

RESEARCH PAPER

A study on quality of work life of employees in LPG bottling plant

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ABSTRACT

Goal: Quality of Work Life (QWL) draws more attention in the present context, and it is a multidimensional construct. The oil and gas industries have realized the significance of employees' QWL to retain and attract a talented workforce in the competitive job market. This study examines the status of QWL of employees in the LPG Bottling Industry.

Design / Methodology / Approach: A measuring scale was designed and validated to evaluate the employees QWL working in the LPG bottling plant. The data for the study was gathered from 435 employees working in four LPG bottling industries. Using Exploratory Factor Analysis (EFA), predominant components of QWL are identified. With the Confirmatory Factor Analysis (CFA), the designed scale is validated. With percentage analysis and chi-square analysis, the data was analyzed, and meaningful inferences were drawn.

Results: EFA and CFA resulted in four components of QWL with 19 items representing superior model fit. The model fit indices reported from the model namely Chi-Square value = 399.020; CMIN = 2.978, AGFI = 0.900; CFI = 0.937; GFI = 0.915; IFI = 0.938; NFI = 0.909; TLI = 0.920 and RMSEA = 0.068 are in the acceptable range. 51.5% of the respondents expressed to be satisfied with present condition of QWL. The research outcome revealed that among demographical characteristics, nature of activities significantly impacts on the status of QWL of employees.

Limitations of the investigation: The data was collected from 435 employees working in four industries because of time constraints.

Practical implications: This research's outcome will help the policymakers of LPG Bottling industries to implement QWL interventions for improving the work-life of employees.

Originality / Value: The present paper is one among the few studies carried out in the oil and gas sector as minimal research has been done in this area.

Keywords: Exploratory Factor Analysis; Quality of Work Life; LPG Bottling Industry; Confirmatory Factor Analysis.

INTRODUCTION

The accomplishment of any organization mainly depends on effective management and the quality of its human resource. In the competitive business environment, it is challenging for any organization to maintain a talented, motivated, and innovative workforce. An organization's culture creates an environment that enhances its employees' confidence, enthusiasm, learning ability, and innovativeness. These factors influence the retention of skilled and talented employees and increase productivity (Ludolf et al., 2017).

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Generally, knowledge workers spend a significant portion of their lives at work (Roman and Blum, 2002), almost close to one third (International Labor Organization (ILO)). It is necessary to ensure a good work-life for employees that make them feel happy and motivated to accomplish organizational goals and personnel goals. This is possible through the interventions of Quality of Work Life (QWL). Such interventions lead to employee satisfaction and enrich their quality of life. Holistically, QWL is defined as a favourable work climate and culture that supports and enhances the employee's satisfaction by providing stimulating factors like career development options, job security, attractive compensation, and rewards (Lau et al., 2001).

With the advent of globalization, every sector is witnessing rapid technological changes and innovations. Organizations boundlessly quest for highly talented and skilled human resources to remain competitive and sustain in the business market. This has resulted in extended working hours and excessive work pressure on employees (Conte, 2003), causing an imbalance in work and family life. Such imbalance affects the employee's QWL and hinders the social commitments resulting in high-stress levels (McDonald and Bradley, 2005) and low performances (Kalliath and Brough, 2008). Further, due to technological, economic, and productivity competition, the environmental and human values among employees are ignored (Walton, 1975). Thus, organizations must focus on such values that can enhance the QWL of employees. Many researchers aforementioned that fair reward systems intend to improve the employees' extrinsic motivation level (Mahbobkhah, 2019).

