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Emotional Intelligence, Its Association with Working Environmental Factors and Spiritual Intelligence among Government Doctors in Malaysia: A Multi-Site Study

Neong Shuet Ching[1], Md Isa Zaleha[2*], Abdul Manaf Mohd Rizal[3], Hassan Jamiyah[4], Mohd Zain Maizun[5], Mohamad Aina Waheeda[6], Ja'afar Hayati[7], Abdullah Siti Zainab[8], Che Arifin, Izzul Ikhwan[9], N. Anwar Ibrahim Tahir[10], Awang Zainudin[11]

[1]Quality Unit, Hospital Pulau Pinang, Ministry of Health Malaysia, Georgetown, Penang, Malaysia
[2*,3]Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Cheras, Malaysia
[4]Faculty of Medicine, Universiti Teknologi MARA, Sg Buloh, Petaling Jaya, Malaysia
[6,8,9]Public Health Unit, Hospital Raja Perempuan Zainab 2, Ministry of Health Malaysia, Kota Bharu, Kelantan, Malaysia
[5]Clinical Research Centre, Hospital Kuala Lumpur, Ministry of Health Malaysia, Wilayah Persekutuan Kuala Lumpur, Malaysia
[7]Hospital Umum Sarawak, Ministry of Health Malaysia, Kuching, Sarawak, Malaysia
[10]Hospital Pulau Pinang, Ministry of Health Malaysia, Georgetown, Penang, Malaysia
[11]Universiti Sultan Zainal Abidin, Kampung Gong Badak, Gong Badak, Terengganu, Malaysia
Corresponding Email: zms@ppukm.ukm.edu.my

Abstract: Emotional intelligence is undoubtedly one of the most important findings in psychology to which determine an individual's career success, and more so for doctors. It has been proven from literature, that high emotional intelligence leads to job satisfaction, retention, reduced turnover, reduced burnout, and good performance. This particular study determines to measure emotional intelligence and its association with working environmental factors, i.e. the organisational culture, cultural competence and cultural awareness; and spiritual intelligence. This study investigates 704 doctors who work in 5 different state hospitals in Malaysia. These state hospitals are from each region of Malaysia. The results show that organisational culture, cultural competence, cultural awareness, and spiritual intelligence have a positive and significant effect on trait emotional intelligence. In this study the CFA model has shown good fit in its fit indexes. In the SEM model, there is a positive and significant effect of all three domains towards emotional intelligence. There were good composite reliability and discriminant validity shown in all independent variables used in this study. In conclusion, this study is successful in determining the emotional intelligence among the doctors in government hospitals in Malaysia and have been associated with working environmental factors, namely organisational culture, cultural competence, cultural awareness, and spiritual intelligence.

Keywords: Emotional Intelligence, Working Environmental Factors, Spiritual Intelligence, Cultural, Organisational Culture

1. Introduction

Gardner has coined the theory of multiple intelligences which is based on the connotation that an individual has intelligence other than the conventional Intelligence Quotient (IQ) which has been explored since 1912 (1). This theory was further developed by Gardner in 1983 to explain and provide knowledge into how the mind functions. According to the definition, Gardner initially stated that multiple intelligences consist of seven types of intelligence, namely linguistic, logical-mathematical, musical, body-kinesthetic, spatial, intrapersonal and interpersonal. Linguistic intelligence relates to an individual's ability to use language as a learning and thinking tool. This sort of intelligence is likely suitable for individuals engaged in writing, teaching and legal careers. The three types of intelligence associated with art are musical, bodily kinesthetic and spatial intelligence. This is suitable for individuals who work in art, dance and theater. The other two types of intelligence are intrapersonal

and interpersonal intelligence. Interpersonal intelligence is the ability to discern the emotional intelligence, desires, feelings and motivations of others. Intrapersonal intelligence is the understanding of oneself (1). Interpersonal and intrapersonal intelligence are constructs of personal intelligence, which are both closely related to the profession of a doctor. In addition, the construct reflects the criteria of emotional intelligence (2).
Emotional intelligence's definition is a "constellation of emotional perception" (i.e. trait emotional intelligence) or "a set of skills for processing emotion-related information" (3,4,5). In other terms, emotional intelligence refers to "the ability of individuals to make connections between the emotions they feel with the production of reasoning that allows them to guide their actions and as a loop effect, to use reasoning to guide their emotions" (3,5).
Organizational culture is made up of ground principles, assumptions and theories held together by its members. This is a solid social construct, and is one which under its awareness, employees are assumed to pass on the organizational culture to new employees. This organizational culture plays a pivotal part in how employees define each other's relations and relate to their work environment. Then theorists have suggested that organizational culture happens to be one of the most pivotal element in disseminating new information and implementing new technical innovations (6,7,8). Organizational culture has been shown to provide the ground principles, values, and beliefs that form the grounds for an organization's administrative system as well as the practical management components and dimensions that demonstrate and reinforce those foundations. Then organizational culture determines individual or group actions, thoughts, values and perceptions (9,10,11).
Health services researchers more than often will utilise Quinn and Rohrbaugh's competing values framework (CVF) to investigate organisational culture and relate it to important gauge of health care processes and outputs(6,11). Thus, researchers often associate organizational culture with creating important differences in groups of health care facilities in organizational performance, carrying out quality improvement initiatives, quality of patient care, efficiency, effectiveness of the provider team, job satisfaction among its health care workers, and, patient satisfaction (6,12,13,14).
Cultural competence education for health care professionals has one common goal, which is to ensure that everyone receives effective health care, equitable services, especially those from culturally and linguistically diverse (CALD) backgrounds. Health behaviours were considered significantly more prominent now in healthcare facilities compared to controls. In addition, involvement in care by non-Western patients with a majority of Western doctors is seen to improve in terms of mutual understanding (14,15,16). The concept of cultural competence builds on the basic understanding of earlier concepts, such as cultural awareness, cultural safety, cultural respect and cultural safety (16).
For the purpose of reviewing cultural competence among health care workers (14), the set definition used for cultural competence is as defined by Cross et al. (1989) (17). Spirituality is considered a natural human measure and the source of all individual values, behaviours, thoughts, and feelings. The concept of spirituality is vital and this is the basis of the practice of medicine. However, there are not many studies that link spirituality with the caring behaviour of healthcare workers (18,19,20). Apart from self-awareness, spiritual intelligence depicts a form of consciousness of one's relationship with the transcendent, with one another, with the world and all forms. From the theoretical definition of spiritual intelligence and the findings in the research study above, it is concluded that spiritual intelligence refers to the capacity of intelligence to solve issues and problems of value and meaning, which can determine human behaviour when dealing with fellow human beings, with regards to a person's way of life or actions which are more meaningful than others (18).
This study is conducted as there are limited literature and research on the emotional intelligence among doctors in Malaysia. It has been noted that similar research has been carried out in India, the US, and some other developed countries. However, as we can gauge the benefits of a high emotional intelligence, thus, the study is just timely. Apart from that, we also want to investigate the existing working environmental factors which will impact on emotional intelligence, as these are modifiable factors which could help improve a doctor's emotional intelligence. In this study, the following hypotheses are tested:

Hypothesis
H1: There is a positive relationship between organizational culture and emotional intelligence.
H2: There is a positive relationship between cultural competence and cultural awareness and emotional intelligence.
H3: There is a positive relationship between spiritual intelligence and emotional intelligence.

