Reliability and Construct Validity Assessment of Wong and Law Emotional Intelligence Scale and Satisfaction With Life Scale in the Indian Hospitality Industry

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Abstract

Background: Organizations today require employees who are well at managing emotional intelligence and using their emotions in a constructive process. The present study considered the Satisfaction with Life Scale (SWLS) and Wong and Law Emotional Intelligence Scale (WLEIS) for the study. WLEIS has four factors: self-emotional appraisal (SEA), other's emotional appraisal (OEA), regulation of emotion (ROE), and use of emotions (UOE). These scales help to manage emotions that result in satisfaction with life.
Purpose: The purpose of the study is to validate WLEIS and SWLS because this scale has been validated across many countries but very few studies have been conducted in the Indian context. Apart from that, the current study also incorporated SWLS to validate constructs and measurement models.
Methods: A sample of 238 participants working in the hospitality industry have been considered for the study. Exploratory factor analysis and confirmatory factor analysis were used to validate all the constructs and measurement models.
Results: The three factors of WLEIS and SWLS showed Cronbach's α more than 0.8 that showed excellent internal consistency except for SEA. The results of exploratory factor analysis found that eigenvalue ranged from 2.8 to 5.9, and the total variance explained by constructs was 65.9%. Confirmatory factor analysis showed average variance explained of each construct to be 0.5, and composite reliability to be more than 0.7, which shows excellent construct validity of scales in the Indian hospitality sector. The study also validates measurement research model of WLEIS and SWLS on the basis of model fit index (chi-square/df = 4.83, RMSEA = 0.10, GFI = 0.94, and CFI = 0.90).
Conclusion: The strong validity and reliability of the WLEIS and SWLS have proved that neuroscience can apply these scales to measure emotional intelligence in order to understand others' emotions and apply emotions in a constructive process that may lead to satisfaction with life.

Keywords

Emotional intelligence, Life satisfaction, Confirmatory factor analysis, Exploratory factor analysis, WLEIS, SWLS

Received 11 March 2022; **accepted** 8 April 2022

Introduction

Emotional intelligence (EI) refers to the potential to understand, use, and manage emotions positively to alleviate stress, communicate effectively, and resolve conflict and challenges. The term "Emotional Intelligence" came into existence in 1990 in research papers by two professors, John D. Mayer of UNH and Peter Salovey of Yale. In the mid-1990s and 2020s, EI has been widely studied by researchers.[1,2] There are various tools available to measure EI; the current

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study applied Wong and Law Emotional Intelligence Scale (WLEIS),[2] which is being rated by parents, colleagues, and supervisors.[3,4] It has been tested in different countries and cultures and for different demographic characteristics and sectors. But very few researchers have studied the reliability and construct validity of WLEIS and Satisfaction with Life Scale (SWLS) in the Indian hospitality sector. According to India Brand Equity Foundation (IBEF), the travel and tourism industry's contributions to GDP growth are expected to have a yearly growth rate of 10.35% between 2019 and 2028. Therefore, addressing the construct validity and reliability of WLEIS and SWLS may lead to multifold benefits for employees, sectors as well as economic growth of the country. WLEIS, developed by Wong and Law in 2002, consists of four factors: self-emotion appraisal (SEA), others' emotion appraisal (OEA), use of emotion (UEO), and regulation of emotion (REO). SEA refers to an individual's potential to understand their emotions and naturally present those emotions; OEA is the cognitive ability to understand others' emotions; UEO is an individual's potential who use their emotions in their performance and constructive work; and the fourth dimension ROE refers to individual's ability to control or regulate their emotions that help to cope with psychological distress.

WLEIS is one of the most powerful self-reported scale, which can measure four different types of emotional intelligence (EQ). But construct validity and reliability of WLEIS has been studied in different cultures and countries between 2002 and 2022, such as Chilli,[5] China,[2,6–15] Spain,[13,16] Korea,[15,17,18] Morraco,[19] Europe,[20,21] Hungary,[22,23] Pakistan,[15] USA,[11,24,25] Nepal,[26] Canada,[13] Italy,[20,27] and Pakistan.[28] A very few Indian researchers have studied the validity and reliability of the scale. Therefore, the objective of the study is to examine the reliability and construct validity of WLEIS in the Indian hospitality industry so that this scale can be used further in different Indian sectors. Further, the SWLS has also been incorporated into WLEIS. According to Kong et al.[29], individuals with high EI report higher life satisfaction.[4]

