. I often see issues and choices more clearly while in higher states of consciousness/awareness."		0.69		
D24	"24. I have developed my own techniques for entering higher states of consciousness or awareness."		0.68		
D1	"1. I have often questioned or pondered the nature of reality."			0.77	
D2	"2. I recognize aspects of myself that are deeper than my physical body."			0.69	
D3	"3. I have spent time contemplating the purpose or reason for my existence."			0.73	
D13	"13. I frequently contemplate the meaning of events in my life."				0.69

D17	"17. I have often contemplated the relationship between human beings and the rest of the universe."			0.70		
D21	"21. I have deeply contemplated whether or not there is some greater power or force (e.g., god, goddess, divine being, higher energy, etc.)"			0.69		
RD6	"6. It is difficult for me to sense anything other than the physical and material."				0.89	
E17	"17. When I am in a positive mood, solving problems is easy for me."	0.74				
E20	"20. When I am in a positive mood, I am able to come up with new ideas."	0.62				
E24	"24. I compliment others when they have done something well."	0.68				
E19	"19. I know why my emotions change."		0.61			
E21	"21. I have control over my emotions."		0.82			
E22	"22. I easily recognize my emotions as I experience them."		0.62			
E1	"1. I know when to speak about my personal problems to others."			0.67		
E2	"2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them."			0.74		
E3	"3. I expect that I will do well on most things I try."			0.73		
E9	"9. I am aware of my emotions as I experience them."			0.64		
E4	"4. Other people find it easy to confide in me."				0.61	
E7	"7. When my mood changes, I see new possibilities."				0.66	
E11	"11. I like to share my emotions with others."				0.62	
E16	"16. I present myself in a way that makes a good impression on others."				0.61	
E29	"29. I know what other people are feeling just by looking at them."					0.82
E30	"30. I help other people feel better when they are down."					0.65
E32	"32. I can tell how people are feeling by listening to the tone of their voice."					0.67
RE5	"5. I find it hard to understand the non-verbal messages of other people."					0.72
RE28	"28. When I am faced with a challenge, I give up because I believe I will fail."					0.71
RE33	"33. It is difficult for me to understand why people feel the way they do."					0.78
F3	"3. If I were sick, I could easily find someone to help me with my daily	0.79				

	chores."			
F4	"4. There is someone I can turn to for advice about handling problems with my family."	0.81		
F5	"5. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me."	0.74		
F6	"6. When I need suggestions on how to deal with a personal problem, I know someone I can turn to."	0.82		
F9	"9. If I wanted to have lunch with someone, I could easily find someone to join me."	0.75		
F10	"10. If I was stranded 10 miles from home, there is someone I could call who could come and get me."	0.77		
RF1	"1. If I wanted to go on a trip for a day (for example, to the country or mountains), I would have a hard time finding someone to go with me."		0.69	
RF2	"2. I feel that there is no one I can share my most private worries and fears with."		0.60	
RF7	"7. I don't often get invited to do things with others."		0.70	
RF8	"8. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.)."		0.67	
RF11	"11. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it."		0.70	
RF12	"12. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me."		0.75	
G3	"3. Dependable, self-disciplined."	0.75		
G5	"5. Open to new experiences, complex."	0.75		
G7	"7. Sympathetic, warm."	0.79		
G9	"9. Calm, emotionally stable."	0.70		
RG6	"6. Reserved, quiet."		0.75	
RG10	"10. Conventional, uncreative."		0.70	
RG2	"2. Critical, quarrelsome."			0.66
RG4	"4. Anxious, easily upset."			0.74

Table 6 shows the reliability test result for the second screening stage of suitability of the item.