2. Methodology

This is a cross-sectional study involving all government hospitals in each Malaysian state zone. The objective of this study was to determine the emotional intelligence among government doctors in Malaysia. Data collection for the study began in mid-2022 and ends in mid-2023. The study population consisted of doctors at the Ministry of Health Malaysia hospitals of various ethnicities and grades. The sampling frame of the study was a list of doctors who work permanently in hospitals of the Ministry of Health Malaysia. The sampling method used was a multi-stage sampling method, followed by convenience sampling. In this study, each region consists of 4-5 hospitals, and one hospital is chosen via simple random sampling. After which, the total number of doctors made up the total sampling population. All doctors are approached to complete a questionnaire. A total of 704 participants were recruited out of approximately 4000 doctors. The pilot study was carried out prior to the field study involving 166 doctors. This pilot study has been published previously by Neong et al. (2023). The instruments which were adopted and adapted were: Competing Value Framework (CVF), Cultural Competence Assessment (CCA), Spiritual Intelligence Self-Report Inventory (SISRI), and Schutte Self-Report Emotional Intelligence Test (SSEIT).

Inclusion criteria were:

1. Doctors work full-time at Ministry of Health hospitals.
2. Doctors of all grades and are on duty at Ministry of Health hospitals.
3. Doctors who have served for at least one year at the Ministry of Health hospital
4. Doctors who are Malaysians.

Exclusion criteria

1. Physicians with physical disabilities that would affect their ability to answer the questionnaire (for example, blindness)

This study has received the ethics approval from Medical Research and Ethics Committee (MREC), Ministry of Health, Malaysia with the reference number 22-01645-FJL(2) and Research and Ethics Committee (REC) from National University of Malaysia with the reference number UKM PPI/111/8/JEP-2022-440. Informed consent has been obtained from all participants in this study. All methods used in this study were performed in accordance with the relevant guidelines and regulations as laid out by the MREC and REC.

3. Results

Table 1 below depicts the sociodemographic factors of respondents.

Table 1: Sociodemographic factors of respondents

		Frequency(f)	Percentage (%)
Gender	Female	427	60.7
	Male	277	39.3
Age group	21 – 30 years old	315	44.7
	31 - 40 years old	327	46.4
	41 - 50 years old	44	6.3
	51 – 60 years old	18	2.6
Marital status	Married	370	52.6
	Single	332	47.2
	Divorced	1	0.1
	Widow	1	0.1
Race	Malay	374	53.1
	Chinese	229	32.5
	Indian	90	12.8
	Others	11	1.6
Highest education	Bachelor	564	80.1
	Master	135	19.2
	PhD	5	0.7
Number of children	0	456	64.8
	1	68	9.7
	2	90	12.8
	3	54	7.7
	4	30	4.3
	5	4	0.6

	6	1	0.1
	8	1	0.1
Number of dependents	0	298	42.3
	1	78	11.1
	2	148	21.0
	3	73	10.4
	4	63	8.9
	5	28	4.0
	6	11	1.6
	7	2	0.3
	9	2	0.3
	13	1	0.1
Doctor's grade	UD41/eq	251	35.7
	UD44/eq	116	16.5
	UD48/eq	143	20.3
	UD52/eq	83	11.8
	UD54/eq	67	9.5
	UD56/eq	25	3.6
	Jusa B	2	0.3
	Jusa C	17	2.4
Individual income	≤RM5000	343	48.7
	> RM5000	361	51.3
Household income	≤RM7000	303	43.0
	>RM7000	401	57.0
Income per capita per household	≤RM2000	120	17.0
	>RM2000	584	83.0

Item/construct	Mean	Median	Standard deviation	Minimum	Maximum	25^{th} percentile	75^{th} percentile	IQR
SS	2.79	2.83	0.41	1.25	3.83	2.58	3.08	0.50
TIPI	4.53	4.40	0.67	1.60	6.90	4.03	5.00	0.98
CVF1	2.97	3.00	1.05	1.00	5.00	2.00	4.00	2.00
CVF3	3.47	4.00	1.06	1.00	5.00	3.00	4.00	1.00
CVF4	3.10	3.00	1.03	1.00	5.00	2.00	4.00	2.00
CVF6	3.56	4.00	0.94	1.00	5.00	3.00	4.00	1.00
CVF7	3.37	3.00	1.00	1.00	5.00	3.00	4.00	1.00
CVF8	3.21	3.00	0.97	1.00	5.00	3.00	4.00	1.00
CVF11	3.29	3.00	1.07	1.00	5.00	3.00	4.00	1.00
CVF5	3.92	4.00	0.88	1.00	5.00	4.00	4.00	0.00
CVF9	3.69	4.00	0.92	1.00	5.00	3.00	4.00	1.00
CVF13	3.55	4.00	0.88	1.00	5.00	3.00	4.00	1.00
CVF_1	3.28	3.29	0.81	1.00	5.00	2.86	3.86	1.00
CVF_2	3.72	3.67	0.69	1.00	5.00	3.33	4.00	0.67
CVF	3.50	3.52	0.65	1.00	5.00	3.14	3.93	0.79
CCA1	3.27	3.00	0.62	1.00	4.00	3.00	4.00	1.00
CCA3	3.04	3.00	0.67	1.00	4.00	3.00	3.00	0.00
CCA4	3.05	3.00	0.66	1.00	4.00	3.00	3.00	0.00
CCA5	3.10	3.00	0.67	1.00	4.00	3.00	4.00	1.00
CCA6	3.14	3.00	0.69	1.00	4.00	3.00	4.00	1.00
CCA7	3.10	3.00	0.65	1.00	4.00	3.00	4.00	1.00
CCA8	2.79	3.00	0.78	1.00	4.00	2.00	3.00	1.00
CCA9	2.54	3.00	0.81	1.00	4.00	2.00	3.00	1.00
CCA10	3.05	3.00	0.62	1.00	4.00	3.00	3.00	0.00
CCA11	2.85	3.00	0.73	1.00	4.00	2.00	3.00	1.00
CCA16	3.14	3.00	0.65	1.00	4.00	3.00	4.00	1.00