In recent times, every sector has witnessed a drastic change in the conventional conception of work and working culture to meet employees' basic needs. This is true for the oil and gas sector as well. With the dawn of globalization and India's regulatory changes, the Liquefied Petroleum Gas (LPG) firms are booming with the rapid increase in demand. The LPG Bottling companies are essential and considered to be a hazardous industry. They contribute a considerable amount to the nation in terms of revenue and employment. Maintaining an excellent work-life for employees is a critical element contributing to safe and successful operations and reduce work-related accidents. For the safe and efficient performance in the LPG bottling industries, it is essential to implement quality management practices like Lean manufacturing, Total Quality Management, Five S techniques, etc. For the successful implementation of such quality practices, employee involvement and leadership styles will play an important role (Pereira et al., 2017). Hence, humanized work-centred design pickups high priorities, based on the holistic balance of understanding the employees' cognitive, physiology, and psychology needs by managing the physical, technical and organizational elements.

Consequently, it is necessary to measure the QWL status of employees and examine the influencing factors. Based on the outcomes, management can implement the plan of action required and HR strategies to enhance the QWL interventions to keep employees motivated and make them high performers. The rationale of this study is to identify the status of QWL among employees working in the LPG bottling industry by considering a set of critical QWL components based on the available literature and find out the effect of demographical attributes on the selected QWL components.

LITERATURE REVIEW

The literature review was conducted to identify the QWL factors considered by different researchers of various countries and critical issues in QWL, in general, and in particular to QWL factors in the LPG bottling industry. QWL is all about a work atmosphere capable of accomplishing employees' personal needs by providing an optimistic communication between their physical and social well-being (Hackman and Oldham, 1980); therefore, QWL can be measured organizational issue since it distresses the issue of positive communication among the employees. Some of the interventions to enhance the QWL among employees are employees' involvement during the decision-making process, job stress, organizational obligations, work role struggle among employees, satisfaction among employees, turnover targets concerning productivity, work role ambiguity, and work role surplus (Baba and Jamal,

1991). Fair compensation (Johnsrud, 2006) is the key variable influencing the QWL of employees. Besides this, the managerial style (Harvey et al., 2002), Facilities, organizational culture, job satisfaction, and demographical factors also affect the level of employees QWL (Rose et al., 2006). Normala (2010) reported that organizational commitment, demographic factors, physical environment, growth, and development impact employees' QWL. The QWL interventions will boost the employee's performance in their daily work (Velayudhan, 2010). The physical, psychological, and social factors will stimulate the employee QWL (Al Muftah and Lafi, 2011). The professional growth, employment stability, and remuneration policies are the critical factors that resulted in better QWL of employees (Santos Barcelos and Freitas, 2013).

The total work-life space, social integration in the work environment, social relevance, safe and healthy environment, and constitutionalism are the critical factors that predict and enhance employees' QWL (Permarupan et al., 2020). To assess employees' level, QWL following interventions such as career development, fair compensation, job security, job stress, organizational support, work environment, and work-life balance need to be considered (Ehido et al., 2020).

The study by Warren Shepell, 2011 in the oil and gas industry revealed that focusing on stressors, strains, personal and organizational health factors results in employees' healthiest work-life. The following components can be used to measure the QWL of employees; organizational support, organizational climate, employee motivation, and flexible work arrangement (Chandranshu, 2012). Selhattin researched to know the status of QWL of employees by considering the following factors work engagement, working circumstance, and health (Kanten and Sadullah, 2012). Career development is the crucial factor that affects on QWL of employees (Amin, 2013). Job security, communication, motivation, compensation, job satisfaction, and working environment are the major factors that attend to employees' QWL (Sharma, 2016).

Table 1 QWL Components and the Researchers

Author Name	Components
Qamari et al. (2020)	<ul style="list-style-type: none"> • The safe and conducive work environment • Active participation of employees • Professional behaviour • Working environment
Pio and Lengkong (2020)	<ul style="list-style-type: none"> • Pride of work • Participation of decision-making • Opportunities to develop • Work environment
Mayakkannan (2020)	<ul style="list-style-type: none"> • Welfare facilities • Organizational culture and climate • Work-life balance
Alharbi et al. (2019)	<ul style="list-style-type: none"> • Work environment • Work design • Work context • Working conditions • Work-life balance
Sahni (2019)	<ul style="list-style-type: none"> • Organizational culture • Social relationship • Opportunity for growth • Job satisfaction • Communication
Sari et al. (2019)	<ul style="list-style-type: none"> • Stress management • Adequate and fair compensation

Table 1 Continued...

