

Evaluating the Psychometric Properties of Workplace Spirituality Scale in Pakistani Context School Teachers

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Abstract

Workplace Spirituality (WS) is recognized as the inner state of individuals and an aspect of their working life. This study was conducted to evaluate the psychometric properties of the Workplace Spirituality Scale (WPS) developed by Petchsawang and Duchon (2009) in Pakistani context school teachers. The present study was quantitative research and used a cross-sectional survey design. The sample for the study consisted of four hundred public school teachers. The data was collected personally by researchers and necessary guidelines were shared with the respondents. EFA and CFA were applied to evaluate the psychometric properties of the Workplace Spirituality Scale (WPS) in the Pakistani context. The results of the statistical analysis confirmed the four factors model (transcendence, mindfulness, compassion, and meaningful work) and ensured the generalizability of WPS. Furthermore, the results of statistical analysis established adequate reliability and validity of WPS. The modifications in this scale are highlighted. The findings of the study indicated that the instrument is valid and reliable which measures workplace spirituality. Further studies may be conducted in a different context to further ensure the dimensionality, reliability, and validity of WPS through different methodologies and techniques.

Keywords: psychometric properties, reliability, validity, workplace spirituality scale, workplace spirituality

Introduction

The concepts of positive psychology, such as ethics, belief in super force, integrity, mindfulness, trust, kindness, respect, sense of community and peace in the organization, inspiring employees, humanism, compassion, meaningful work, and transcendence are constructing a new concept which is called workplace spirituality. Spirituality in the workplace is recognized as an aspect of the working life of individuals, the inner state of individuals, which is further built and measured by performing meaningful work at the workplace (Ashmos & Duchon, 2000; Petchsawang & Duchon, 2009).

This emerging notion of workplace spirituality is taking a very important place in contemporary organizations. The concept of spirituality was prohibited in organizations previously but now it is gradually becoming researchable and acceptable. Thus, the progressive trend of workplace spirituality in management and behavioral sciences is becoming an essential element for the success of organizations. Moreover, it is worth noting that other than management and behavioral sciences disciplines it has also gradually increased regardless of prevailing criticism and hesitations (Azadmarzabadi et al., 2012).

Different studies found that the higher level of workplace spirituality in an organization provides various advantages and benefits including improving trust, creativity, commitment, honesty, ethics, accountability, job satisfaction, motivation, integrity, sharing, involvement, and decreasing absenteeism, conflict, stress and turnover intentions among employees at workplace (Burack, 1999; Delbecq, 1999; Freshman, 1999; Marques et al., 2005; Milliman et al., 2003; Wanger-Marsh & Conley, 1999). Therefore, the state of workplace spirituality in organizations has been cogitated by researchers, supervisors, and administrators for the satisfaction and motivation of workers and customers (Rastgar et al., 2012). The promotion of workplace spirituality, self-respect, and confidence among employees leads to increase performance, satisfaction, commitment, and efficiency at the workplace (Karkas, 2010).

Currently, the necessity of research on workplace spirituality in organizations is increasing due to its emerging importance in the workplace. Workplace spirituality creates stability and loyalty in workers and increases confidence, interest, and enthusiasm (Beikzadeh et al., 2011). In addition, the role

of spirituality at the workplace is contributory to the progress of organizations as it provides civilization for society, perfection for organizations, and obligations for the working environment (Mitroff, 2003).

Literature Review

The word of spirituality has been driven from the Latin word “Spiritus” which is about the metaphysical aspect of things like, breath, soul, and air. Spiritus is discussed as a fundamental aspect of living things that provide energy and spirit to the physical body. This means that spirit is energy, driver, and power that inhabits individuals in life when they are breathing and awake. Workplace spirituality is related to consciousness, meaningful work, teamwork, mindfulness, thinking process, and connection with super force and ultimate reality (Karakas, 2010).