CCA17	3.37	3.00	0.62	1.00	4.00	3.00	4.00	1.00
CCA18	3.22	3.00	0.65	1.00	4.00	3.00	4.00	1.00
CCA19	3.24	3.00	0.62	1.00	4.00	3.00	4.00	1.00
CCA20	3.20	3.00	0.64	1.00	4.00	3.00	4.00	1.00
CCA21	3.62	4.00	0.57	1.00	4.00	3.00	4.00	1.00
CCA22	3.51	4.00	0.58	1.00	4.00	3.00	4.00	1.00
CCA_1	2.99	3.00	0.46	1.20	4.00	2.70	3.30	0.60
CCA_2	3.33	3.29	0.46	1.71	4.00	3.00	3.71	0.71
CCA	3.16	3.12	0.40	1.86	4.00	2.91	3.43	0.51
SISRI5	2.77	3.00	0.91	0.00	4.00	2.00	3.00	1.00
SISRI7	2.70	3.00	0.97	0.00	4.00	2.00	3.00	1.00
SISRI10	2.69	3.00	0.88	0.00	4.00	2.00	3.00	1.00
SISRI13	2.78	3.00	0.88	0.00	4.00	2.00	3.00	1.00
SISRI15	2.64	3.00	0.95	0.00	4.00	2.00	3.00	1.00
SISRI14	2.30	2.00	1.27	0.00	4.00	1.25	3.00	1.75
SISRI16	2.22	2.00	1.12	0.00	4.00	1.00	3.00	2.00
SISRI8	2.32	2.00	1.06	0.00	4.00	2.00	3.00	1.00
SISRI11	2.58	3.00	0.95	0.00	4.00	2.00	3.00	1.00
SISRI6	2.37	2.00	1.00	0.00	4.00	2.00	3.00	1.00
SISRI2	2.64	3.00	0.89	0.00	4.00	2.00	3.00	1.00
SISRI3	2.40	3.00	1.15	0.00	4.00	2.00	3.00	1.00
SISRI9	2.52	3.00	1.02	0.00	4.00	2.00	3.00	3.00
SISRI12	2.36	3.00	1.07	0.00	4.00	2.00	3.00	3.00
SISRI_1	2.72	2.80	0.75	0.00	4.00	2.20	3.20	1.00
SISRI_2	2.40	2.50	0.86	0.00	4.00	2.00	3.00	1.00
SISRI_3	2.48	2.50	0.82	0.00	4.00	2.00	3.00	1.00
SISRI	2.53	2.62	0.69	0.00	4.00	2.04	3.00	0.96
SSEIT17	3.91	4.00	0.86	1.00	5.00	3.00	4.00	1.00
SSEIT20	3.90	4.00	0.82	1.00	5.00	4.00	4.00	0.00
SSEIT24	4.12	4.00	0.80	1.00	5.00	4.00	5.00	1.00
SSEIT19	3.78	4.00	0.86	1.00	5.00	3.00	4.00	1.00
SSEIT21	3.62	4.00	0.93	1.00	5.00	3.00	4.00	1.00
SSEIT22	3.82	4.00	0.84	1.00	5.00	3.00	4.00	1.00
SSEIT1	3.84	4.00	0.94	1.00	5.00	3.00	4.00	1.00
SSEIT2	3.97	4.00	0.78	1.00	5.00	4.00	4.00	0.00
SSEIT3	3.78	4.00	0.86	1.00	5.00	3.00	4.00	1.00
SISRI9	2.52	3.00	1.01	0.00	4.00	2.00	3.00	1.00
SISRI4	2.34	2.00	1.02	0.00	4.00	2.00	3.00	1.00
SSEIT7	3.58	4.00	0.90	1.00	5.00	3.00	4.00	1.00
SSEIT11	3.20	3.00	1.08	1.00	5.00	3.00	4.00	1.00
SSEIT16	3.78	4.00	0.86	1.00	5.00	3.00	4.00	1.00
SSEIT_1	3.98	4.00	0.69	1.00	5.00	3.67	4.33	0.67
SSEIT_2	3.74	4.00	0.74	1.00	5.00	3.33	4.00	0.67
SSEIT_3	3.88	4.00	0.64	1.00	5.00	3.50	4.25	0.75
SSEIT_4	3.55	3.50	0.64	1.00	5.00	3.00	4.00	1.00
SSEIT	3.79	3.83	0.56	1.13	5.00	3.48	4.08	0.60

Table 2 shows the descriptive analysis for items and constructs used in this study. The mean, median, standard deviation, minimum, maximum, 25th percentile, 75th percentile and interquartile range (IQR) are presented in this table.

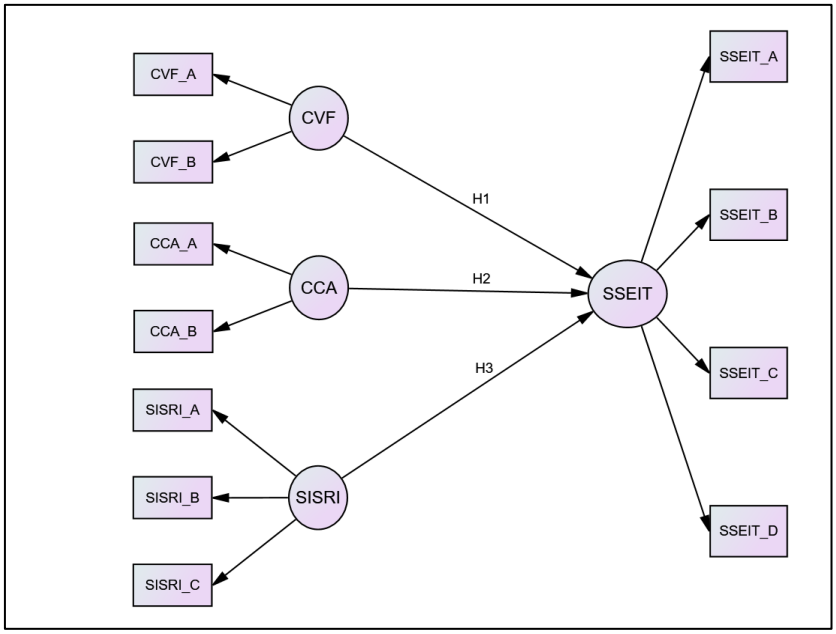

Figure 1: SEM framework in this study

The framework involved in this study is shown in Figure 1.
Table 3 shows the main hypotheses tested in this study and the statistical analysis to employ to prove these hypotheses.

Table 3: The main hypothesis in this study

	Hypothesis statement	**Statistical Analysis to employ**
H_1	CVF has a positive and significant effect on SSEIT	Path Analysis in SEM
H_2	CCA has a positive and significant effect on SSEIT	Path Analysis in SEM
H_3	SISRI has a positive and significant effect on SSEIT	Path Analysis in SEM

Validating Latent Constructs in the Model
The first step in the output of structural equation modelling (SEM) is to validate the latent constructs in the model to prove their validity and reliability. This process of validation is called confirmatory factor analysis (CFA) (22,23,24,25,26,27).

The Confirmatory Factor Analysis (CFA)
The study utilised the two-stages method of coming up with a model to analyse the findings called, Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) as stipulated by Awang (2012, 2014, 2015), and Awang et al. (2018, 2023) (22,23,24,25). Prior to modelling for CFA and SEM, the study goes on to validate all measurement models of the latent constructs for Unidimensionality, Validity, and Reliability (22,24,25,27,28,30,31,36,38,39,40,41,42). This process of validating latent constructs is called Confirmatory Factor Analysis (CFA).
As put out by Awang et al. (2015, 2018, 2023), Mohamad et al. (2016, 2017, 2018, 2019), Afthanorhan et al. (2020, 2020a, 2021), and Dani et al. (2022), the measurement model of latent constructs will go through processes to prove their Construct Validity, Convergent Validity, and Discriminant Validity. The Construct Validity is proved by the Fitness Indexes of the Measurement Model. The Convergent Validity is proven by coming up with the Average Variance Extracted (AVE), and Discriminant Validity has to be assessed through developing the Discriminant Validity Index Summary (22,23,24,25,26,29,32,33,34,35)
For the reliability of the model, it is sufficient for the study to prove the Composite Reliability (CR) as it has replaced the conservative method of Cronbach Alpha (internal reliability) (30,31,36,37,38,39,40).
The tested constructs are valid once all of their fitness indexes have been proven by assessing the Absolute Fit, Incremental Fit and Parsimonious Fit (24,25,31,31,36,38,39,40,41,42) as shown below.

