I J A B E R, Vol. 14, No. 6, (2016): 4253-4266

EMPIRICAL VALIDATION OF DIMENSIONALITY OF QUALITY OF WORK LIFE IN INDIA

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Abstract: *Purpose – Quality of work life is a unique and distinctive construct that is highly valued in organizations. The purpose of this paper is to identify the dimensions of quality of work life from Indian perspective.*

Design/methodology/approach – Exploratory factor analysis was employed to identify the constituent dimensions suitable to measure quality of work life. Confirmatory factor analysis was then performed on these identified dimensions and their items to check validity, reliability and dimensionality and determine a factor structure.

Findings – Results obtained suggested a three-dimensional conceptualization of quality of work life with twelve items. The dimensions identified are entitled as quality of work life with health and safety (QWLHS), family and pay (QWLFP) and knowledge (QWLK).

Research limitations/implications – The findings can benefit managers at an operational level. They can make their employees work effectively with focus to improve every smallest aspect of work life.

Originality/value – This paper is the first of its kind to conduct exploratory factor analysis followed by confirmatory factor analysis to identify a three-factor quality of work life conceptualization in Indian context.

Paper type – Research paper.

Keywords: *India, quality of work life, dimensionality, three-factor model, managers.*

1. INTRODUCTION

Quality of work life (QWL) was defined by Sirgy, Efraty, Siegel and Lee (2001) as "employee satisfaction with a variety of needs through resources, activities, and outcomes stemming from participation in the workplace." The idea was developed in defence to the notion that quality of work life affects many employee behavioural responses such as commitment, satisfaction and identification with the job, work group and the organization as a whole (Efraty and Sirgy, 1990). An employee who is happy with his or her work life will enhance the productivity of a unit in the

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organization (Kashyap and Rangnekar, 2014). The work in an organization is often demanding in comparison to the compensation given to employees. As a result, work life needs to be framed in such a way that employees willingly increase their efforts to boost efficiency of an organization to maximize returns.

Quality of work life has grown to be one of the most significant organizational issues. It has gained widespread use in research and policy areas since it enables a better understanding of concerns related to work and non-work in research for all employees (Gregory and Milner, 2009). Quality of work life is influenced by the extent to which employees engage in work, respond to their work environment and participate in specific work-related activities. This, in turn, is expected to help them frame their intent and action in the organization.

Employees expect quality of work life initiatives to be safe and beneficial. Jobs that are assigned to them should utilise their skills. Initiatives should target job security, safe and healthy working conditions and adequate growth opportunities. These are equally beneficial to employers since it helps to nurture a flexible, trustworthy, satisfied and motivated workforce that is considered essential in determining the organization's competitiveness (Adhikari, Hirasawa, Takakubo and Pandey, 2012). Largely, it appears that the main concern of an effective QWL is greater organizational effectiveness from an employer's perspective and improved working conditions from an employee's perspective. This is achieved through the presence of suitable culture in an organization.

Hofstede (2001) has Characterized Culture of India in this Manner

1. low uncertainty avoidance at work that coincides with Hindu belief of karma in which risk of termination is reduced at work,
2. high power distance that reflects paternalistic and hierarchic authority by age, gender and family status,
3. collectivist orientation influence by joint families and religious affiliation,
4. masculinity influenced by assertiveness in acquiring money and things,
5. long-term orientation in contrast to short-term orientation consistent with religious beliefs and an external locus of control (Hofstede, 1997).

Now, cultural values have an ability to affect the state of QWL (Lu, Cooper, Kao, Chang, Allen, Lapierre, Driscall, Poelmans, Sanchez and Spector, 2010). For example, certain work environments that support low power distance will ease employees to give their opinions in work related matters.