The term workplace spirituality (WS) has different meanings in different academic disciplines. This diversity in meanings creates a challenge to search for a comprehensive definition of workplace spirituality (Tischler et al., 2002). Some scholars of management and behavioral sciences stated that workplace spirituality is the core component of organizational culture (Daniel, 2010; Leigh, 1997). Giacalone and Jurkiewicz (2003) recognized that WS is an element of organizational culture and consisted of such organizational values that create satisfaction, kindness, happiness, and a sense of perfection and connection among workers through the work process at the workplace.

Kolodinsky et al., (2008) stated that workplace spirituality is categorized in three levels namely: individual, organizational and societal level. Individual-level workplace spirituality is related to personal spiritual ideas, feelings, beliefs, and values in a specific workplace. Organizational level workplace spirituality is related to the spiritual ideas, feelings, beliefs, and values of individuals in the organization. Societal level workplace spirituality is related to spiritual thoughts, feelings, beliefs, and values of individuals about relationships with other members of society.

Mitroff and Denton (1999a) indicated that WS is associated with increasing meaningful work among employees, building teamwork, and create a balance between the values of employees and organizational values. Ashmos and Duchon (2000) described WS as the inner aspect of workers and sense of community at the workplace that builds and nurtures by meaningful work.

Gotsis and Kortezi (2008) described workplace spirituality as nurturing mindfulness, individual perfection, transcendence, and gladness among workers that are recognized in several academic disciplines. Petchsawang and Duchon (2009) describe workplace spirituality as building compassion among workers, practicing mindfulness for increasing meaningful work that facilitates to transcendence aspect of individuals. Saks (2011) stated that WS has been described in different ways by different scholars according to their context and culture. The experts of this notion connected it with various dimensions and concepts such as connectedness with society, organization and oneself, inner life, teamwork, and meaningful work, personal fulfillment, organizational standards, inner self, and connectedness (Ashmos & Duchon, 2000; Mitroff & Denton, 1999; Pawar, 2009). Likewise, Giacalone and Jurkiewicz (2004) indicated organizational values, transcendence, and connectedness as the components of WS. Furthermore, Liu and Robertson (2011) anticipated interconnection with super force, with individuals, with all living things, and with nature as the discriminant of WS. However, the review of the literature suggested that the common dimensions of WS are compassion, meaningful work, inner state, mindfulness, teamwork, and transcendence.

Hence, the focuses of this study is on the components of WS projected by Petchsawang and Duchon (2009), namely: transcendence, mindfulness, compassion, and meaningful work. Compassion is a feeling developed for others in terms of care, sympathy, support, and understanding their suffering to provide a solution or relief. It is developing awareness and desire to do good for others (Petchsawang & Duchon, 2009). Mindfulness is a state of being conscious of happenings around us and being aware at all times. A mindful person is free from distractions and is a person who lives in the present and does not wander about past or future predicaments (Petchsawang & Duchon, 2009). Mindfulness is friendly attention and mental presence at the workplace. Mindfulness improved attentional stability, attentional control, attentional efficiency, cognitive capacity, cognitive flexibility, positive emotions, hope, confidence, self-regulation of behavior (Good et al., 2015). Meaningful work is a sense of feeling that a person is working on something that is inclined with what he or she wants to achieve in life. Meaningful work gives a person a sense of joy, happiness, and excitement. It is a means of expressing one's inner self at work (Petchsawang & Duchon, 2009). Meaningful work contributed towards individual and organizational purposefulness, commitment, independence, control, engagement, accomplishment, proficiency, growth, mastery, self-realization, and

achievement at the workplace (Fairle, 2011).

Transcendence explains a sense of connection with a higher power that gives him or her experiences of joy or bliss at work. Transcendence is a spiritual term and not a religious term that includes connectedness to God (Petchsawang & Duchon, 2009). Transcendence contributed towards widespread connectedness, enjoyment, limitless purpose, unity among individuals, and emotional closeness of employees at the workplace (Lace et al., 2017).