Table 4: The three categories of model fit and their level of acceptance

Name of category	Name of index	Level of acceptance
Absolute Fit Index	**RMSEA**	RMSEA < 0.08
	GFI	GFI > 0.85, Ideal if > 0.90
Incremental Fit Index	AGFI	AGFI > 0.85, Ideal if > 0.90
	CFI	CFI > 0.85, Ideal if > 0.90
	TLI	TLI > 0.85, Ideal if > 0.90
	NFI	NFI > 0.85, Ideal if > 0.90
Parsimonious Fit Index	**ChiSq /df**	Chi-Square/ df < 5.0, Ideal if < 3.0

***The indexes in bold are recommended since they are frequently reported in literatures
Source: Awang (2014, 2015), Awang et al. (2018, 2023) (22,23,24,25)

The Confirmatory Factor Analysis (CFA) for Individual Construct
Figure 1 shows all constructs in this model which are also deemed second-order constructs, all with its subconstructs. The sub-constructs are measured using specific codes of measuring items in the questionnaire. The measurement model for all constructs are complex in terms of the number of constructs and their respective components and the number of items measuring each component.
For the complex model, the researcher could choose to test the CFA for separately for each construct and then the constructs are pooled stage to perform the Pooled-CFA (24,25,31,31,36,38,39,40,41,42).
Thus, this study decided to assess CFA procedure separately for each second-order construct. The analysis would then go to convert all second-order construct into first-order construct. This conversion process is called item-parcelling. This process of item-parcelling, the mean score is computed for all items in the same component to represent the respective component. Then the second-order construct will be transformed into first order construct. In order to test for discriminant validity, the first order constructs will then be combined to conduct the Pooled-CFA. The two constructs will be considered highly correlated if correlation is greater than 0.85; then there will be a serious problem called Multi-collinearity, and the study will then need to utilise remedial measures.

The CFA Procedure for Validating CVF construct
The CVF is a second order construct with two sub-constructs or components as presented in Figure 2. The CFA procedure comes up with fitness indexes for this construct, the factor loading for every component and the factor loading for each item which are presented in the diagram. Thus, the study could then test for the validity and reliability for this construct.

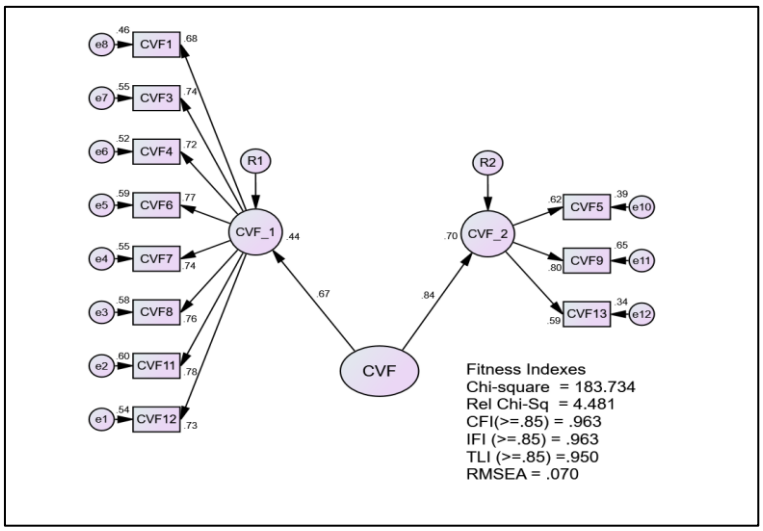

Figure 2: Final CFA result for CVF construct

The Assessment for Construct Validity
The fitness indexes in Figure 2 were noted to meet the threshold values as presented in Table 4. The Absolute Fit which is RMSEA is 0.070, the Incremental Fit value of CFI is 0.963, and the Parsimonious Fit index namely the ratio of Chisq/df is 4.481. Thus, this particulat measurement model which is called CVF has achieved the necessary threshold to be proven for Construct Validity (27,28,29,32,33,34,35,42).

The Assessment for Convergent Validity and Composite Reliability

To test for Convergent Validity, the researcher needs to work out the Average Variance Extracted (AVE). The construct will be proven fit for Convergent Validity if its AVE exceeds the value of 0.45 (27,28,29,32,33,34,35,42). To test for the Composite Reliability, the study needs to input the CR and its calculated value should be above 0.6 for this reliability to be achieve (27,28,29,32,33,34,35,42).

The AVE and CR in the construct and subconstructs are presented in Table 5.

Table 5: The AVE and CR for CVF Construct.

Construct	Item	Factor Loading	CR (Above 0.6)	AVE (Above 0.45)
CVF	CVF_1	0.67	**0.728**	**0.577**
	CVF_2	0.84		
CVF_1	CVF1	0.68	**0.907**	**0.548**
	CVF3	0.74		
	CVF4	0.72		
	CVF6	0.77		
	CVF7	0.74		
	CVF8	0.76		
	CVF11	0.78		
	CVF12	0.73		
CVF_2	CVF5	0.62	**0.748**	**0.501**
	CVF9	0.80		
	CVF13	0.69		

The AVE and CR values for this construct and its components are greater than 0.45 and 0.60 respectively. Therefore, the researcher can safely say that the Convergent Validity and Composite Reliability for this particular construct has been passed (22,23,24,25).

The CFA Procedure for Validating CCA construct

The CCA is a second order construct with two sub-constructs or components as presented in Figure 3.

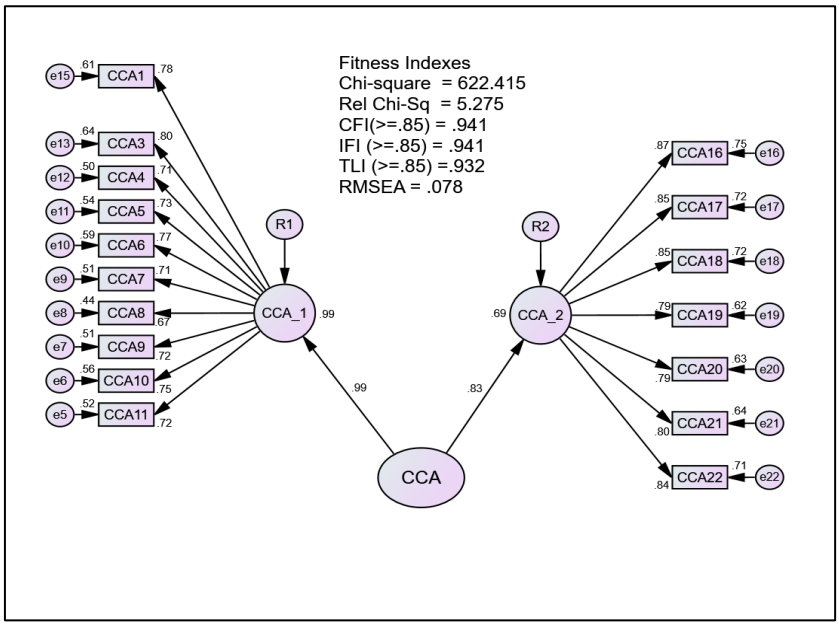

Figure 3: Final CFA result for Construct CCA after item deletion

The Assessment for Construct Validity

The fitness indexes in Figure 3 were found to meet the threshold values as stated in Table 4. The Absolute Fit index, RMSEA is 0.078, the Incremental Fit index, CFI is 0.941, and the Parsimonious Fit index, the ratio of

Chisq/df is 5.275. Therefore, the measurement model of CCA has been proven for Construct Validity (24,25,31,31,36,38,39,40,41,42).

