Validation of "Wong and Law Emotional Intelligence Scale" in Indian Context

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ABSTRACT

Emotional Intelligence is "the ability to acquire and apply knowledge from our emotions and the emotions of others". EI is considered as a psychological construct having wide linkage and relationships with a variety of subjects like human resource management and business management. This study is a theoretical and descriptive attempt to validate a well-known emotional intelligence tool namely, "Wong and Law Emotional Intelligence Scale", in Indian context. "Wong and Law Emotional Intelligence Scale" is a popular selfreport emotional intelligence tool largely used to measure emotional intelligence in organisational research. It was developed by "Wong and Law" (2002) based on revised four branch ability model of "Mayer and Salovey" (1997). The data for the study was collected from a sample of mental healthcare employees in Kerala which include nurses, psychiatrists and psychologists from both public and private mental healthcare institutions. For validation of the scale both exploratory and confirmatory factor analyses were conducted using SPSS and Amos software packages. The results of the study confirmed the factor structure of the scale and it was found to be valid for using in Indian contexts. The major validity values like convergent validity and discriminant validity were found to be as per the acceptable limits. the study could largely contribute to the existing literature of Emotional Intelligence and was a valid addition to the ongoing conceptualisation process and validation of this tool.

Keywords: Emotional Intelligence, WLEIS, Validation, Mental healthcare, Indian Context

INTRODUCTION

Emotional Intelligence means one's skill or capacity to assess, appraise, monitor and control emotions. Scholars and academicians around the world have developed a plenty of assessing tools and rating scales to measure the emotional intelligence levels that can be used for academic and business purposes. Most of

the scales in emotional intelligence are developed on the basis of either trait theory or ability theory. In this study the "Wong and Law Emotional Intelligence Scale" is applied to assess the emotional intelligence of mental healthcare employees. A lot of academic studies have used this instrument to measure the emotional intelligence in organisational settings and it has been proved to be very apt tool for assessing emotional intelligence in organisational studies. It is a wellknown conceptually established self-rating scale largely used throughout the world for academic and non-academic purposes.

Chi-Sum Wong and Kenneth S. Law developed this measurement tool based on the definition of emotional intelligence with four dimensions as proposed by "Davies et al." (1998). In this scale emotional intelligence is assessed under four major constructs namely, Self Emotion Appraisal, Regulation of Emotion, Others Emotion Appraisal and Use of Emotion. In this study, "Wong and Law Emotional Intelligence Scale" is validated in Indian context after collecting required data from employees working in mental healthcare sector of Kerala. The factor structure, factor loadings and different scale validities were confirmed for this study by conducting exploratory and confirmatory factor analyses using SPSS and Amos software packages. The validation of this tool in Indian context will be helpful for upcoming researches in the field and will be a meaningful contribution to the existing literature and validation process of this tool.

WONG AND LAW EMOTIONAL INTELLIGENCE SCALE

"Wong and Law Emotional Intelligence Scale" is a well-known and conceptually established self-rating scale largely used throughout the world for academic and non-academic purposes. Chi-Sum Wong and Kenneth S. Law developed this scale as a normal, practical, and psychometric assessment tool of EI that is used for organisational research purposes. Wong and Law reviewed the existing definitions and domains of the EI concept and proposed that EI instrument must be theoretically different from all dimensions of personality. They investigated the usefulness and validity of the EI dimensions through the studies with four sample design following the major recent works on EI defining it as a construct with four dimensions. Their four-dimensional definition comprises the skills for monitoring emotions in self and others, ability for regulating feelings and emotions and finally the skill to use the information from emotions.

The generation, testing and cross-validation of the items in the WLEIS were done with an active scale development procedure. Primarily three groups of UG and PG students in the field of business management were given effective training on

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constructs of emotional intelligence. Various items for scale got generated on the basis of definition given by Davies et al. with four dimensions. According to three criteria, all inappropriate items were deleted and removed from the scale which resulted in concluding nine items in each dimension. The factor loadings of the items on their respective factors and correlations with selected criterion variables using a sample of 189 university students further eliminated the items resulting in sixteen items with four items in each dimension.

METHODOLOGY

The descriptive and theoretical methodology is used for this study based on review of present literature and primary data collected from the field. The objective of this study is to validate the popular "Wong and Law Emotional Intelligence Scale" (WLEIS) in Indian context. The researcher obtained written permission through email from Wong and Law for using the scale in Indian context. Mental healthcare sector was selected for this study as population and the data was collected from a sample of different mental healthcare workers including nursers, psychiatrists and psychologists from public and private mental health institutions licensed under Kerala State Mental Health Authority (KSMHA).