Methods

The present study considered a sample of 238 respondents from the hospitality industry of three different age groups and three levels of management, as shown in Table 1. The study was conducted for 12 months by applying WLEIS to measure four factors of EI, and SWLS was used to measure life satisfaction. About 1500 questionnaires were mailed to respondents working in the hospitality industry, of which 629 questionnaires were returned, and 238 were useful questionnaires for studying the validation and reliability of factors of scales, as shown in Figure 1. The response has been collected on a 5-point Likert scale where 1 is "strongly disagree," and 5 is "strongly agree." It is a self-reported questionnaire and does not require researchers for

Table 1. Demographic Characteristics of the Study (*N* = 238).

Age Groups	Number	Percentage (%)
Age		
20–30 years	188	78.9916
31–40 years	45	18.90756
41–50 years	5	2.10084
Gender		
Male	177	74.36975
Female	61	25.63025
Education		
Graduate	123	51.68067
Postgraduate	115	48.31933
Experience		
0–5 years	197	82.77310924
6–10 years	23	9.663866
11–15 years	18	7.563025
Level of Management		
Entry Level	124	52.10084
Middle Level	111	46.63866
Upper Level	3	1.260504

Source: The authors.
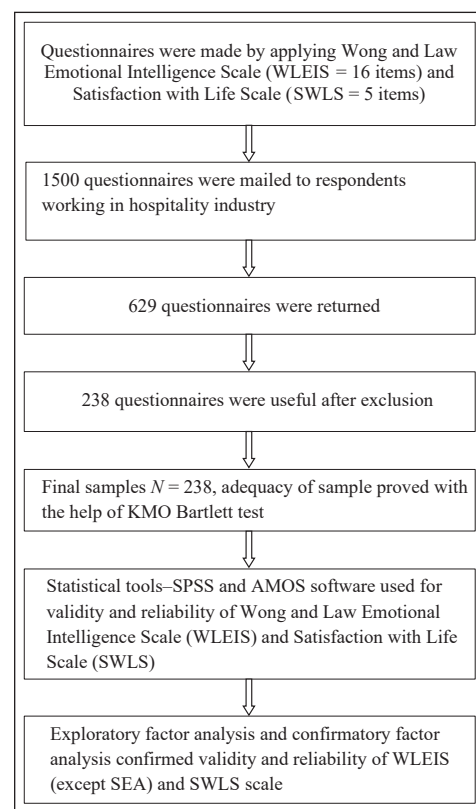
Figure 1. Flowchart of Research Process.

Source: The authors.

observations. 16 items of four factors in WLEIS-like and five items in SWLS are shown in Table 3.

Sample Size

Kaiser–Meyer–Olkin (KMO) test for sampling adequacy—KMO test is used to check adequacy of sample size. The present study found a KMO value of 0.799 with the help of the SPSS tool, which represents the adequacy of the sample for factor analysis. The present study found a KMO value of 0.799, which is good for factor analysis, as shown in Table 2.

Table 2. KMO Bartlett's Test.

KMO and Bartlett's Test		
Kaiser–Meyer–Olkin measure of sampling adequacy.		0.799
Bartlett's test of sphericity	Approximation chi-square	1946.782
	Df	136
	Significant	0.000

Source: SPSS (KMO for Sample Adequacy).

Table 3. Factor Loading and Reliability of Variables.

Constructs	Items	Factor Loading	Cronbach's α
Regulations of emotions (ROE)	He/she is able to control his/her temper and handle difficulties rationally (ROE1)	0.720	0.849
	He/she is quite capable of controlling his/her own emotions (ROE2)	0.847	
	He/she can always calm down quickly when he/she is very angry (ROE3)	0.813	
	Has good control of his/her own emotions (ROE4)	0.779	
Use of emotions (UOE)	He/she is always sets goals for himself/herself and then tries his/her best to achieve them (UOE1)	0.709	0.810
	He/she always tells himself/herself he/she is a competent person (UOE2)	0.683	
	He/she is a self-motivated person (UOE3)	0.817	
	He/she would always encourage himself/herself to try his/her best (UOE4)	0.762	

(Table 3 continued)

(Table 3 continued)