It is important to ruminate the presence of significant differences among dimensions of quality of work life in different cultures and economies. Ahmad (2013) demonstrated that quality of work life varies for different cultures. Cultures vary across geographies. Individuals of western countries mostly have

individualistic cultures in which they do not prefer to bring relationship in workplaces (Mayfield, Mayfield, Martin and Herbig, 2007). Unlike in western cultures, Asians often prefer to work in groups. Collectivist tendencies exist among Asians. There are differences not only in cultures, but also in economic systems. These include the extent to which organizations carry out business and the rules and regulations of governance. South Asian countries, like India, have good business potential as it has high economic growth (Khilji, 2012). This indicates a compelling need to revisit the dimensions of QWL from Indian perspective.

Some researchers question the generalizability of findings of western countries to culturally different Asian context (Lewis, Gambles and Rapoport, 2007). A valid and reliable instrument is needed to examine quality of work life in Indian perspective. Sirgy *et al*'s (2001) instrument is investigated to assess its appropriateness in Indian business context. The present study aims to investigate the applicability of QWL dimensions in the Indian business context by focussing on factor analysis, validity and reliability of this instrument. This instrument is chosen because most of the items contained in the questionnaire relate to various aspects of work environment in Indian organizations. The dimensions of this instrument may vary when it is applied to measure quality of work life in Asian context since this instrument was originally developed for employees working in United States. Being a developing country, India has many organizations which are owned and run by the state. It also stands out from United States in having a strong collective culture (Hofstede, 2001).

We have selected Indian Public Sector Undertakings (PSUs) as our empirical setting to develop a valid quality of work life instrument. The reasons for selecting public sector undertakings as empirical setting are many. Firstly, they are renowned to be people-centric and dynamic (Gupta and Pannu, 2013). Secondly, these PSUs are growing in importance: nationally and internationally. According to Overview of CPSEs (2013) in India, "all public sector undertakings collectively accounted for 23.2 percent of the total market capitalization" and "9 percent of India's total export earnings was contributed by these organizations". Thirdly, government orders for public sector undertakings generally aim at betterment of the society ("Challenges and Resolutions", 2014). Finally, public sector undertakings have a direct impact on foreign exchange earnings of the country because their focus is mainly on international trade in goods and services. These above stated reasons only highlight the potential economic significance of the public sector undertakings in determining the Indian business growth.

This study contributes to the existing literature by developing a precise instrument to measure QWL for Indian business context in the backdrop of limited literature support for Asian context. To our best knowledge, this is the first study of its kind. The findings have potential implications to improve quality of work life by focussing on different dimensions that connect personal life to professional life.

2. LITERATURE REVIEW

Quality of work life concerns itself with satisfaction related to physical and psychological aspects through resources, activities, and outcomes stemming from participation in the organization (Leavitt, Fong and Greenwald, 2011). It is concerned with the well-being of employees. However, it is different from job satisfaction (Sirgy *et al*., 2001). It affects life of employees outside work such as family, leisure, and social needs apart from affecting their satisfaction with work. They are likely to experience work-life stress when their needs are not met (Gallie, 2005). This is expected to have adverse consequences on their well-being and job performance.

QWL is expected to fulfil psychological needs to achieve optimal experience and functioning. This has significant impact on employee behavioural responses such as job satisfaction and commitment and thus helps organizations to stay competitive (Efraty and Sirgy, 1990; Efraty, Sirgy and Claiborne, 1991; Leavitt *et al*., 2011).

Organization behaviour research needs exploration of constructs. A construct is an abstract idea of different facets that a research wants to measure. A construct can be simple or complex. A simple construct involves very few aspects to be considered. On the contrary, a complex construct can have different dimensions that are related to each other by some common means (Lavrakas, 2008). We adopt Sirgy *et al*'s (2001) approach to develop quality of work life construct and measures for the present study.

Sirgy *et al*'s (2001) seven dimensional framework is one of the most popular conceptualizations of quality of work life. Seven dimensions include health and safety needs, economic and family needs, social needs, esteem needs, actualization needs, knowledge needs and aesthetic needs. Health and safety needs concentrate on protection from ill health and injury at work. Economic needs is about pay, job security and family needs. Social needs are having leisure time off work. Esteem needs is about getting recognized and appreciated at work. Actualization needs is being able to realize one's potential as a professional in work. Knowledge needs is about learning to enhance professional skills. Aesthetic needs are about creativity at work and personal creativity.