The Assessment for Convergent Validity and Composite Reliability
The AVE and CR for the main constructs and their respective sub-constructs are computed and presented in Table 6.

Table 6: The AVE and CR for CCA Construct.

Construct	Item	Factor Loading	CR (Above 0.6)	AVE (Above 0.45)
CCA	CCA_1	0.99	**0.909**	**0.835**
	CCA_2	0.83		
CCA_1	CCA1	0.80	**0.929**	**0.568**
	CCA3	0.71		
	CCA4	0.73		
	CCA5	0.77		
	CCA6	0.74		
	CVF7	0.71		
	CCA8	0.87		
	CCA9	0.72		
	CCA10	0.75		
	CCA11	0.72		
CCA_2	CCA16	0.87	**0.940**	**0.690**
	CC117	0.86		
	CCA18	0.86		
	CCA19	0.79		
	CCA20	0.79		
	CCA21	0.80		
	CCA22	0.84		

The AVE and CR values for this construct and the components are greater than 0.45 and 0.60 respectively. Thus, the researcher can say that the Convergent Validity and Composite Reliability for this particular construct has been achieved (22,23,24,25).

The CFA Procedure for Validating SISRI construct
SISRI is a second order construct with three sub-constructs or components as presented in Figure 4.

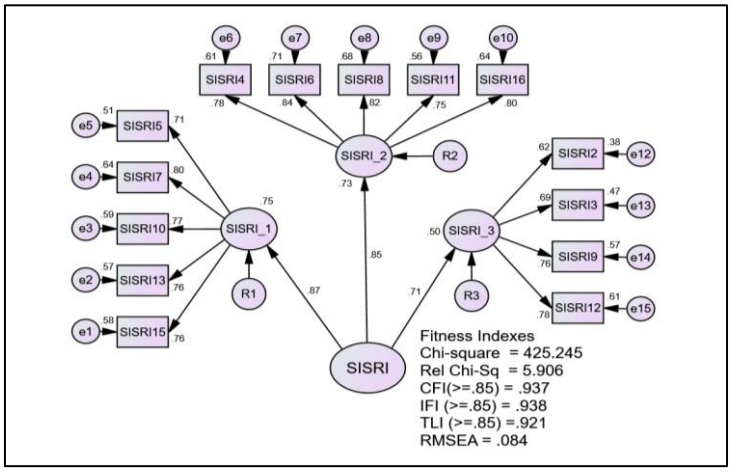

Figure 4: Final CFA result for Construct SISRI

The Assessment for Construct Validity
The fitness indexes in Figure 4 were found to comply to the threshold values as stated in Table 4. The Absolute Fit index, RMSEA is 0.084, the Incremental Fit index, CFI is 0.937, and the Parsimonious Fit index, the ratio of

Chisq/df is 5.906. Therefore, the measurement model of SISRI has been found fit for Construct Validity (27,28,29,32,33,34,35,42).

The Assessment for Convergent Validity and Composite Reliability
The AVE and CR for the constructs and their sub-constructs are computed and presented in Table 7.

Table 7: The AVE and CR for SISRI Construct.

Construct	Item	Factor Loading	CR (Above 0.6)	AVE (Above 0.45)
SISRI	SISRI_1	0.87	**0.853**	**0.661**
	SISRI_2	0.85		
	SISRI_3	0.71		
SISRI_1	SISRI5	0.71	**0.873**	**0.578**
	SISRI7	0.80		
	SISRI10	0.77		
	SISRI13	0.76		
	SISRI15	0.76		
SISRI_2	SISRI4	0.78	**0.898**	**0.638**
	SISRI6	0.84		
	SISRI8	0.82		
	SISRI11	0.75		
	SISRI16	0.80		
SISRI_3	SISRI2	0.62	**0.808**	**0.512**
	SISRI3	0.69		
	SISRI9	0.76		
	SISRI12	0.78		

The AVE and CR values for this construct and its components are greater than 0.45 and 0.60 respectively. Therefore, the study can say that the Convergent Validity and Composite Reliability for the construct has been achieved (22,23,24,25).

The CFA Procedure for Validating SSEIT construct
The **SSEIT** is a second order construct with five components as presented in Figure 5.

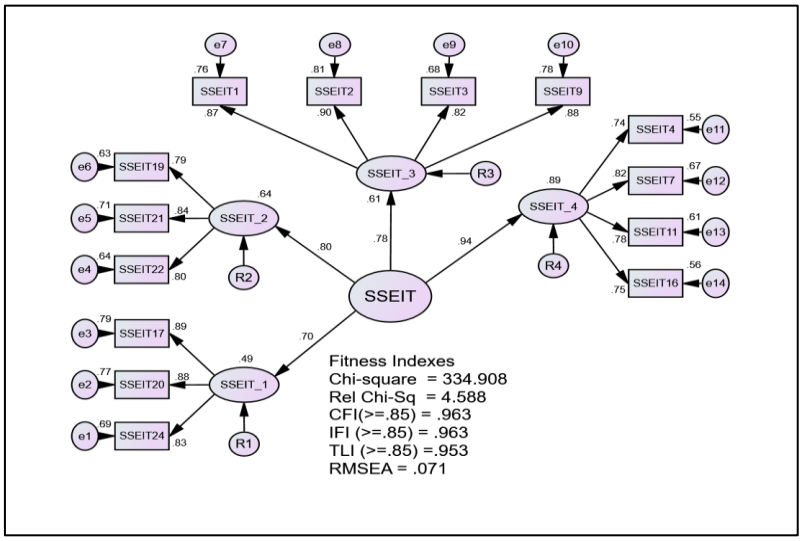

Figure 5: Final CFA result for Construct SSEIT after item deletion

The Assessment for Construct Validity
The fitness indexes in Figure 5 were found to have met the threshold values as stated in Table 4. The Absolute Fit index, the RMSEA is 0.084, the Incremental Fit index, CFI is 0.937, and the Parsimonious Fit index, which is

ratio of Chisq/df is 5.906. Therefore, the measurement model of SSEIT has passed the thresholds for Construct Validity (27,28,29,32,33,34,35,42).

The Assessment for Convergent Validity and Composite Reliability
The AVE and CR for the main constructs and each sub-construct are computed and presented in Table 8

Table 8: The AVE and CR for SSEIT Construct.