Constructs	Items	Factor Loading	Cronbach's α
Others' emotion appraisal (OEA)	Always knows his/her friends' emotions from their behavior (OEA1)	0.662	0.807
	He is a good observer of others' emotions (OEA2)	0.846	
	He is sensitive to the feelings and emotions of others(OEA3)	0.775	
	He has a good understanding of the emotions of people around him/her (OEA4)	0.768	
Satisfaction with Life Scale (SWLS)	In most ways, my life is close to my ideal (LS1)	0.607	0.810
	The conditions of my life are excellent (LS2)	0.784	
	I am satisfied with my life (LS3)	0.790	
	So far, I have gotten the important things I want in my life (LS4)	0.765	
	If I could live my life over, I would change almost nothing (LS5)	0.641	

Source: SPSS.

Measurement of Variables

Wong and Law[3] developed the WLEIS and tested it across various countries and cultures by applying a standardized process. This scale consists of 16-items of four factors, such as self-emotions appraisal (SEA), others' emotions appraisal (OEA), use of emotion (UOE), and regulation of emotion (ROE); OEA like "He has a good understanding of the emotions of people around him/her. Pilot study showed low validity and reliability of SEA in the Indian context, which has not been considered in the present study. Responses were recorded on the 5-point Likert scale 1 = totally disagree and 5 = totally agree. Apart from that, satisfaction with life was measured from SWLS given by Diener et al. in 1985, which has five items in a scale.

Statistical Tools

For reliability and construct validity of data sets, SPSS version 21.0 AMOS 24 was applied in the current study. With the help of these tools, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) have been conducted for the data analysis.

Results

Reliability Test of WLEIS and SWLS

In order to find out the reliability of items of WLEIS and SWLS in the Indian context, Cronbach's α had been calculated with the help of SPSS. Cronbach's α calculates the reliability of data sets, and its value range from 0-1. A thumb rule is that 0.6 to 0.7 is acceptable, and 0.8 or greater than 0.8 is very good. Results of Cronbach's α for each variable is more than 0.8, as shown in Table 3, which means excellent internal consistency.

Factor Analysis

Exploratory Factor Analysis

In order to conduct CFA, EFA has been used to investigate the number of latent variables or constructs underlying a set of items without enforcing a predetermined idea on the outcome. By conducting EFA, the underlying factor structure will be determined. But, when there will be sufficient theoretical and empirical framework to specify the model or a small subset of models, CFA will be a better approach data analysis. The present study used CFA to check the validity construct of items.

The present study used EFA and found a KMO value of 0.799, as shown in Table 2, which means items of WLEIS and SWLS can be converted into factors easily and fulfill the criteria of an adequate sample for the study. According to[12,24] KMO, values should be equal to 0.70 or greater than 0.70. But if KMO values is less than 0.50, factors are not considerable.[10,30] In EFA, scree plot determines the number of factors in EFA, as shown in Figure 1. It represents eigenvalues on the Y-axis and the number of factors on the X-axis. Scree plot is more or less similar in shape, starting high on the left, quickly falling, and then become flatten. This represents that the first factors explain more variance, the next factors explain moderate, and the latter factors explain very less. The study examined eigenvalues 0.3 to 5.9, as shown in Figure 2, and the rotated component matrix determines four factors, as shown in Table 4. Apart from that, the study also showed total variance explained by four factors was 65.86% as shown in Table 5.

Confirmatory Factor Analysis (CFA)

Convergent Validity of Scales

In CFA, for testing the validity of the scales, the average variance explained (AVE) can be used to assess the convergent validity of the scale. On the other hand, the internal consistency reliability or Cronbach's α is an indicator of the

Table 4. Factor Loading.

Rotated Component Matrix[a]

	Component			
	1	2	3	4
ROE1		0.720		
ROE2		0.848		
ROE3		0.814		
ROE4		0.780		
UOE1				0.709
UOE2				0.683
UOE3				0.817
UOE4				0.763
OEA1			0.654	
OEA2			0.847	
OEA3			0.778	
OEA4			0.760	
SWLS1	0.610			
SWLS2	0.785			
SWLS3	0.788			
SWLS4	0.766			
SWLS5	0.645			

Source: SPSS.

Note: Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization. [a] Rotation converged in 5 iterations.