3. SAMPLE AND PROCEDURE

Sirgy *et al*'s (2001) scale of quality of work life has 16 items. A sample item includes 'I am satisfied with what I'm getting paid for my work.' All items were measured on a 5-point likert scale ranging from "strongly agree" to "strongly disagree". The questionnaire was originally developed and validated in the context of US organizations. This questionnaire has been used for the present study because most of the items are applicable for public sector undertakings in India. First,

exploratory factor analysis is conducted to summarize the factor structure and then confirmatory factor analysis is performed to assess the measurement model containing the structure.

The survey was conducted using cross sectional survey design. The sample consisted of respondents belonging to managerial cadre from public sector undertakings located in various parts of India. Convenience sampling technique was adopted to identify organizations. Convenience sampling is adopted for many studies related to organization behaviour (Verma and Duggal, 2015). This procedure entails participation from all regions based on convenience, willingness, interest and availability of respondents to obtain quality responses (Teddlie and Yu, 2007). The sample includes executives of different departments, namely, electrical, mechanical, instrumentation, finance etc. Participation in the study was voluntary and identities of participants were kept anonymous. Anonymity and confidentiality was preserved in this way leading to more accurate responses. A passive consent approach was adopted. The receipt of a completed questionnaire was left at the discretion of the respondent. The respondents had the liberty of not answering any particular question. However, they were requested to answer leaving out least number of questions.

4. RESULTS

4.1. Identification of Factors and Items

Exploratory factor analysis (EFA) was conducted on 150 samples to identify the most appropriate items that suit the Indian context. A large number of items were reduced to smaller set of factors that summarize the structure of quality of work life in the public sector undertakings. The analysis was performed based on principal axis factoring method using varimax rotation on the correlations of the observed variables, using Statistical Package for Social Sciences (SPSS). A Kaiser-Meyer-Olkin (KMO) test was performed on the data to check sample adequacy. A value of .78 was obtained. KMO value above .50 is considered suitable for factorability (Aduke, 2012).

A scree plot depicted variance of each of the factors. The eigen values greater than 1 from the scree plot in figure 1 reveals the presence of three factors. Now, the next step is to identify these hidden three factors. The factors that are identified in the scree plot with factor loadings greater than .5 need to be further analyzed. The factors with very small eigen values (< 0) and negative eigen values were not considered for further analysis.

Distribution of items among the factors after rotation is presented in table 1 which shows that quality of work life instrument is likely to have a three-factor solution. These components of the factors are based on the loadings presented in