Author Name	Components
	<ul style="list-style-type: none"> • Social integration • Work & total life space • Organization constitutionalism • Working conditions • Growth and development opportunities • The social relevance of work-life
Agarwal et al. (2019)	<ul style="list-style-type: none"> • Communication
	<ul style="list-style-type: none"> • Decision-making process
	<ul style="list-style-type: none"> • Employee involvement
	<ul style="list-style-type: none"> • Job satisfaction
	<ul style="list-style-type: none"> • Job security
	<ul style="list-style-type: none"> • Relationship with colleague
	<ul style="list-style-type: none"> • Responsibility at work
Teryima et al. (2016)	<ul style="list-style-type: none"> • Salary and benefits
	<ul style="list-style-type: none"> • Support from supervisor
	<ul style="list-style-type: none"> • Work autonomy
Haque et al. (2015)	<ul style="list-style-type: none"> • Work-related stress
	<ul style="list-style-type: none"> • Job Satisfaction
	<ul style="list-style-type: none"> • Job security
Madhu and Mohan Kumar (2015)	<ul style="list-style-type: none"> • Stress
	<ul style="list-style-type: none"> • Job security
	<ul style="list-style-type: none"> • Work Environment
Sharma (2016)	<ul style="list-style-type: none"> • Workload
	<ul style="list-style-type: none"> • Rewards
	<ul style="list-style-type: none"> • Stress level
Sinha (2012)	<ul style="list-style-type: none"> • Work environment
	<ul style="list-style-type: none"> • Job satisfaction
	<ul style="list-style-type: none"> • Job security
	<ul style="list-style-type: none"> • Workload
Emadzadeh et al. (2012)	<ul style="list-style-type: none"> • Climate
	<ul style="list-style-type: none"> • Employee motivation
	<ul style="list-style-type: none"> • Flexible work
Tabassum et al. (2012)	<ul style="list-style-type: none"> • Organizational support
	<ul style="list-style-type: none"> • Job security
	<ul style="list-style-type: none"> • Physical factor
	<ul style="list-style-type: none"> • Training
	<ul style="list-style-type: none"> • Adequate and fair compensation
	<ul style="list-style-type: none"> • Constitutionalism
	<ul style="list-style-type: none"> • Human development opportunities
Al Muftah and Lafi (2011)	<ul style="list-style-type: none"> • Social integration • Social relevance • Work and total life space • Working condition • Physical factor

Table 1 Continued...

Author Name	Components
Gospel, (2003)	<ul style="list-style-type: none"> • Psychological • Social factor • Job satisfaction • Job security • Salary
Lewis et al. (2001)	<ul style="list-style-type: none"> • Extrinsic traits • Intrinsic traits • Autonomy
Hackman and Oldham (1976)	<ul style="list-style-type: none"> • Feedback • Skill variety • Task identity

From extensive literature, it is evident that QWL is a multifaceted concept. Many researchers have used various dimensions/ factors/components to examine the QWL of employees, such as Work environment, salary, job security, job satisfaction, and communication, etc., as critical factors. The researcher frequently uses these aforementioned factors to examine the QWL of employees. Table 1 represents the QWL components used by various researchers. For the present study following nine components were considered thorough the literature survey and based on the frequency of usage, they are Work Environment (WE), Training & Development (TD), Relation & Cooperation (RC), Organization Culture (OC), Job satisfaction and Job safety (JSS), Facilities (FA), Compensation & Rewards (CR), Autonomy of Work (AW) and Adequacy of Resources (AR).