Abbreviations: OEA, others' emotional appraisal; ROE, regulation of emotion; UOE, use of emotions; SWLS, Satisfaction with Life Scale.
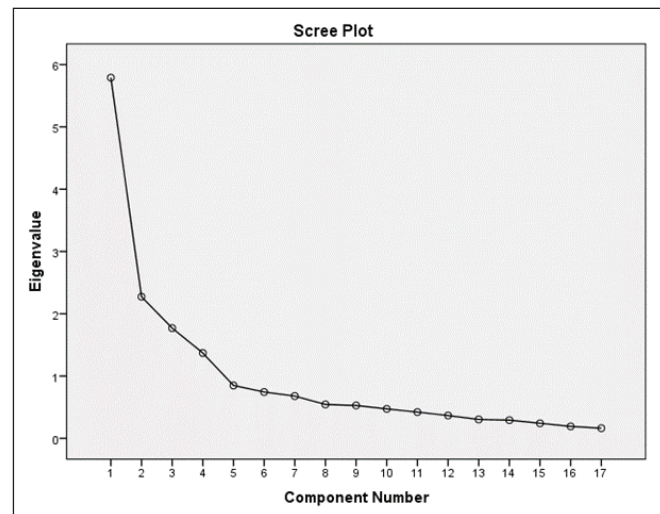
Figure 2. Scree Plot Determines Number of Factors.

Source: SPSS.

Table 5. Total Variance Explained by Four Factors (ROE, UOE, OEA, and SWLS)

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.763	33.902	33.902	5.763	33.902	33.902	3.027	17.808	17.808
2	2.283	13.432	47.334	2.283	13.432	47.334	2.829	16.640	34.447
3	1.767	10.396	57.730	1.767	10.396	57.730	2.700	15.885	50.332
4	1.376	8.096	65.826	1.376	8.096	65.826	2.634	15.494	65.826
5	0.853	5.018	70.844	–	–	–	–	–	–
6	0.748	4.398	75.242	–	–	–	–	–	–
7	0.680	4.001	79.243	–	–	–	–	–	–
8	0.547	3.218	82.461	–	–	–	–	–	–
9	0.530	3.120	85.581	–	–	–	–	–	–
10	0.472	2.778	88.358	–	–	–	–	–	–
11	0.424	2.493	90.851	–	–	–	–	–	–
12	0.368	2.167	93.018	–	–	–	–	–	–
13	0.305	1.797	94.815	–	–	–	–	–	–
14	0.290	1.708	96.523	–	–	–	–	–	–
15	0.237	1.393	97.916	–	–	–	–	–	–
16	0.192	1.129	99.045	–	–	–	–	–	–

Source: SPSS.

consistency of the items in the scale. The present study examined that the AVE and CR of each variable of WLEIS are more than 0.5 and 0.7, except the AVE of the SWLS, which is slightly less than 0.5, can be acceptable. If AVE is less than 0.5 and CR is higher than 0.6, the convergent validity of variables can be acceptable.[31] Composite reliability (CR) measures the overall reliability of a set of items loaded on a latent variable. CR values should be higher than 0.7,[30] as shown in Table 6. For measurement model, model fit of WLEIS and SWLS of the current study is chi-square/df (cin/df value is 4.83, comparative fit index (CFI) value 0.90 which is moderately good according to[32] 0.95 should be considered good, root mean square error of approximation (RMSEA) value 0.10, considered moderate, according to with values below 0.06 being indicative of a good fit model) standardized root mean square residual (SRMR), values less than 0.08 suggest a good fit model and standardized factor loadings (0.641 to 0.847) as shown in Table 7, Table 4 and Figure 3.

Discussion

Today organizations require employees who believe in high levels of EQ that can manage individuals' emotions diligently and collaborate to resolve conflicts at the workplace and achieve organizational goals.[33] Based on empirical analysis of data, it can be understood that WLEIS and SWLS have their importance in the Indian hospitality sector. This research provides empirical insight into the validity and reliability of both scales, which were missing in the Indian hospitality sector. These findings indicate that three factors of the WLEIS, such as ROE, UOE, and OEA, showed adequate reliability and validity except the SEA factor. The research has a number of important findings. First, it confirms that all three factors of the WLEIS are important for satisfaction with life. Thus, the result obtained showed that EI is important for life satisfaction, and it shows consistency in the previous findings where it was concluded that EI is important for life satisfaction.[4] The Cronbach's α of all four constructs (UOE, ROE, OE, and SWLS) is more than 0.8, which indicates excellent internal consistency of these items.[34] CFA confirmed validity of WLEIS and SWLS. The average variance is explained, and composite reliability of all three constructs of WLEIS and SWLS have met their criteria for validity.[2,8,9,11–18] Further, the model fit of the measurement model of WLEIS and SWLS also met their criteria of model fit, which means model can be studied and applied in neuroscience. Since the past few years, satisfaction with life has become a critical issue in the hospitality industry; the findings of the current study might help this sector by applying these scales.