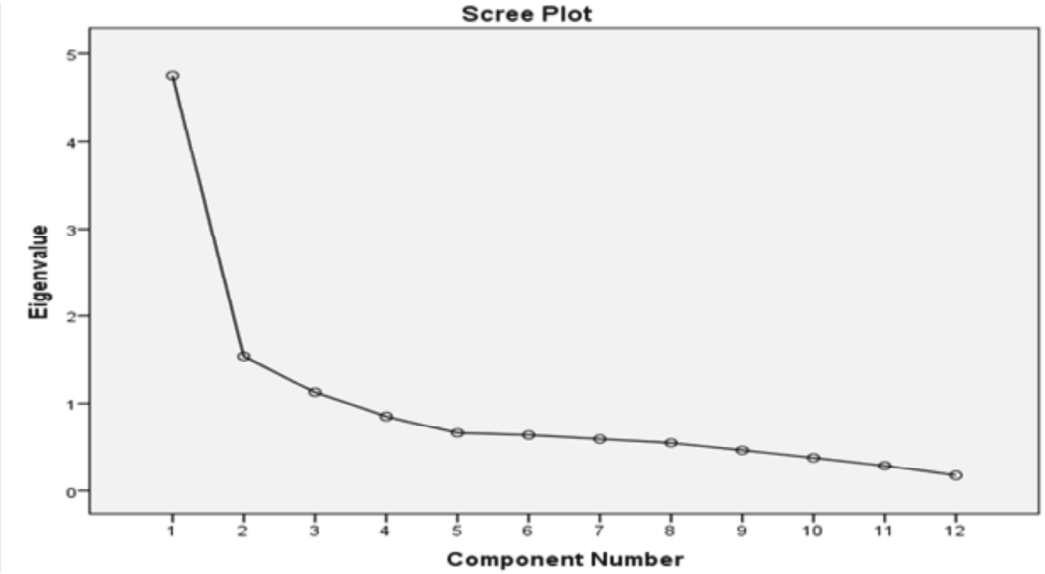

Figure 1: Scree plot

table 1. The presence of three dimensions indicates that quality of work life is a three dimensional construct.

Principal component analysis with varimax rotation resulted in three factors shown in table 1. A total of 12 items explained 61.71 percent of total variance. Majority of the items were minimally skewed or kurtotic. Correlation matrix showed that most correlations exceed .3 and hence, the matrix can be factored. The Bartlett's test of Sphericity ($c^2 = 3400.679$, $df = 66$, $p < .000$) is significant.

The Kaiser-Meyer-Olkin measure of Sampling Adequacy yielded a value of .84 thus justifying proceeding with factor analysis. An examination of correlation matrix revealed that most correlations were greater than .30 and thus the matrix obtained was appropriate for factoring. Principal component analysis generated three factors with eigen values exceeding 1. Factor 1, factor 2 and factor 3 with eigen values 4.74, 2.11 and 1.54 explained 29.87, 16.97 and 14.88 percent of variance respectively.

Items that had loadings less than .3 from exploratory factor analysis were not considered from further analysis since they were considered weak (Tabachnick and Fidell, 2001). If an item cross-loaded on two different factors with a loading of greater than .30 on the second factor, it was also removed since difference between two highest loadings across a factor must be greater than .20 and it must be represented by at least three items (Kumar and Giri, 2012; Kline; 2005). Items 7,8,9 and 10 were removed since they cross loaded on two factors as evident in table 1.

Moreover, difference between two highest loadings was less than .20 for these items. So the measure developed from factor analysis had a reduced set of 12 items with three factors.

Table 1
Three Factor Structure of QWL

Factor					
Items		*1*	*2*	*3*	h^2
1.	I feel physically safe at work.	.76*			.60
2.	My job provides good health benefits.	.76*			.66
3.	I do my best to stay healthy and fit.	.79*			.68
4.	I am satisfied with what I'm getting paid for my work.		.69*		.54
5.	I feel that my job in my organization is secure for life.		.70*		.56
6.	My job does well for my family.		.76*		.62
7.	I have good friends at work.	.38	.31		
8.	I have enough time away from work to enjoy other things in life.	.42	.30		
9.	I feel appreciated at work in my organization.	.44	.51		
10.	People in my organization and within my profession respect me as an expert in my field of work.	.47	.45		
11.	I feel that my job allows me to realize my full potential.			.66*	.52
12.	I feel that I am realizing my potential as an expert in my line of work.			.72*	.60
13.	I feel that I am always learning new things that help do my job better.			.66*	.49
14.	This job allows me to sharpen my professional skills.			.76*	.63
15.	There is a lot of creativity involved in my job.			.84*	.74
16.	My job helps me develop my creativity outside of work.			.84*	.76
Initial eigenvalue (before rotation)					
Variance explained		3.58	2.04	1.79	
% of variance		29.87	16.97	14.88	
Cumulative %		29.87	46.83	61.71	

Note: Factor 1 = QWL with Health and Safety (QWLHS); Factor 2 = QWL with Family and Pay (QWLFP); Factor 3 = QWL with Knowledge (QWLK); h^2 = communality; * indicates factor structure is consistent with previous research and these items are considered for CFA; Bold entries indicate items included for CFA

4.2. Confirmatory Analysis

Confirmatory Factor Analysis (CFA) is used to test viability of a hypothesized structure that was formulated using exploratory factor analysis (Byrne, 1998). CFA was conducted using Analysis of Moments Structures (AMOS) on 562 samples. These samples were collected from a new set of respondents. The factor structure derived from exploratory factor analysis (EFA) drew an outline for confirmatory factor analysis test (CFA). CFA was then conducted on the reduced set of 12 items.