METHODOLOGY

The methodology used for the research is survey-based, using a structured questionnaire. A questionnaire was designed in the five-point Likert scale, and the instrument consists of 50 items of nine selected dimensions from the literature review. The instrument designed to measure the status of QWL includes two sections; the first section consists of the demographic characteristics of respondents, and the second section contains items of QWL components. Using the survey instrument, the responses were collected from employees of the LPG bottling industry. Around 450 questionnaires are administered to the workforce of four LPG bottling industries, and 15 questionnaires were rejected as they were incomplete; this resulted in 435 useable questionnaires for further analysis. To check the reliability of the designed measuring instrument reliability coefficient, Cronbach's Alpha value is calculated, which is 0.91. For the good reliable instrument coefficient, Cronbach's Alpha value should be 0.70 or more, according to Nunnally (1978) and Lance et al. (2006). It indicated that the designed instrument for the present study is reliable, and it is suitable to gather the intended data and information for the study. The collected data are analyzed through the EFA, CFA via Structural Equation Modeling to validate the instrument using SPSS software, AMOS, percentage analysis, and Chi-square analysis to fulfil the stated objectives.

EXPLORATORY FACTOR ANALYSIS (EFA)

Based on literature review and frequency of consideration of components to measure the QWL of employees, the following nine components of QWL are considered for the study; Work Environment (WE); Training & Development (TD); Relation & Cooperation (RC); Organization Culture (OC); Job satisfaction & safety (JSS); Facilities (FA); Compensation & Rewards (CR); Autonomy of Work (AW) and Adequacy of Resources (AR). Adequacy of the sample needs to be examined before conducting EFA, Hair Junior et al. (2006). Therefore sampling adequacy test was performed, and Kaiser-Meyer-Olkin (KMO) statistic was found to

be 0.811, KMO values more than 0.8 indicate the sampling is adequate, Cerny and Kaiser (1977) and Kaiser (1974). For the present study, the KMO value is more than 0.8, and it explored that data is sufficient to process with EFA and CFA.

The EFA was conducted using SPSS software for item reduction by Principal Component Analysis (PCA) method with Varimax rotation. This process resulted in seven factors with 25 items with loadings more than 0.708 and above. The table below shows the item-wise factor loadings for seven QWL factors with C11, C12, C13, C14, C15, and C16 items representing Work environment, C21, C22, C23, C24, and C25 items representing Compensation and Reward, C31, C32, C33 and C34 items representing Job satisfaction and safety, C41, C42, C43, and C44 are items representing Organization culture, C51 and C52 are items representing Autonomy of work, C61 and C62 are items representing Training and Development and C71, and C72 are the items representing Relationship and Cooperation. Table 2 present the item loadings for 7 QWL factors.

Table 2: Item Loading

Components Name	Item	Factors						
		1	2	3	4	5	6	7
Work Environment	C11	.878						
	C12	.852						
	C13	.798						
	C14	.783						
	C15	.780						
	C16	.756						
Compensation and Reward	C21		.832					
	C22		.812					
	C23		.772					
	C24		.755					
	C25		.748					
Job satisfaction and safety	C31			.820				
	C32			.801				
	C33			.798				
	C34			.785				
Organization culture	C41				.792			
	C42				.782			
	C43				.692			
	C44				.683			
Autonomy of work	C51					.868		
	C52					.744		
Training and Development	C61						.817	
	C62						.708	
Relationship and cooperation	C71							.839
	C72							.780

From EFA, the following seven QWL Components were extracted, namely; Work Environment (WE) (Maghaminejad and Adib-Hajbaghery, 2016; Jain and Thomas, 2016; Al Muftah and Lafi, 2011); Training & Development (TD) (Lau and May, 1998; Nasl Saraji and Dargahi, 2006); Relation & Cooperation (RC) (Al Muftah and Lafi, 2011; De Villiers and Kotze, 2003; Organization Culture (OC); Job satisfaction (Al Muftah and Lafi, 2011) & Job safety (JSS);

Compensation & Rewards (CR) (Al Muftah and Lafi, 2011) and Autonomy of Work (AW) (De Villiers and Kotze, 2003). Further, for validating these seven QWL model, CFA was performed.