Table 6. Convergent Validity of Items (Composite Reliability and AVE).

Constructs	Items	Composite Reliability (CR)	Average Variance Explained (AVE)
Regulations of emotions (ROE)	ROE1	0.850	0.588
	ROE2		
	ROE3		
	ROE4		
Use of emotions (UOE)	UOE1	0.820	0.536
	UOE2		
	UOE3		
	UOE4		
Others' emotion appraisal (OEA)	OEA1	0.813	0.528
	OEA2		
	OEA3		
	OEA4		
Satisfaction with Life Scale (SWLS)	LS1	0.815	0.472
	LS2		
	LS3		
	LS4		
	LS5		

Source: IBM SPSS Statistics and AMOS Software.

Figure 3. Validity of Measurement Model (WLEIS and SWLS).

Source: IBM SPSS.

Table 7. Measurement Model Fit.

Model Fit Index	Values From the Study	Standard Value
Chi-square/df (cin/df)	4.83	>3
Comparative fit index (CFI)	0.90	>0.95 great; >0.90 traditional; >0.80 sometimes permissible
Root mean square error of approximation (RMSEA)	0.10	<0.05 good; 0.05–0.10 moderate; >0.10 bad
Goodness of Fit (GFI)	0.94	>0.95

Source: IBM AMOS Software.

Conclusion

The Indian hospitality sector is gradually gearing up despite facing great challenge in managing employees' emotions in the constructive process. Employees working in this sector continuously face work pressure because of unpredictable circumstances, and under such circumstances, managing employees' emotions is very difficult. In conclusion, the present study provided new insights regarding the validity and reliability of the WELIS and SWLS. CFA and EFA confirmed the validity and reliability of these scales in the Indian context, which was missing earlier. These types of studies contribute greatly to neuroscience from the empirical results obtained. It initiates to apply these scales practically in the Indian context, which was missing earlier. Moreover, it acts as a guide to generate new kinds of research that permit the neuroscience department to apply such scales that support the measurement of EI in the Indian hospitality sector.
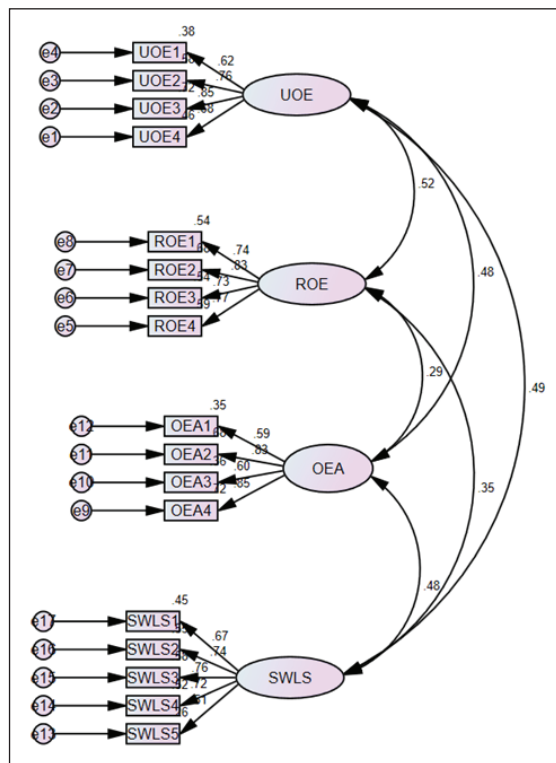
Acknowledgments

Authors' Contribution

ST did the planning and supervision of the work, statistical evaluation of data, and writing the manuscript, and MD had done proofreading. AS was involved in manuscript editing and overall supervision.

Statement of Ethics

Not Applicable.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

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