Factor 1 was renamed as QWL with Health and Safety (QWLHS) since the constituent items represent health and safety related aspects. Factor 2 was renamed as QWL with Family and Pay (QWLP) as the items relate to satisfaction with pay. Similarly, factor 3 was renamed as QWL with Knowledge (QWLK) since the items measure the extent of satisfaction achieved through working with any particular organization.

4.3. Convergent and Discriminant Validity

Convergent validity means all observed variables specified under any particular factor should measure only that factor and not any other factor, whereas, discriminant validity means each factor should be different from other factors measured by a particular set of indicators (Kline, 2005). These are used to confirm initial validity of the items identified for QWL survey instrument.

Figure 2 presents confirmatory factor analysis model. All items included for CFA resulted in standardized factor loadings of greater than .50 and they were significant at .001 level suggesting that convergent validity is supported. The estimated correlations between factors range from .51 to .59 as presented in figure 2. None of the estimated correlation coefficients were extremely high. All measurement errors are either less than .50 or only slightly above. So constraint of factor discrimination among factors were ruled out (Kline, 2005; Hair, Black, Babin, Anderson and Tatham, 2006). This supports discriminant validity (Kline, 2005). The assessment for confirmatory analysis is based on the following goodness of fit criteria: Root Mean Square Error of Approximation (RMSEA) < .05, Tucker Lewis Index (TLI) > .90, Comparative Fit Index (CFI) > .90, normed Chi-square (χ^2/df) < 3 (Kline, 1998; Hair *et al*., 2006). The statistics obtained from CFA for the present study are demonstrated in table 2.

Table 2
Model-fit Indices

χ^2/df	*GFI*	*CFI*	*NFI*	*TLI*	*RMSEA*
2.67	.97	.97	.96	.96	.05

The best-fitting solution produced three correlated first order factors, namely QWL with Health and Safety (QWLHS), QWL with Family and Pay (QWLFP) and QWL with Knowledge (QWLK). The CFA model is shown in figure 2. As shown in table 2, the 12 items of the three-factor quality of work life model generated values that indicate a very good model fit. At this stage, reliability is assessed again to achieve a further reliable measure in terms of the factors obtained. Reliability coefficients, mean and standard deviation of the three factors are shown in table 3. Generation of good coefficients at this confirmatory analysis stage indicate that the three-factor model is indeed acceptable.