The measurement of different constructs is the concern of researchers all the time and for measurement of any construct, there is a need for a valid and reliable instrument or scale. Therefore, for measurement of WS of workers Petchsawang and Duchon (2009) constructed and validated WPS in the South Asian context which covering above discussed four dimensions of workplace spirituality. This WPS consisted of twenty-two items, including four components namely: compassion (4 statements) with Alpha value 0.63 and Sample statements are: “I am aware of and sympathize with others” and “I am aware of my co-workers’ needs”, mindfulness (6 statements) with Alpha value 0.79 and Sample statements are: “I find myself working without paying attention” and “It seems I am working automatically without much awareness of what I’m doing”, meaningful work (7 statements) with Alpha value 0.78 and Sample statements are: “I experience joy in my work” and “My spirit is energized by my work”, and transcendence (5 statements) with Alpha value 0.75 and Sample statements are: “I experience moments at work where everything is blissful” and “At times, I experience happiness at work”. This 22 statement WPS model fits perfectly in the South Asian context. Associations between each statement and its dimension ranged from 0.34 to 0.81, and the r-square from 0.12 to 0.71, which provided proof of satisfactory convergent validity of WPS in the South Asian context.

Shrestha (2016) validate this scale in the Nepali context who found that the internal consistency reliability of the compassion dimension was below .70 and discriminant and convergent validity of transcendence dimension did not meet all the criteria to confirm the validity of this scale.

EFA and CFA are two common techniques used in scale adaptation studies. In scale adaptation studies mostly researchers started with EFA and then applied

CFA. EFA is applied to explore the factors and structure of the scale and CFA is applied to confirm the factors and structure of scale (Orcan, 2018).

Research Purpose

The core purpose of this research paper was to evaluate the psychometric properties of the Workplace Spirituality Scale (WPS) developed by Petchsawang and Duchon (2009) in Pakistani context school teachers through EFA and CFA. In addition, this scale would be useful for the measurement of the workplace spirituality of teachers.

Research Objective

To evaluate the psychometric properties of the Workplace Spirituality Scale in Pakistani context school teachers through EFA and CFA.

Research Questions

1. How many dimensions of the measurement model of workplace spirituality scale?
2. What are the values of reliability and validity (convergent and discriminant validity) of workplace spirituality scale in the Pakistani context?

Methodology

The present study was conducted to evaluate the psychometric properties of the Workplace Spirituality Scale (WPS) developed by Petchsawang and Duchon (2009) in Pakistani context school teachers. This study was quantitative research and a cross-sectional survey design was applied. The data were collected from 400 public school teachers of the school education department in Punjab, Pakistan. The data was collected personally by researchers. The workplace Spirituality Scale (WPS) developed by Petchsawang and Duchon (2009) was administered for data gathering. WPS was translated into Urdu to unearth more accurate data regarding WS from the teachers of public schools. Orcan (2018) mentioned step by step process for translating a scale into another language. Accordingly, at the first step, two language experts translated the WPS into Urdu. Secondly, one different language expert finalized the translation. In the third step, the translated scale was translated back into English by two new experts. Lastly, these translations were

evaluated and finalized by one more new translation expert. The final version of WPS consisted of twenty-two items, including four components namely: compassion (4 statements), mindfulness (6 statements), meaningful work (7 statements), and transcendence (5 statements) with a six-point Likert scale from SD (1) to SA (6). The Cronbach's Alpha of this scale was 0.85. There is further need to ensure the dimensionality, reliability, and validity of this scale for utilization of this scale in Pakistani educational organizations context for measurement of WS. Collected data were analyzed by using SPSS 22.0 AMOS. EFA and CFA were applied to evaluate the psychometric properties of the Workplace Spirituality Scale in Pakistani context school teachers.