Construct	Item	Factor Loading	CR (Above 0.6)	AVE (Above 0.45)
SSEIT	SSEIT_1	0.70	**0.883**	**0.656**
	SSEIT_2	0.80		
	SSEIT_3	0.78		
	SSEIT_4	0.94		
SSEIT_1	SSEIT17	0.89	**0.901**	**0.752**
	SSEIT20	0.88		
	SSEIT24	0.83		
SSEIT_2	SSEIT19	0.79	**0.851**	**0.657**
	SSEIT21	0.84		
	SSEIT22	0.80		
SSEIT_3	SSEIT1	0.87	**0.924**	**0.753**
	SSEIT2	0.90		
	SSEIT3	0.82		
	SSEIT9	0.88		
SSEIT_4	SSEIT4	0.74	**0.856**	**0.598**
	SSEIT7	0.82		
	SSEIT11	0.78		
	SSEIT16	0.75		

The Pooled-CFA for all Measurement Model of Constructs
The pooled construct is presented in Figure 6. The measurement model for all second order constructs have been assessed using CFA procedure individually and characterised into first order constructs in order to decrease its complexity (23,24,25). The pooled-CFA for all constructs are brought together to assess the Discriminant Validity among the constructs in the model (29,32,33,42). This procedure is shown in Figure 6.
The results of the Pooled-CFA procedure is shown in Figure 6. The output shows the fitness indexes for all constructs in the model, the factor loading for all the sub-constructs or component measuring the main construct, and the correlation between construct in the model.
The fitness indexes were found to meet the thresholds shown in Table 4, the factor loading for each item should be at least of 0.6 and the correlation coefficient for any two constructs should not exceed 0.85 (24,25,30). The problem of multi-collinearity will occur if the correlation between any two constructs exceeds 0.85. Judging the correlation values, none of the value found to be greater than 0.85. Thus, the problem of multi-collinearity does not exist.

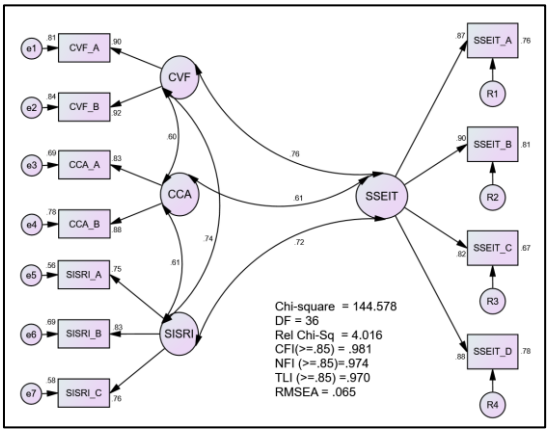

Figure 6: The results of Pooled-CFA for all constructs

The Assessment for Construct Validity

The Fitness Indexes in Figure 6 were found to meet the threshold values as stated in Table 4. The Absolute Fit index, RMSEA is 0.065, the Incremental Fit index, CFI is 0.981, and the Parsimonious Fit index, the ratio of Chisq/df is 4.016. Therefore, the measurement model of all latent constructs in Figure 6 have achieved the requirement for Construct Validity (27,41,42).

The Assessment for Convergent Validity and Composite Reliability

The AVE and CR for the main constructs and their respective sub-constructs are registered and presented in Table 9.

Table 9: The Average Variance Extracted (AVE) and Composite Reliability (CR)

Construct	**Item**	**Factor Loading**	**CR (Above 0.6)**	**AVE (Above 0.45)**
CVF	CVF_A	0.90	**0.908**	**0.828**
	CVF_B	0.92		
CCA	CCA_A	0.83	**0.845**	**0.732**
	CCA_B	0.88		
SISRI	SISRI_A	0.75	**0.830**	**0.620**
	SISRI_B	0.83		
	SISRI_C	0.78		
SSEIT	SSEIT_A	0.87	**0.934**	**0.753**
	SSEIT_B	0.90		
	SSEIT_C	0.82		
	SSEIT_D	0.88		

Referring to the AVE and CR values in Table 9, the study found all AVE and CR exceed their threshold values of 0.5 and 0.6 respectively (30,31,41). Thus, the study can conclude that the Convergent Validity and Composite Reliability for all latent constructs in the model have been achieved.

The Assessment of Discriminant Validity among Constructs

The Discriminant Validity then needs to be tested further into this study. Redundant construct occurs when any pair of constructs in the model are highly correlated. There is a need to develop the Discriminant Validity index summary as shown in Table 10 to assess for Discriminant Validity. The diagonal values in bold are the square root of the AVE of each construct while other values are the correlation coefficient between the pair of the respective constructs.

Table 10: The Discriminant Validity Index Summary for all Constructs

Construct	CVF	CCA	SISRI	SSEIT
CVF	**0.90**			
CCA	0.60	**0.85**		
SISRI	0.74	0.61	**0.78**	
SSEIT	0.61	0.76	0.72	**0.86**

As shown in Table 10, the Discriminant Validity of the respective construct has been achieved if the square root of its AVE is more than the correlation value with other constructs in the model (23,24,25,27,30,41,42,46,47,48,49). Alternatively, the Discriminant Validity is achieved if the diagonal values (in bold) are higher than any other values in its row and its column. The values shown in Table 10 meet the threshold of Discriminant Validity. Thus, the study concludes that the Discriminant Validity for all constructs is achieved. The AVE and CR values for this construct and all of its components are greater than 0.45 and 0.60 respectively. Thus, the researcher can say that the Convergent Validity and Composite Reliability for this particular construct are achieved (22,23,24,25).

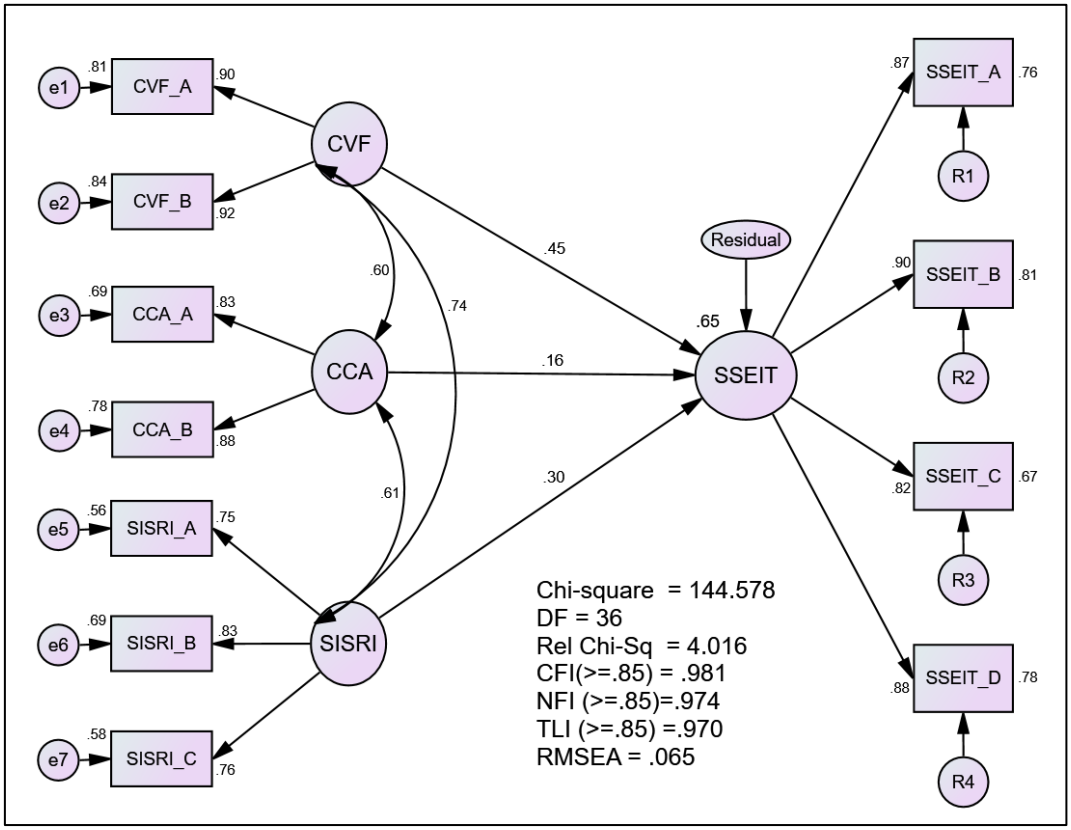

Figure 7: The Standardized Regression Path Coefficient among constructs in the model

Figure 7 shows the standardized regression path coefficient among constructs in the model, which comes out with the conslusion as shown in Table 11.