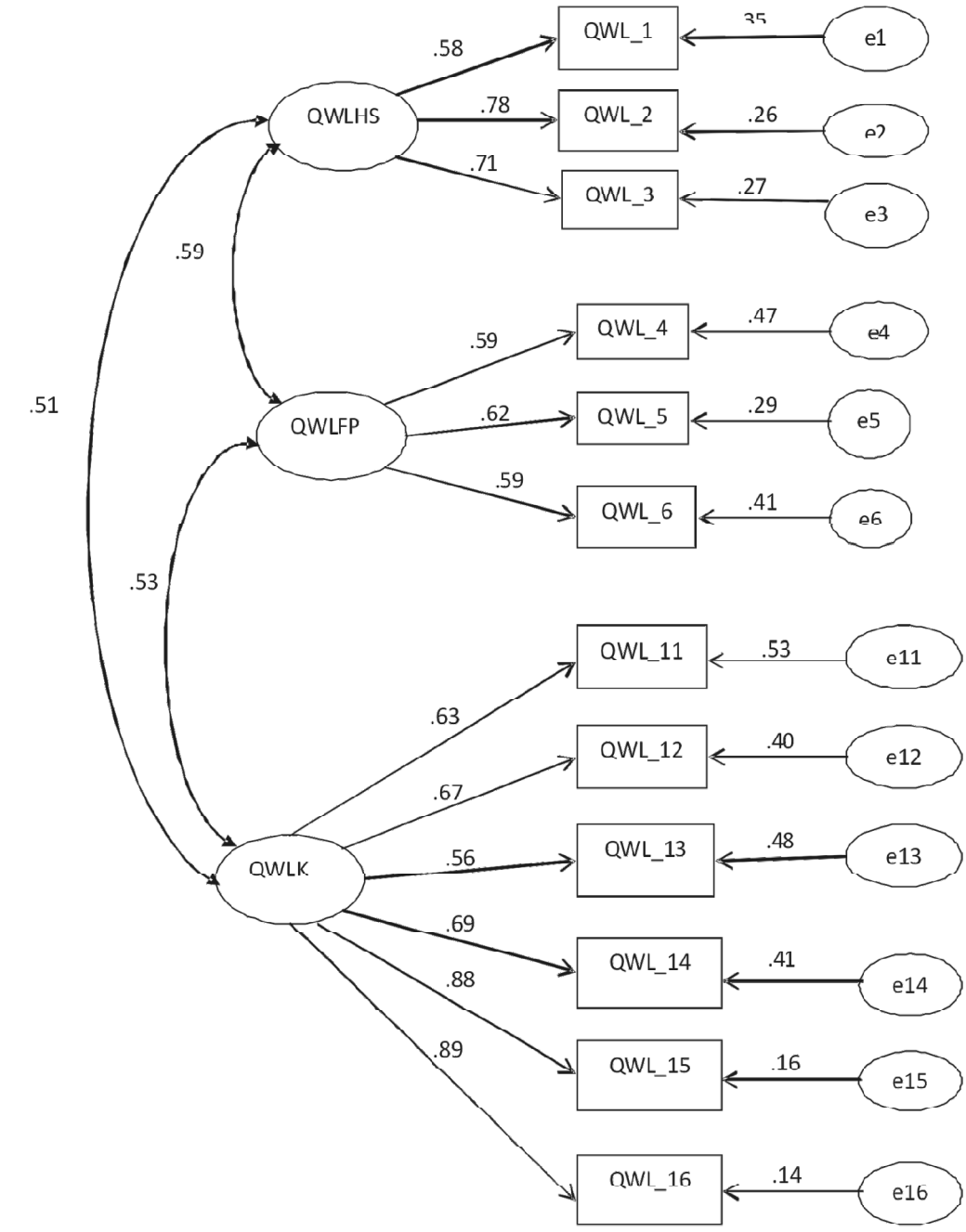

Figure 2: Three-factor model of quality of work life

Table 3
Descriptive Statistics and Cronbach's Alpha values of Quality of Work Life (QWL) Factors

Factor	*No. of items*	*Mean*	*SD*	*Cronbach's a*
QWLHS	3	4.21	.62	.73
QWLFP	3	4.20	.58	.62
QWLK	6	4.08	.67	.87

Note: QWLHS = QWL with Health and Safety (QWLHS); QWLFP = QWL with Family and Pay; QWLK = QWL with Knowledge (QWLK); SD = Standard Deviation.

4.4. Reliability

This quality of work life measure generated on the basis of three dimensions was subjected to reliability analysis to check for its consistency. The last column of table 3 represents reliability coefficients. Cronbach's α was used to assess the reliability of QWL scale. The coefficient should be atleast .70 for a scale to demonstrate internal consistency (Spector, 1992). Nevertheless, reliability of .60 is accepted for social sciences research (Peter, 1979). Thus, the values obtained for each item from this survey are satisfactory (Table 3). This indicates good internal consistency.

5. FINDINGS AND DISCUSSION

There is a need to identify and measure quality of work life construct in India due to rapid growth in dynamic business and competitiveness. The results of the present study demonstrate that quality of work life is a three-dimensional construct. This model generated a good fit to the data. It passed reliability and validity tests as well.

Patterns were identified among the factors of quality of work life construct by measuring the homogeneity among the items (Nunnally and Bernstein, 1994). Assigning names to each of the three dimensions or factors is based on the abstract idea of commonality of items (Verma and Duggal, 2015). The factors of quality of work life were titled as quality of work life with health and safety (QWLHS), quality of work life with family and pay (QWLFP), and, quality of work life with knowledge (QWLK).