Findings

The data were analyzed by using SPSS 22.0 AMOS. EFA and CFA were applied to evaluate the psychometric properties of the Workplace Spirituality Scale (WPS) developed by Petchsawang and Duchon (2009) in Pakistani context school teachers.

Exploratory Factor Analysis (EFA) on WPS

EFA was performed to explore the dimensions and their respective statements of WPS.

Table 1

KMO and Bartlett's Test of WPS

KMO Measure of Sampling Adequacy.		.883
	Approx. Chi-Square	3608.478
Bartlett's Test of Sphericity	Df	231
	Sig.	.000

According to Pallant (2016), the data is considered fit for factor analysis if the value of KMO Measure of Sampling Adequacy is higher than 0.6 and the value of Bartlett's Test of Sphericity is statistically significant (i.e. the significant value should be 0.05 or smaller). The value of KMO for the instrument of workplace spirituality is 0.883 and Bartlett's Test of Sphericity is significant. It shows that the data obtained through the workplace spirituality instrument is suitable to run the factor analysis.

Table 2*Items' Correlations of WPS*

	Communalities	
	Initial	Extraction
WS1	1.00	.846
WS2	1.00	.738
WS3	1.00	.840
WS4	1.00	.897
WS5	1.00	.734
WS6	1.00	.810
WS7	1.00	.835
WS8	1.00	.870
WS9	1.00	.831
WS10	1.00	.711
WS11	1.00	.710
WS12	1.00	.726
WS13	1.00	.799
WS14	1.00	.872
WS15	1.00	.866
WS16	1.00	.830
WS17	1.00	.894
WS18	1.00	.735
WS19	1.00	.822
WS20	1.00	.867
WS21	1.00	.793
WS22	1.00	.805

Extraction Method: Principal Component Analysis (PCA).

Notes: WS = Workplace Spirituality

The table of communalities demonstrates the values of correlation. All the items extracted from exploratory factor analysis correlate 0.50 or greater than 0.5. This shows that all the statements are suitable to proceed with the factor analysis.

Table 3*Factors Loadings using Eigen Values Criteria*

Component	Total Variance Explained						Rotation Sums of Squared Loadings
	Initial Eigenvalues			Extraction Sums of Squared Loadings			
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	6.066	27.573	27.573	6.066	27.573	27.573	5.036
2	3.870	17.591	45.164	3.870	17.591	45.164	3.831
3	1.376	6.255	51.419	1.376	6.255	51.419	2.828
4	1.228	5.584	57.002	1.228	5.584	57.002	3.540
5	.987	4.485	61.487				
6	.889	4.043	65.530				
7	.769	3.498	69.027				
8	.698	3.172	72.199				
9	.668	3.038	75.237				
10	.628	2.856	78.093				
11	.565	2.567	80.660				
12	.538	2.444	83.104				
13	.514	2.336	85.441				
14	.464	2.107	87.548				
15	.415	1.886	89.433				
16	.403	1.834	91.267				
17	.362	1.645	92.912				
18	.349	1.588	94.500				
19	.343	1.557	96.057				
20	.327	1.484	97.541				
21	.291	1.323	98.864				
22	.250	1.136	100.000				