Table 11: The R^2 and its implication in this study

Endogenous Construct	**R^2**	**Conclusion**
SSEIT	**0.65**	The CVF, CCA and SISRI as perceived by the respondents contribute about 65 percent towards SSEIT.

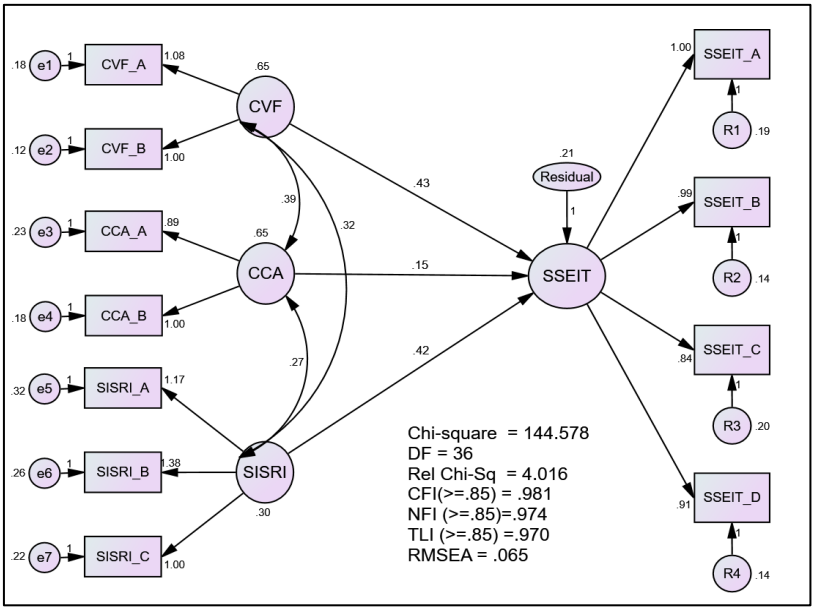

Figure 8: The Regression Path Coefficient among constructs in the model

Figure 8 shows the regression path coefficient among constructs in the model with the conclusion as shown in Table 12.

Table 12: The Regression Path Coefficient obtained from Figure 8

Exogenous	**Endogenous**	**Beta**	**Explanation**
CVF	SSEIT	**0.43**	When CVF goes up one unit, SSEIT goes up 0.43
CCA	SSEIT	**0.15**	When CCA goes up one unit, SSEIT goes up 0.15
SISRI	SSEIT	**0.42**	When SISRI goes up one unit, SSEIT goes up 0.42

The regression extracted from Figure 8 is presented in Table 13.

Table 13: The Regression Equation for the model in this study

Endogenous Construct	**Regression Equation**
SSEIT	= **0.43 CVF** + **0.15 CCA** + **0.42 SISRI**

The regression path coefficient between latent constructs and its significance is tabulated in Table 14

Table 14: Regression Path Coefficient and its Significance

			Estimate	S.E.	C.R.	P	Result
SSEIT	<---	CVF	.432	.048	8.949	***	Significant
SSEIT	<---	CCA	.149	.039	3.809	***	Significant
SSEIT	<---	SISRI	.420	.075	5.566	***	Significant

The testing of hypothesis in Table 14 is decided based on the probability value (p-value). The hypothesis is significant if P-value obtained in the text-output is less than the type error value (alpha) 0.05.
Table 15 shows the hypothesis testing for direct effect hypothesis and the results are that the hypotheses are all supported.

Table 15: The Hypothesis Testing for Direct Effect Hypothesis

	Hypothesis statement	**P Value**	**Results**
H_1	CVF has a positive and significant effect on SSEIT	***	Supported
H_2	CCA has a positive and significant effect on SSEIT	***	Supported
H_3	SISRI has a positive and significant effect on SSEIT	***	Supported

4. Discussion

Emotional intelligence among doctors in Malaysia in this study recorded a high mean for the majority of items explored. In the variables SSEIT_1 (Emotional Use), SSEIT_2 (Emotional Perception), SSEIT_3 (Managing Own Emotions), and SSEIT_4 (Managing Other People's Emotions), the mean scores recorded were 3.98 (SP = 0.69), 3.74 (SP = 0.74), 3.88 (SP = 0.64), and 3.55 (SP = 0.64) respectively with the mean score of all domains being 3.79 (SP = 0.56). The mean scores in all domains are categorized as high scores among doctors in Malaysia, and the resulting mean score as the sum of all domains is also a high score among doctors in Malaysia. According to the findings from this study, as many as 2.3% of doctors recorded a low Emotional Use score, 19.0% moderate, while 78.7% were high and very high. A total of 5.5% of doctors recorded low Emotional Perception, 25.4% moderate, while 68.7% recorded high and very high Emotional Perception. A total of 3.6% of doctors recorded low Self-Emotion Management, while 14.8% moderate and 81.7% recorded high and very high Self-Emotion Management. A total of 2.0% of doctors recorded low Managing the Emotions of Others, 19.6% medium and 78.4% high and very high.

This study shows that the mean score of CVF_1 (Team /Clan and Entrepreneurship/Adhocracy) is 3.28 (SP = 0.81) which is moderate while the mean score of CVF_2 (Hierarchy and Rational/Market) is 3.72 (SP = 0.69), which is high.

The findings of this particular study conducted among doctors in Malaysia show that organizational culture has a significant and postive effect on emotional intelligence. This goes to show that the organizational culture which have been practised by the organization is able to increase the emotional intelligence among doctors as well. Therefore, it can be said that there is a positive and significant relationship between organisational culture and emotional intelligence. Thus it can be concluded that there is a sufficiently strong relationship between the two variables, and if the organizational culture mean score is found to be high for specific domains, the emotional intelligence mean scores will be high too. This is more likely for the flexible domains of the CVF construct. However, in this study it is deemed that the dominant culture is the hierarchy and rational cultures.

According to Nguyen Van et al. (2018), organizational culture patterns are displayed in four main types: Clan, Adhocracy, Market and Hierarchy. The two types of organisational cultures that are emphasized at this time are the Clan and the Hierarchy. The desired organizational culture model also follows the same pattern where Clan and Hierarchy cultures are shown to dominate than other culture types. The difference between the investigated culture and the preferred culture shows that there is a decrease in the mean score for all types of culture, except for Clans which increased significantly by 4.8% in the current study. In general, there are dissimilarities in all domains of organizational culture, namely, dominant characteristics, organizational leadership, employee management, organizational glue, strategic emphasis, and success criteria. (43).

In essence findings suggest that differences encountered in the valuation of organizational culture variables through two indicators used among doctors in Malaysia, namely Team and Entrepreneurial culture, and Hierarchical and Rational culture, have an impact on perceived emotional intelligence. The findings of this study support the findings of one empirical study by Vakola et al. (2003) who showed that emotional intelligence will drive the formation of employee attitudes towards change. In addition, a study by Handayanto (2014) also showed similar conclusion, of which that organizational culture can increase a person's personal value. This current study's findings show that the organizational culture adopted by doctors in Malaysia has been able to increase emotional intelligence due to the culture that employees have adopted which emphasised their own feelings and others' feelings of colleagues. As a result, this can lead to corporate motivation and well-managed employee emotions which relate well to colleagues and leaders (44,45).