CONFIRMATORY FACTOR ANALYSIS (CFA)

To confirm and validate the items and factors extracted in the EFA, CFA was conducted through Structural Equation Modeling. The seven-factor QWL model was examined for validation using CFA. The model confirmed four components with 19 items. The confirmed factors are Work Environment (WE), Organization Culture (OC), Job satisfaction and Job safety (JSS), and Compensation & Rewards (CR). Simultaneously, factors like Autonomy of work, Training & Development, and Relationship & Cooperation were dropped because of poor loadings. The measurement model is shown in Figure 1. The confirmed four-factor QWL measurement model is examined for different model fit indices; namely, Chi-Square statistics was 399.020 with CMIN was 2.978, which is less than 3, and CMIN should be less than 3 for a good model, Hair Junior et al. (1998). The model fit indices for the present study are AGFI=.900; CFI=.937; GFI=.915; IFI=.938; NFI=.909 and TLI=.920 are more than 0.9 and RMSEA=.068 less than 0.08 for the good model fit (Hair Junior et al., 1998). From this, it can be concluded that the confirmed four-factor QWL measurement model is acceptable, and the items collect the intended information from the respondents.

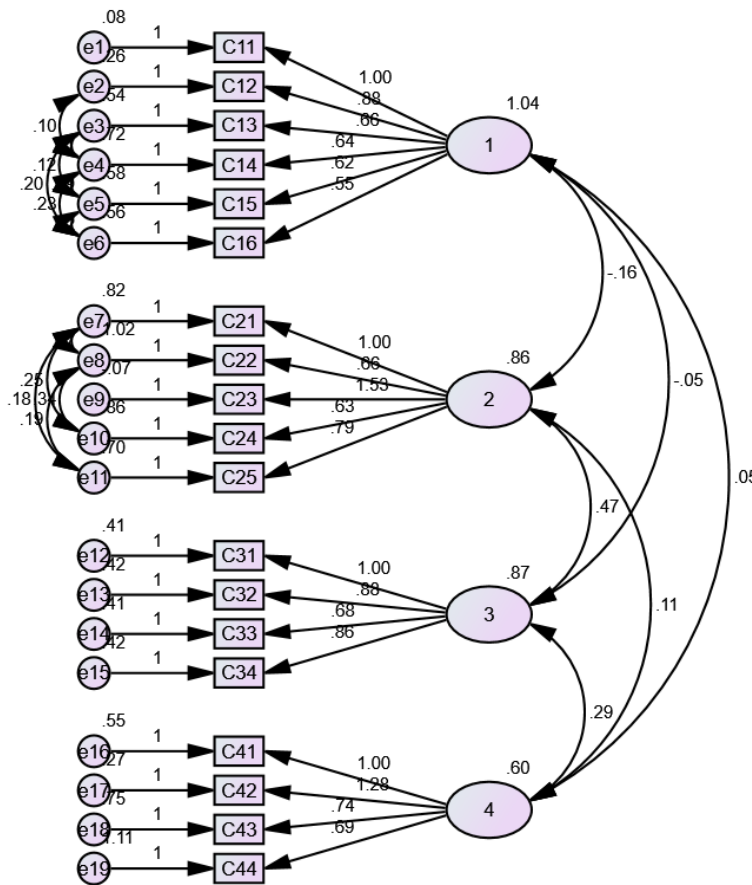


Figure 1 QWL Measurement model

CONVERGENT VALIDITY

The convergent validity is the degree of variance shared among the items of the same constructs (Hair Junior et al., 2010). The proposed measurement model's convergent validity can be evaluated through Average Variance Extracted (AVE), item loadings, and Composite

Reliability (CR) and comparing with the standard model fit requirements. The standard requirement to confirm convergent validity is factor loading, or standardized coefficient estimates should be more than 0.3, and the value of CR and AVE should be equal to 0.7 or more (Hair Junior et al., 2006). For the present study, the four-factor QWL model has AVE and CR value more than the threshold value; hence the proposed model full fills the convergent validity criteria. Item loadings, AVE and CR, are indicated in Table 3. Standardized Coefficient Estimates were represented in the Table 4.