Extraction Method: PCA

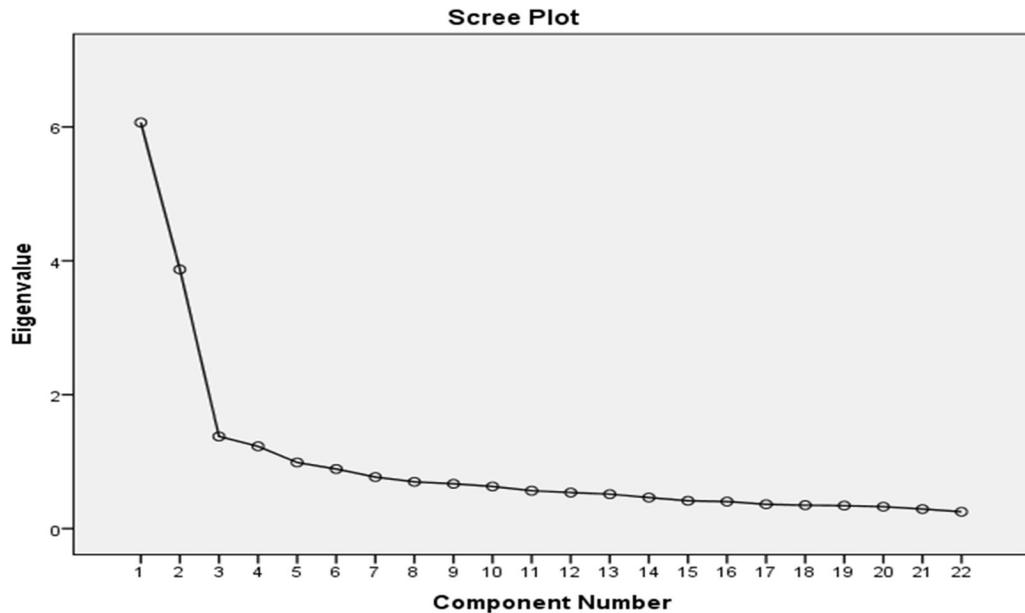
a. When components are associated, sums of squared loadings cannot be calculated to find a total variance.

Using the Kaiser's criterion, only those factors are considered suitable which has Eigen values more than one. In table 3, it can be seen that four factors are extracted which have Eigen values of more than 1. These four factors have

Eigen values (6.066, 3.870, 1.376, and 1.228) respectively. The variance explained by these four factors is 57.003% of the total variance.

Figure 1

Scree Plot of the Factors of Workplace Spirituality Scale



In factor analysis, scree plots are often checked while using Kaiser's criterion. Those components are retained before the alteration (elbow) in the structure of the plot. In the above case, there is a visible breakdown between the 2nd and 3rd components. Component 1st and 2nd apprehend most of the difference than the other components. There is also a small breakdown after the 4th component. Therefore, four components are extracted based on the Scree plot (See figure 1).

Table 4

EFA of Workplace Spirituality Scale using Principal Component

	Component Matrix			
	1	2	3	4
WS14	.790			
WS3	.727			.865
WS15	.701			
WS12	.799			
WS16	.777			
WS20	.755		.837	
WS13	.754			.611
WS2	.749		.813	
WS4	.729			.841
WS22	.724		.644	
WS11	.703			.552
WS17	.794			
WS18	.709		.601	.817
WS8		.810		
WS7		.788		
WS9		.781		
WS10		.770		
WS6		.853		
WS5		.890		
WS1		.808		
WS21	.332	.730	.630	
WS19	.513			.743

Extraction Method: PCA

a. four components extracted.

Using Kaiser’s criterion, it can be observed in the above table that four factors are extracted. The items are loaded on four components respectively. Hence, it can be concluded that four factors solution is appropriate.

Table 5*EFA of Workplace Spirituality Scale using Pattern Matrix*

	1	2	3	4
WS13	.805			
WS12	.768			
WS11	.723			
WS15	.874			
WS14	.871			
WS22	.700			
WS16	.855			
WS8		.784		
WS6		.782		
WS7		.769		
WS9		.757		
WS10		.751		
WS5		.843		
WS1		.850		
WS4			.812	
WS3			.750	
WS2			.832	
WS17			.830	
WS19				.789
WS18				.725
WS20				.873
WS21				.806

Extraction Method: PCA

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation collected in 30 iterations.