In this study, the mean score for cultural competence was 2.99 (SP = 0.46), which is high, while the mean score for cultural awareness was 3.33 (SP = 0.46), also high. The role of cultural competence and cultural awareness is high in Malaysia as it is by itself already a multi-racial country since its independence in 1957. Moreover there has been an influx of immigrants from other Asian countries into Malaysia due to the economic boom and the need for more labourers.

As such, although literature shows there is a lack of guidelines in cultural competence in the diverse population in a country such as Malaysia, and this is most likely leading to the neglect of the immigrants' healthcare, in reality, the study shows that the cultural competence of the doctors are high. It might be that cultural competence of doctors is deemed higher than the general population. It is a challenge to address the needs of an ethnically diverse and linguistically domestic population in the Malaysian healthcare system (50). As such, there is mounted stresses in Malaysia among the ethnically diverse domestic population, and the notion to address the prejudice against immigrants and refugees will be challenging, as shown by 82% of compared to 49% in Thailand (51). Interventions aimed at to improve cultural competence among healthcare workers, will need to address both immigrant and domestic population groups (51).

Cultural competence is important because it is difficult to form such relationships between doctors and patients without it. Instead, we will appear to bode unwell with individuals we do not understand, increasing the possibility of damaged emotions, misunderstandings and biases—all avoidable. Beyond the clear teaching message, the most important socialization mechanism in medical education exists. According to Hafferty (1998), formal curriculum, hidden curriculum, and informal curriculum are three possible origins of influence in medical schools (58). It would seem that there is a possibility that our doctors are well educated in all these possible origins of influence of cultural competence. Hidden curriculum norms are largely conveyed through cultural and structural variables such as institutional rules, "slang" or colloquial language, resource allocation and assessment systems. Hidden curriculum messages can lead to a loss of ambition and idealistic situations, which can lead to a lack of concern about unconscious prejudice (59).

As mentioned by policy stakeholders and reported in other settings, by making health-seeking friendly to the immigrants, by practising cultural competence and awareness in health workers, can be considered an encouragement to health-seeking by this group (52). The high cultural competence and cultural awareness among the doctors towards people of all cultures and races go to show that our system encourages health-seeking behaviours among people of culturally diverse. In many high-income and developed countries, migrant children's health-seeking is less than the native population, with the exception of emergency care and hospitalization where the migrant children have a higher level of usage (53). Saying that, it is noted that migrants have a higher level of dependence on emergency services and higher hospitalization than non-migrants (54,55,56,57).

This study shows the mean score of SISRI_1, SISRI_2, and SISRI_3, which is the Production of Personal Meaning (PMP) is 2.72 (SP = 0.75) - medium, while the mean score of Conscious State Expansion (CSE) is 2.40 (SP = 0.86) - medium, and the mean the Critical Existential Thinking (CET) score was 2.48 (SP = 0.82) – moderate. The mean score for all domains is 2.53 (SP = 0.69).

It seems that there are many interesting findings in this study when we compare the results of different studies on spiritual intelligence and emotional intelligence. The results of this study show that emotional intelligence and spirituality have a high correlation which replicates the findings of the study conducted by Kaur et al. (2012), King et al. (2012), Koohbanani et al. (2013), and Harmer (2007) (19,60,61,62) who also found similar relationship between spiritual intelligence and emotional intelligence. The individual has awareness and consciousness of the inner senses, divine, reality experience critically, substantiating a link between mental and physical realms, death and time, the capacity to divulge and to exist in the conscious realm i.e. consciousness of things and reacting to one's environment and building purpose in life. This is only possible when he knows about himself, about his emotions or other people's emotions and feelings. It is shown that all types of emotions are important in work, not just fear or anxiety. The answer lies in the fact that emotions carry the information one needs to be effective in the daily work. This study also goes to show the estimated prediction of emotional and spiritual intelligence of employees which is consistent with the findings by David (1999) (63) who also suggest that emotional intelligence is a predictor of success at work linking it to highly spiritual characteristics. It is noted that having the knowledge of the things spiritually other than emotional awareness are also important (64).

5. Conclusion

As a result of this study, it was found that there is a need to strengthen the continuous professional development curriculum where there is a need to further apply spiritual education among doctors in government hospitals in Malaysia. Spiritual intelligence was found to be significantly related to emotional intelligence, and mean scores for most items in the SISRI were moderate. Therefore, this aspect can be further improved. Various efforts have been made where the Ministry of Health places an Islamic Affairs Officer at the Ministry of Health facility. There is a need to intensify this unit further to achieve spiritual well-being among Muslim doctors. Whereas, for those who have a religion other than Islam, there is a need to create at least a place of worship as practised in developed countries such as the United Kingdom.

Organizational culture, cultural competence and cultural awareness are also seen to have a significant and significant relationship with emotional intelligence. Although the mean score of organizational culture and cultural competence and awareness is clearly high, the Ministry of Health can still intensify efforts to foster a healthy organizational culture and ensure that doctors are instilled with competence and cultural awareness drivers.

This study can be used as a novel study that investigates emotional intelligence among doctors in government hospitals in Malaysia. Following this study, there is a need to carry out further studies to explore interventions that are suitable to be carried out in MOH facilities to foster emotional intelligence among MOH doctors. There are opportunities to be taken at MOH facilities where the application of healthy organizational cultural values, high spiritual intelligence, and high awareness and cultural competence can be practised considering that these

factors are found to affect the emotional intelligence of MOH doctors. It is also a fact that high emotional intelligence promotes well-being in general and in particular is a predictor of good work performance, reduces burnout among individuals, and promotes job satisfaction.
A limitation to this study is that this study did not investigate the relationship between emotional intelligence and stress, job satisfaction, or job performance. Therefore, further research can explore the relationship between emotional intelligence and the factors as stated above. In addition, this study also did not explore interventions that are suitable to be carried out in KKM facilities. This is because this study is a novel study to determine emotional intelligence among doctors at MOH facilities in a study involving five MOH facilities from all over Malaysia.

6. Limitations

There are limitations in this study. This study uses the convenience sampling after cluster sampling of hospitals. Although this method of sampling is accepted generally, however, the results will be more accurate with a simple random sampling of the subjects. This could not be done in our setting due to several reasons. Firstly, there is very low response rate among the doctors. We could not randomly sample the doctors due to this reason. Secondly there were centres which prohibit the release of the doctors' particulars. This made us unable to conduct simple random sampling. Secondly this study will be stronger were it to examine the relationship between emotional intelligence and stress, job performance, or job stress. The next research will concentrate to do these.

Ethics approval and consent to participate
This study has received the ethics approval from Medical Research and Ethics Committee (MREC), Ministry of Health, Malaysia with the reference number 22-01645-FJL(2) and Research and Ethics Committee (REC) from National University of Malaysia with the reference number UKM PPI/111/8/JEP-2022-440. Informed consent has been obtained from all participants in this study. All methods used in this study were performed in accordance with the relevant guidelines and regulations as laid out by the MREC and REC.

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