Table 6: Reliability

Construct	ID	Item	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha	N of Items
B1	B1	"1. My facility is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks."	0.67	0.54	0.87	0.89	8
	B3	"3. Managers in my facility are warm and caring. They seek to develop employees' full potential and act as their mentors or guides."	0.72	0.60	0.87		
	B4	"4. Managers in my facility are risk-takers. They encourage employees to take risks and be innovative."	0.59	0.44	0.88		
	B6	"6. Managers in my facility are coordinators and coaches. They help employees meet the facility's goals and objectives."	0.74	0.63	0.86		
	B7	"7. The glue that holds my facility together is loyalty and tradition. Commitment to this facility runs high."	0.58	0.39	0.88		
	B8	"8. The glue that holds my facility together is commitment to innovation and development. There is an emphasis on being first."	0.63	0.43	0.88		
	B11	"11. My facility emphasizes human	0.67	0.56	0.87		

		resources. High cohesion and morale in the organization are important."					
	B12	"12. My facility emphasizes growth and acquiring new resources. Readiness to meet new challenges is important."	0.66	0.53	0.87		
B2	B2	"2. My facility is a very formalized and structured place. Bureaucratic procedures generally govern what people do."	0.48	0.25	0.65	0.71	4
	B5	"5. Managers in my facility are rule-enforcers. They expect employees to follow established rules, policies, and procedures."	0.48	0.26	0.65		
	B9	"9. The glue that holds my facility together is formal rules and policies. People feel that following the rules is important."	0.60	0.36	0.59		
	B13	"13. My facility emphasizes permanence and stability. Keeping things the same is important."	0.44	0.20	0.69		
C1	C2	"2. I welcome feedback from co-workers about how I relate to others with different cultures."	0.60	0.39	0.78	0.82	4
	C3	"3. I avoid making generalizations about groups of people (stereotyping)."	0.50	0.26	0.84		
	C4	"4. I act to remove obstacles for people	0.75	0.70	0.71		

		of different cultures when clients and families identify them to me."					
	C5	"5. I act to remove obstacles for people of different cultures when I identify them."	0.71	0.66	0.73		
C2	C6	"6. I ask clients and families to tell me about their expectations for care."	0.69	0.51	0.80	0.84	4
	C7	"7. I ask clients and families to tell me about their own explanations of health and illness."	0.73	0.54	0.78		
	C8	"8. I welcome feedback from clients about how I relate to others with different cultures."	0.69	0.47	0.80		
	C11	"11. I recognize potential barriers to service that might be encountered by different people."	0.61	0.38	0.83		
C3	C9	"9. I document the adaptations I make with clients and families."	0.59	0.42	0.67	0.76	3
	C10	"10. I document cultural assessments."	0.71	0.51	0.53		
	C12	"12. I use a variety of sources to learn about the cultural heritage of other people."	0.48	0.26	0.79		
C4	C14	"14. I ask my co-workers not to make comments or jokes about cultural group characteristics in the workplace."	0.55	0.35	0.63	0.72	4
	C15	"15. I learn from my co-workers about people with different	0.47	0.28	0.68		

		cultural heritages."					
	C16	"16. I include cultural assessment when I do client or family evaluations."	0.57	0.33	0.61		
	C17	"17. I have resource books and other materials available to help me learn about clients and families from different cultures."	0.46	0.24	0.70		
CA	CA18	"18. Even if I know about a person's culture, I assess their personal preferences for care."	0.64	0.43	0.89	0.90	7
	CA20	"20. Spirituality and religious beliefs are important aspects of many cultural groups."	0.76	0.59	0.88		
	CA21	"21. People with a common cultural background often have individual differences."	0.69	0.54	0.89		
	CA22	"22. I think that knowing about different cultural groups helps direct my work with individual clients and families."	0.79	0.64	0.88		
	CA23	"23. Clients and families may be identified with more than one cultural group."	0.68	0.50	0.89		
	CA24	"24. I believe that everyone should be treated with respect no matter what their cultural heritage."	0.69	0.60	0.89		
	CA25	"25. I understand that people from different cultures may define the concept of "care" in different ways."	0.70	0.59	0.89		