Note: Component 1= Meaningful work, 2= Mindfulness, 3= Compassion, 4= Transcendence

Pattern matrix is considered an essential component before making the final judgment about the extraction of the factors. In table 5, it can be seen that the items are loaded on the four components. On the first and second components, 7 items were loaded. Four items were loaded on components 3 and 4. Thus, four components were considered appropriate using the pattern matrix. There was a change in the structure of the model. Initially, statement WS1 was included in

the factor of compassion, WS17 was included in meaningful work and WS22 was included in transcendence. These statements changed their position and statement WS1 was loaded in mindfulness, WS17 was loaded in compassion and WS22 was loaded in meaningful work after the EFA.

Confirmatory Factor Analysis (CFA) on WPS

The CFA was used to confirm the best fit model identified in exploratory factor analysis. The preliminary analysis confirmed that the data were normally distributed and data was fit for the application of CFA. The output of CFA ($\chi^2/$ CMIN/DF = 2.983, GFI = 0.95, AGFI = 0.91, TLI = 0.97, CFI = 0.97, RMSEA = 0.041) confirmed the structure of the questionnaire. The confirmatory factor analysis confirmed the four factors for the model.

Hu and Bentler (1999) gave the threshold to assess the model fit for CFA. According to them, Chi-Square, CMIN/DF value of ≤ 3 is considered good whereas the value < 5 is sometimes permissible for model fit. In the present study, the value of CMIN/DF is 2.983 which is below the threshold value given by Hu and Bentler (1999). Furthermore, the value of CFI > 0.95 , > 0.90 , and > 0.80 is considered great, traditional, and sometimes permissible. The value obtained for CFI in this study is 0.97 which is in between the threshold values given by Hu and Bentler (1999). The value of TLI (Tucker Lewis Index) is considered good if it is higher than 0.95. The value of TLI in the current study is 0.97 which indicates a good fit for the current model. The value of AGFI greater than 0.80 is considered good. The value of AGFI in this study is 0.869 which satisfies this assumption. The value of RMSEA is considered good, moderate, and bad if it is < 0.05 , $0.05-0.10$, and > 0.10 . In this study, the value of RMSEA is 0.041 which is considered moderate and validates this assumption.

Convergent Validity

Convergent validity is measured using three different methods. First and foremost, if the loadings of the items are significant and the estimated value is 0.50 or greater, then the construct is achieved convergent validity. In table 2, all the items in the workplace spirituality instrument loaded above 0.50, that is, above the cut-off score. It can be concluded that the items of workplace spirituality achieved convergent validity. Secondly, convergent validity is also assessed from the values

of Average Variance Extracted (AVE). The value of AVE can be evaluated by factor loadings. The formula of AVE is given below.

$$AVE = \frac{\sum_{i=1}^n Li^2}{n}$$

The Li shows the standardized loadings and I represent the number of statements. An AVE of 0.50 or greater is considered adequate for convergent validity. The values of AVE for the constructs of workplace spirituality are given in table 6.

Thirdly, convergent validity is measured in terms of Cronbach's alpha (α) and Composite Reliability (CR). The values of α and CR greater than 0.70 are considered adequate to measure the convergent validity of the instrument. The values of α and CR for the constructs of WPS are mentioned in table 6.

Table 6

Convergent Validity and Reliability of Factors of Workplace Spirituality Scale

Name of factors	Values of AVE	Values of α	Values of CR
Compassion	0.651	0.928	0.931
Mindfulness	0.627	0.930	0.954
Meaningful Work	0.643	0.912	0.926
Transcendence	0.640	0.939	0.927

Convergent validity is measured in terms of AVE. It is considered good if it is greater than 0.50. The value of convergent validity of all factors of workplace spirituality is greater than 0.50 which established the assumption of convergent validity. The values of α and CR for the constructs of workplace spirituality are greater than 0.70 which indicates that convergent validity is established between the items and their respective factors.

Discriminant Validity

An instrument has adequate discriminant validity if one factor of that instrument is not highly associated with the other factors of that instrument. The value of discriminant validity greater than 0.85 between the two constructs is considered an overlap and statistically, it is said that both the constructs are

measuring the same thing. The values of discriminant validity for the instrument of workplace spirituality are given in table7.