WLEIS is a scientifically verified questionnaire with 16 items under four subscales that represent the four dimensions of emotional intelligence. The respondents from mental healthcare were provided with questionnaire and asked to respond and return back. The data such collected was processed using the statistical package "IBM SPSS Statistics 20" after properly coding and editing. The major tools used for analysis were descriptive statistics, exploratory factor analysis and confirmatory factor analysis. Confirmatory analysis was conducted using Amos software package.

ANALYSIS AND RESULTS

Exploratory Factor Analysis

Exploratory Factor Analysis (EFA) is a popular multivariate tool of statistical analysis for reducing the available data and scale items into a controllable smaller size. Using this tool a researcher can explore the theoretical structure of the questionnaire and identify various relationships between the variables. Based on the identified structure and theoretical relationships, a new factor structure is formulated by classifying the variables to different factor groups. Emotional intelligence scale was subjected to factor analysis for identifying the naturally occurring factors of emotional intelligence. All sixteen statements under four subscales of "Wong and Law Emotional Intelligence Scale" were subjected to the factor analysis. Primarily the two tests of Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett Test of Sphericity was done to know and verify the adequacy and appropriateness of dataset for factorisation. The Kaiser-Meyer-Olkin measure of sampling adequacy compare and contrast the degree of correlation coefficients in observed data with the degree of partial correlation coefficients. Usually, KMO score vary between zero and one where zero indicates the largeness of partial correlation in relation to the sum of correlation that makes factorisation impossible. If the value is close to one it indicates that pattern of correlation is relatively compact and factorisation can be conducted for extracting distinct and reliable factors.

Table 1.1

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure	.910	
	Approx. Chi-Square	3935.165
Bartlett's Test of Sphericity	Df	120
	Sig.	.000

Source: Survey data

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was found to be excellent (0.910) which is greater than 0.5 (Kaiser, 1974) and the Bartlett Test of Sphericity (BTS) was significant (p < 0.001) as the Chi Square value is 3935.165 with 120 degrees of freedom (Table 1.1). As the value of the test statistic for sphericity is large and the associated significance level is small, it is seemed that the population correlation matrix is not an identity. It clearly provides support and freedom for factorisation and doing further analyses.

As the data was found adequate for factorisation, factor analysis was conducted using exploratory factor analysis in SPSS. Principal Component Analysis method was used for extraction and Varimax with Kaiser Normalization method was used for rotation in this study. The rotation was converged in five iterations. Table 1.2 provides the details of each factor in emotional intelligence scale along with the items contributing to it and the component loadings for each item.

Table 1.2

Rotated Component Matrix

S.	Statements	Components			
No.	Statements		2	3	4
A1	I always know whether or not I am happy	.967			
A2	I really understand what I feel	.965			
A3	I have a good sense of why I have certain feelings most of the time.	.956			
A4	I have good understanding of my own emotions	.939			
B1	I can always calm down quickly when I am very angry.		.788		
B2	I am quite capable of controlling my own emotions.		.754		
B3	I have good control of my own emotions.		.708		
B4	I am able to control my temper and handle difficulties rationally.		.694		
C1	I am sensitive to the feelings and emotions of others.			.861	
C2	I have good understanding of the emotions of people around me.			.707	
C3	I am a good observer of others' emotions.			.694	
C4	I always know my friends' emotions from their behaviour.			.658	
D1	I always set goals for myself and then try my best to achieve them.				.777
D2	I am a self-motivated person.				.706
D3	I always tell myself I am a competent person.				.695
D4	I would always encourage myself to try my best.				.612
Extrac	ction Method: Principal Component Analysis.				
Rotati	on Method: Varimax with Kaiser Normalization.				
a. Rot	ation converged in 5 iterations.				

Source: Survey data

The table 1.2 illustrates the Rotated Component Matrix. All variables with factor loadings above 0.60 were selected for the study. After performing Varimax Rotation Method in Kaiser Normalisation, the first factor named as Self Emotion Appraisal comprised of four items. These items include A1, A2, A3 and A4. In first factor the item A1 showed more (.967) loading followed by A2 (.965). The loadings of A3 and A4 are .956 and .939 respectively. The second factor named Others' Emotion Appraisal comprised of four items as B1, B2, B3 and B4. Among these four items B1 (.788) showed the highest loading and B4 (.694) showed the lowest loading. The third factor named as Use of Emotion also included four items namely C1, C2, C3 and C4 in which C1 (.861) showed more loading and C4 (.658) showed the less loading. In Regulation of Emotion, the fourth factor, four items D1, D2, D3 and D4were selected. Among these four items in fourth factor D1 (.777) obtained highest loading while D4 (.612) held the lowest loading.