D1	D7	"7. My ability to find meaning and purpose in life helps me adapt to stressful situations."	0.62	0.40	0.89	0.89	5
	D11	"11. I am able to define a purpose or reason for my life."	0.72	0.54	0.86		
	D15	"15. When I experience a failure, I am still able to find meaning in it."	0.76	0.68	0.85		
	D19	"19. I am able to make decisions according to my purpose in life."	0.81	0.73	0.84		
	D23	"23. I am able to find meaning and purpose in my everyday experiences."	0.72	0.54	0.86		
D2	D4	"4. I am able to enter higher states of consciousness or awareness."	0.68	0.47	0.87	0.89	5
	D8	"8. I can control when I enter higher states of consciousness or awareness."	0.80	0.66	0.85		
	D12	"12. I am able to move freely between levels of consciousness or awareness."	0.74	0.56	0.86		
	D16	"16. I often see issues and choices more clearly while in higher states of consciousness/awareness."	0.71	0.53	0.87		
	D24	"24. I have developed my own techniques for entering higher states of consciousness or awareness."	0.70	0.50	0.87		
D3	D1	"1. I have often questioned or	0.64	0.42	0.67	0.78	3

		pondered the nature of reality."					
	D2	"2. I recognize aspects of myself that are deeper than my physical body."	0.56	0.31	0.77		
	D3	"3. I have spent time contemplating the purpose or reason for my existence."	0.68	0.47	0.64		
D4	D13	"13. I frequently contemplate the meaning of events in my life."	0.68	0.50	0.75	0.82	3
	D17	"17. I have often contemplated the relationship between human beings and the rest of the universe."	0.73	0.55	0.70		
	D21	"21. I have deeply contemplated whether or not there is some greater power or force (e.g., god, goddess, divine being, higher energy, etc.)"	0.62	0.39	0.82		
E1	E17	"17. When I am in a positive mood, solving problems is easy for me."	0.73	0.57	0.59	0.79	3
	E20	"20. When I am in a positive mood, I am able to come up with new ideas."	0.67	0.52	0.67		
	E24	"24. I compliment others when they have done something well."	0.50	0.26	0.84		
E2	E19	"19. I know why my emotions change."	0.68	0.48	0.76	0.83	3
	E21	"21. I have control over my emotions."	0.67	0.45	0.79		
	E22	"22. I easily recognize my emotions as I experience them."	0.72	0.53	0.74		
E3	E1	"1. I know when to speak about my	0.66	0.46	0.77	0.82	4

		personal problems to others."					
	E2	"2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them."	0.72	0.53	0.74		
	E3	"3. I expect that I will do well on most things I try."	0.61	0.39	0.78		
	E9	"9. I am aware of my emotions as I experience them."	0.60	0.37	0.79		
E4	E4	"4. Other people find it easy to confide in me."	0.53	0.29	0.73	0.77	4
	E7	"7. When my mood changes, I see new possibilities."	0.55	0.31	0.72		
	E11	"11. I like to share my emotions with others."	0.62	0.38	0.69		
	E16	"16. I present myself in a way that makes a good impression on others."	0.60	0.36	0.70		
E5	E29	"29. I know what other people are feeling just by looking at them."	0.62	0.38	0.72	0.78	3
	E30	"30. I help other people feel better when they are down."	0.60	0.37	0.72		
	E32	"32. I can tell how people are feeling by listening to the tone of their voice."	0.65	0.42	0.67		
E6	RE5	"5. I find it hard to understand the non-verbal messages of other people."	0.39	0.16	0.61	0.64	3
	RE28	"28. When I am faced with a challenge, I give up because I believe I will fail."	0.45	0.21	0.54		
	RE3	"33. It is difficult for me to understand	0.50	0.25	0.46		

	3	why people feel the way they do."					
F1	F3	"3. If I were sick, I could easily find someone to help me with my daily chores."	0.67	0.49	0.87	0.89	6
	F4	"4. There is someone I can turn to for advice about handling problems with my family."	0.71	0.65	0.86		
	F5	"5. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me."	0.66	0.50	0.87		
	F6	"6. When I need suggestions on how to deal with a personal problem, I know someone I can turn to."	0.76	0.67	0.86		
	F9	"9. If I wanted to have lunch with someone, I could easily find someone to join me."	0.68	0.60	0.87		
	F10	"10. If I was stranded 10 miles from home, there is someone I could call who could come and get me."	0.70	0.59	0.87		
F2	R F1	"1. If I wanted to go on a trip for a day (for example, to the country or mountains), I would have a hard time finding someone to go with me."	0.59	0.45	0.75	0.79	6
	R F2	"2. I feel that there is no one I can share my most private worries and fears with."	0.50	0.38	0.77		
	R	"7. I don't often get	0.54	0.33	0.76		