Table 7

Discriminant Validity of Factors of Workplace Spirituality Scale

Name of factors	1	2	3	4
Compassion	0.802			
Meaningful Work	0.785	0.807		
Mindfulness	0.190	0.036	0.792	
Transcendence	0.671	0.733	0.049	0.800

Discriminant validity is established when the relationship between two factors is less than 0.85 and the square root of AVE must be higher than the value of the relationship between the latent variables. As it is evident from table 8, the values of each construct for the instrument of workplace spirituality is less than 0.85 and the square root of AVE is higher than the relationship between the latent variables. Hence, it can be concluded that discriminant validity is also established between the constructs.

Discussion

This study was conducted to evaluate the psychometric properties of the Workplace Spirituality Scale (WPS) developed by Petchsawang and Duchon (2009) in Pakistani context school teachers. The current study found that initially, the statements WS1 were included in the factor of compassion, statement WS17 was included in meaningful work and statement WS22 was included in transcendence. These statements changed their positions and statements WS1 was loaded in mindfulness, WS17 was loaded in compassion and WS22 was loaded in meaningful work after the EFA. In the component matrix table, all items are loaded on four components respectively. The CFA was applied to confirm the best fit model identified in EFA. The preliminary analysis confirmed that the data were normally distributed and data was fit for the application of CFA. The output of CFA confirmed the structure of the scale. The CFA confirmed the four factors for the model. Therefore, it was concluded that four factors solution is appropriate. The findings of this study are similar to the study of Petchsawang and Duchon (2009) that WPS consisted of four factors namely: transcendence, mindfulness,

compassion, and meaningful work. Further, Shrestha (2016) also confirmed the four factors model of workplace spirituality scale.

All the items in the workplace spirituality scale loaded above 0.50, are the cut-off score. It was concluded that the items of the workplace spirituality scale achieved convergent validity. Secondly, convergent validity was also assessed from the values of AVE. The values of AVE for the factors of workplace spirituality is greater than 0.50 which also established the assumption of convergent validity. The values of α and CR for the constructs of workplace spirituality were greater than 0.70 which further indicated that convergent validity was established between the items and their respective constructs. The values of each construct for the workplace spirituality scale were less than 0.85 and the square root of AVE was higher than the relationship between the latent variables. Hence, it was concluded that discriminant validity was also established between the constructs. These findings have some inconsistencies with the findings of Shrestha (2016), who found that the internal consistency reliability of compassion dimension was below .70 and discriminant and convergent validity of transcendence dimension did not meet all measures to ensure validity.

Conclusion and Recommendations

It was concluded that the modifications in the measurement model of WPS were based on the above factor analysis. In the original scale, the statements WS1 were included in the factor of compassion, statement WS17 was included in meaningful work and statement WS22 was included in transcendence. These statements changed their positions statements: WS1 was loaded in mindfulness, WS17 was loaded in compassion and WS22 was loaded in meaningful work after the exploratory factor analysis. The modified version of the workplace spirituality scale consisted of twenty-two items, including four dimensions namely: compassion (4 statements), mindfulness (7 statements), meaningful work (7 statements), and transcendence (4 statements). It was concluded that the results of the statistical analysis confirmed the four factors model (transcendence, mindfulness, compassion, and meaningful work) and ensured the generalizability of WPS. Further, it was concluded that the results of statistical analysis established adequate reliability and validity of WPS.

The present study was conducted to evaluate the psychometric properties

of the Workplace Spirituality Scale (WPS) developed by Petchsawang and Duchon (2009) in Pakistani context school level teachers. The participants for this study were only teachers taken from school-level educational organizations. Further studies should be conducted to confirm the generalizability of the scale on a large sample from the same organizations and different organizations contexts. Further studies are needed in different contexts to ensure the dimensionality, reliability, and validity through different methodologies and techniques of this scale for the measurement of workplace spirituality.

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