ISSN No.2349-7165 FACTOR NAME, VARIANCE AND RELIABILITY

The rotated component matrix explains that all statements were loaded as per the original adopted "Wong and Law Emotional Intelligence Scale". The first four statements were grouped under the component of self emotional appraisal, the next four statements under the component of others' emotional appraisal, the next four under the component of use of emotion and the last four statements under the component of regulation of emotion. The explained variance and reliability of rotated factors are illustrated in the below table as obtained from the output of factor analysis (Table 1.3). It clearly indicates that all extracted factors have adequate reliability as the Cronbach's alpha is above 0.70 for all four factors.

Table 1.3

Factor Name, Variance and Reliability

Factor	Variance	Reliability (Cronbach's Alpha)	Factor Name
1	24.404	0.987	Self-Emotion Appraisal
2	17.681	0.820	Regulation of Emotion
3	16.141	0.833	Others' Emotion Appraisal
4	15.731	0.810	Use of Emotion

Source: Survey data

Confirmatory Factor Analysis for Emotional Intelligence Scale

As exploratory factor analysis could extract four factors as explained in original scale, a confirmatory factor analysis was conducted to finalise and confirm the 'Emotional Intelligence' construct identified. The data for analysis were found free from missing values and outliers. The measurement model of emotional intelligence along with its four factors as self-emotion appraisal, others' emotion appraisal, use of emotion, regulation of emotion is given below.





The measurement model for emotional intelligence (Fig 1.1) was tested by a Confirmatory Factor Analysis by using Amos 21. This measurement model was developed to assess the emotional intelligence of mental healthcare employees related with certain demographic factors as gender, marital status, organisation, occupation and experience. The reliability of the scale developed was confirmed through Cronbach's alpha value method. The structural equation model using Amos provides several indices of fit like measure of absolute fit, comparative fit,

and parsimonious fit etc. The table 1.4 provides the major model fit indices and its obtained values for emotional intelligence model.

Madal fit Indiana	Values		
Widdel IIt Indices	Obtained	Recommended	
CMIN / DF	0.359	<5	
RMR	0.05	<0.05	
GFI	0.922	>0.9	
AGFI	0.931	>0.9	
PGFI	0.882	>0.9	
NFI	0.921	>0.9	
RFI	0.922	>0.9	
IFI	0.926	>0.9	
TLI	0.939	>0.9	
CFI	0.942	>0.9	
RMSEA	0.031	<0.08	

Table 1.4 Model fit Indices

Source: Survey data

Table 1.4 shows the different model fit indices of the confirmatory factor analysis. Usually, a measurement model with model fit indices of greater than 0.09 and Root Mean Square Error of Approximation (RMSEA) less than 0.08 is considered to be close fit with the dataset. The measurement model of Emotional Intelligence was concluded to be a good fitting model as all the indices were found as per recommendations. The major paths drawn in the model were proved to be significant with critical ratios being above 1.96.

VALIDATION OF THE EMOTIONAL INTELLIGENCE SCALE

After the Emotional Intelligence instrument was developed it was subjected for validation to ensure that the instrument really measure Emotional Intelligence construct. For any measuring instrument validity and reliability are the two critical criteria that verify the degree to which a measuring instrument measures what is supposed to measure. Various validity tests were performed to assess the goodness of measures of the instrument. Validation tests such as convergent and discriminant validities were conducted.

CONVERGENT VALIDITY

Tests of convergent validity determine if the answers to the questions have a strong enough correlation with the corresponding latent variables. The comparison of loadings determined via non-confirmatory analysis with a fixed value is typically used to evaluate convergent validity. In order to determine whether a measurement model has acceptable convergent validity, two criteria are suggested: loadings for indicators of each individual latent variable must be 0.5 or higher, and p values related to the loadings should be less than 0.05.