The first dimension, QWLHS, refers to physical components of work life. The second dimension, entitled, QWLFP, relates to financial and security aspects of job. The third dimension, titled, QWLK, includes the intellectual ability gained in relation to skills and knowledge acquired during the course of employment as well as the extent of innovation involved in an individual's work.

Some similarities were found between Sigy *et al*'s (2001) instrument and the present study. Items 1, 2 and 3 initially loaded on a single factor in Sirgy *et al*'s

(2001) study, which is consistent in this study, namely QWLHS. Similarly, items 4, 5 and 6 also loaded on one factor in the present study, that is, QWLFP. This is consistent with previous research (Sirgy *et al*., 2001). However, items 11, 12, 13, 14, 15 and 16 shifted from loading onto three different factors, that is, actualization, knowledge and aesthetic needs, to a single factor named, QWL with knowledge (QWLK). This shift in the factor structure could be due to the difference in the work environment set up, different job experiences and components. Also, the items in the factors, actualization, knowledge and aesthetic are related to acquiring knowledge. Hence, they loaded onto a single factor considering the collectivism culture of India. The difference between the highest loadings was less than .20. The difference is significant because the extent of factor structure generated from a combination of education setting (majority) and accounting firms (minority) from the previous study did not apply to Indian public sector undertakings. While both of these settings involve certain amount of learning oriented activities, employee facility requirements and service pattern are quite different.

6. CONCLUSION AND MANAGERIAL IMPLICATIONS

6.1. Conclusion

The present study contributes to literature by making a development in methodology in terms of predicting factor structure of QWL. This study is the first of its kind to develop a quality of work life measure for Indian context. The process of data analysis has demonstrated that exploratory factor analysis provides an indication for items that are to be considered for confirmatory factor analysis by identifying commonality between items and avoiding residuals and inter-item correlations. It helps researchers to examine the viability of a prior structure that was identified using some theory earlier. Also, measurement errors were found to be within acceptable range describe in the preceding section. These were checked to achieve better reliability in the present study. This aspect was ignored in previous studies, thereby assuming that quality of work life construct was perfectly measured.

6.2. Managerial Implications

Knowledge about the dimensions of quality of work life can enable managers to include quality of work life in determining ways to enhance employee behaviours (Efraty and Sirgy, 1990). The findings of the present study are relevant to the managers and directors of the public sector undertakings in understanding how employees can be motivated, happy and committed to their organization. In a technologically advanced era, there exists tough competition among these organizations. QWL is considered to be an antecedent for attitudinal outcomes like happiness, commitment and motivation (Sirgy *et al*., 2001). It is noted that

managers use QWL as means of imparting good work environment to employees with an expectation for better employee behavioural responses such as, job satisfaction, job involvement, organizational identification and commitment at an operational level (Leavitt *et al.*, 2011). Hence, QWL can serve as a cue for the growth of an organization in which managers are involved.

The present study is an attempt to start a fresh line of research in the area of QWL. To have knowledge about conceptualization of QWL is the first and foremost requirement of conducting any further research on QWL. It has been empirically validated as a reliable tool to measure QWL in organizations. Further, the instrument is simple and designed for clear understanding of employees. This can be used as a tool by managers in determining work environment prevailing in organizations. It is hoped that the insight developed in this study will help the researchers establish more finding in the area about its antecedents, its consequences, and significant differences from the studies carried out in the Asian countries along with their implications.

6.3. Limitations and Future Scope of Research

It is very natural that every research study has certain limitations. This study assessed data based on samples collected from different public sector undertakings which covered both rural and urban areas. Future research work can be conducted to find consequences of quality of work life on employee behaviours and monetary gains of an organization. There is further scope to focus on verification of the conceptualization developed in this study across other sectors (food, health care and service sector). Studies can also be conducted with more samples to examine the transferability of results to other Asian countries.

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