	F7	invited to do things with others."					
	R F8	"8. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.)."	0.53	0.34	0.77		
	R F11	"11. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it."	0.51	0.29	0.77		
	R F12	"12. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me."	0.61	0.38	0.75		
G1	G3	"3. Dependable, self-disciplined."	0.52	0.29	0.71	0.75	4
	G5	"5. Open to new experiences, complex."	0.56	0.35	0.69		
	G7	"7. Sympathetic, warm."	0.61	0.40	0.66		
	G9	"9. Calm, emotionally stable."	0.51	0.30	0.71		
G2	R G6	"6. Reserved, quiet."	0.22	0.05		0.36	2
	R G10	"10. Conventional, uncreative."	0.22	0.05			
G3	R G2	"2. Critical, quarrelsome."	0.19	0.03		0.31	2
	R G4	"4. Anxious, easily upset."	0.19	0.03			

Discussion

The current study aims to explore the construct validity and reliability of the questionnaire which seeks to investigate emotional intelligence among doctors in the Ministry of Health government hospitals throughout Malaysia and its association with working environmental factors; i.e. organisational culture, cultural competence and awareness; and spiritual intelligence in the facilities. The KMO measure and Bartlett's test of sphericity were done to determine the suitability of the questionnaire. It is noted that KMO values under 0.5 is considered unacceptable, between 0.5 and 0.7 are considered mediocre, between 0.7 and 0.8 are considered good, above 0.8 are considered great, and above 0.9 are considered excellent. From the analysis, it is shown that the tools CVF, CCA, SISRI, SSEIT, and ISEL-12 are considered acceptable for field study, whereas TIPI shows a mediocre result. The Bartlett's test of sphericity shows a p-value of less than 0.5, thus all the tools including TIPI are significant and can proceed with exploratory factor analysis.

It is noted that the Eigenvalues of the analysed items are more than 1, and therefore are considered significant for factor extraction. The extraction method utilised was the Principal Component Analysis. The analysis revealed six tools; the CVF with two constructs, the CCA divided into cultural competence with four constructs, and cultural awareness with one construct, SISRI with five constructs, SSEIT with seven constructs, ISEL-12 with two constructs, and TIPI with three constructs.

In the Principal Component Analysis, with Rotation Method: Varimax with Kaiser Normalization, items with loading factors less than 0.6 were dropped automatically. Thus, ~~in~~ this initial stage of screening retained the items as depicted in Table 5. It is noted that none of the items were shown to be overlapping in two different constructs.

Next, reliability test was conducted, and items with Cronbach's alpha coefficient of less than 0.7 were dropped from final adapted tools for field study. In this study, it is noted that included items across all scales except TIPI were found to be significant and thus included in the final tool. However, there were four items in TIPI which were found to have poor significance in the reliability study and thus have to be excluded from the study. This is in the G2 and G3 constructs as depicted in Table 6.

Conclusion

The tools developed in this study of emotional intelligence and its association with working environmental factors and spiritual intelligence among doctors in government hospitals in Ministry of Health Malaysia will have to go through significant adaptation to be able to measure the independent variables and the dependent variable accurately. As this study intends to study the emotional intelligence and its associations via Structural Equation Modelling analysis, the modifications to the questionnaire needs to be done to ensure a significant result is able to be obtained from the field study.

Thus, the items deemed significant for the constructs and tools were extracted and included in the field study, while items which were dropped were excluded or rephrased if deemed significant enough to be included in the field study.

Considerations were taken if the tool is considered necessary to measure the intended variable.

In conclusion, this pilot study has been successful in helping to form a desirable tool to measure emotional intelligence among doctors in government hospitals in Malaysia and its associated working environmental factors and spiritual intelligence.

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Conflict of Interest

There is no conflict of interest in publishing this article.

Ethical approval

This study is approved by the Medical Research Ethics Committee with the reference of NMRR ID-22-01645-FJL (IIR) and by the Universiti Kebangsaan Malaysia Ethics Committee with the reference of PPI/111/8/JEP-2022-440.

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