Table 1.5

S. No.	Statements	Estimate	P value
A1	I always know whether or not I am happy ← Self Emotion Appraisal	.926	< 0.001
A2	I really understand what I feel \leftarrow Self Emotion Appraisal	.929	< 0.001
A3	I have a good sense of why I have certain feelings most of the time ← Self Emotion Appraisal	.918	< 0.001
A4	I have good understanding of my own emotions ← Self Emotion Appraisal	.876	< 0.001
B1	I can always calm down quickly when I am very angry ← Others' Emotion Appraisal	.752	< 0.001
B2	I am quite capable of controlling my own emotions ← Others' Emotion Appraisal	.668	< 0.001
B3	I have good control of my own emotions ← Others' Emotion Appraisal	.755	< 0.001
B4	I am able to control my temper and handle difficulties rationally ← Others' Emotion Appraisal	.716	< 0.001
C1	I am sensitive to the feelings and emotions of others \leftarrow Use of Emotion	.738	< 0.001
C2	I have good understanding of the emotions of people around me ← Use of Emotion	.710	< 0.001
C3	I am a good observer of others' emotions \leftarrow Use of Emotion	.740	< 0.001
C4	I always know my friends' emotions from their behaviour ← Use of Emotion	.684	< 0.001
D1	I always set goals for myself and then try my best to achieve them ← Regulation of Emotion	.743	< 0.001
D2	I am a self-motivated person \leftarrow Regulation of Emotion	.706	< 0.001
D3	I always tell myself I am a competent person ← Regulation of Emotion	.743	< 0.001
D4	I would always encourage myself to try my best ← Regulation of Emotion	.728	< 0.001

Factor loadings and p values for "Emotional Intelligence"

Source: Survey data

As illustrated in Table 1.5, the output clearly reveals that the factor loadings related to the latent variables fall between 0.668 and 0.929. Therefore, it is plausible to infer that the convergent validity of the measurement model for the emotional intelligence concept is acceptable.

DISCRIMINANT VALIDITY

Tests of discriminant validity confirm whether or not the respondents' answers to the questions are connected with other latent variables. If the square root of the average variance extracted (AVE) for each latent variable is greater than any

correlation between the latent variable in question and any of the other latent variables in the measurement model, then the measurement model has acceptable discriminant validity

Table 1.6

Factors	AV E	Correlation	
Self-Emotion Appraisal	0.92	Self-Emotion Appraisal ↔ Others' Emotion Appraisal	0.58
Others' Emotion Appraisal	0.72	Self-Emotion Appraisal ↔ Use of Emotion	0.55
Use of Emotion	0.72	Self-Emotion Appraisal ↔ Regulation of Emotion	0.48
Regulation of Emotion	0.73	Others' Emotion Appraisal ↔ Use of Emotion	0.79
		Others' Emotion Appraisal ↔ Regulation of Emotion	0.70
		Use of Emotion ↔ Regulation of Emotion	0.82

Average Variance Extracted and Inter Construct Correlation

Source: Survey data

Discriminant validity was confirmed by studying relationships among the constructs. Typically, poor discriminant validity in structural equation modelling is indicated by a correlation of 0.85 degree or higher. None of the correlations between the variables in the emotional intelligence concept were greater than 0.85 (Table 1.6), and the measuring model was recommended to have sufficient discriminant validity.

Additionally, the inter-construct correlation was computed and compared with the extracted average variance in order to verify discriminant validity. Discriminant validity was established in this measurement model when all variance extracted (AVE) estimates were greater than the squared inter-construct correlation estimates (Table 1.6).

CONCLUSION

Emotional intelligence is a very crucial and relevant psychological concept that can be applied in different walks of life for developing better relationships and work environments. "Wong and Law Emotional Intelligence Scale" (WLEIS) is a popular self-report emotional intelligence tool largely used to measure emotional intelligence in organisational research. It was developed by Wong and Law (2002) based on revised four branch ability model of Mayer and Salovey (1997) which are Self Emotion Appraisal (SEA), Other's Emotion Appraisal (OEA), Use of Emotions (UOE) and Regulation of Emotions (ROE). This tool measures the self-perceptions of individuals about their emotional intelligence consisting of 16 items with four items in each branch of the model.

This study has made an attempt to validate the "Wong and Law Emotional Intelligence Scale" (WLEIS) in Indian context that may be helpful for conducting further research studies based on emotional intelligence aspects. The study collected data from a sample of mental healthcare employees in Kerala and validated the scale through exploratory and confirmatory factor analyses using SPSS and Amos software packages. The results of the study confirmed the factor structure of the scale and it was found to be valid for using in Indian contexts. The major validity values like convergent validity and discriminant validity were found to be as per the acceptable limits. the study could largely contribute to the existing literature of Emotional Intelligence and was a valid addition to the ongoing conceptualisation process and validation of this tool.

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