Table 3: Composite Reliability and Average Variance Extracted

Confirmed QWL Components	Composite Reliability (CR)	Average Variance Explained (AVE)
Work Environment	0.919	0.854
Compensation and Reward	0.840	0.715
Job satisfaction and safety	0.749	0.842
Organization culture	0.700	0.745

Table 4: Standardized Coefficient Estimates

Parameters	QWL Components				Acceptable criterion range
	C1	C2	C3	C4	
	1.00	1.00	1.00	1.00	
Standardized coefficient estimates	.88	0.66	0.88	1.28	Greater than 0.30 shows convergent validity
	.66	1.53	0.68	0.74	
	.64	0.63	0.86	0.69	
	.62	0.79			
	.55				

DISCRIMINANT VALIDITY

The measure of discriminant validity is the distinctiveness of every item of the factors. If the square root of the Average Variance Explained of the factor is larger than its correlation values, it indicated that the confirmed components are different from each other; that is, they measure the independent variables individually (Sosik et al., 2009). Table 5 showed the square root of AVE and the correlation values between the four components. For the present study, all four confirmed factors square root of AVE are larger than its correlation value, which indicated that the proposed model fulfils the discriminant validity criteria.

Table 5: Correlation matrix

	C1	C2	C3	C4
C1	0.924			
C2	0.474	0.845		
C3	0.407	0.352	0.917	
C4	0.722	0.506	0.344	0.863

STATUS OF QWL

The status of QWL of employees was determined based on summative scores of responses collected. The individual respondent's QWL score was calculated by taking the mean of all responses for four QWL factors consisting of 19 items. Further, the grand mean was calculated by taking the average of all the responses, and this grand mean was considered the cut-off value for determining the level of QWL status.

Those scores larger than the grand mean were considered as satisfied and otherwise not satisfied. For the present study, the grand mean was found to be 3.53. Grand mean can be viewed as a cut-off score for the Likert scale measurement (Nanjundeswaraswamy and Swamy, 2013; Jerome, 2013; Anand, 2013; Srinivas, 2013; Nanjundeswaraswamy and Swamy, 2015). Table 6 shows the level of QWL of employees in the oil and gas industry.

Table 6: Status of QWL of employees

Status of QWL of Employees	Number of Respondents	% of Respondent
Satisfied	224	51.5
Not satisfied	211	48.5
Total	435	100.00

Table 7 represents the status of the QWL of employees working in the LPG bottling industries; out of 435 respondents, 224 (51.5%) of employees are satisfied with the present status of QWL in the industries. Percentage analysis represents that almost 50% of respondents are not satisfied with the current status of the QWL; this result is in line with the research of De Villiers and Kotze (2003) and Al Muftah and Lafi (2011).

RELATIONSHIP BETWEEN THE STATUS OF QWL AND DEMOGRAPHICAL ATTRIBUTES

The Chi-square analysis is performed to check the association between demographic characteristics and the status of QWL. The five demographic attributes such as Gender of employees, educational qualification, Nature of Job, Nature of Activities, and Experience of employees are considered to verify the impact of these on the QWL of employees. Table 7 represents the Chi-square analysis statistics.

Table 7 Relationships between Status of QWL and Demographic Attributes

Demographic Attributes		No. of Respondents	QWL Status		χ ² _{Cal}	p-value	Sig.
			Sat	N-Sat			
Gender of employees	Male	431	223	208	1.135	0.287	NS
	Female	04	1	3			
	SSLC	29	19	10			
Employees educational qualification	ITI	236	113	123	8.264	0.082	NS
	Diploma	120	70	50			
	Graduate	42	20	22			
	PG	8	2	6			
Nature of Job	Technical	347	183	164	1.062	0.303	NS
	Non Technical	88	41	47			
	Maintenance and safety	10	1	9			
Nature of Activities	Operations	230	110	120	15.565	0.001	5%
	Production	119	62	57			
	Planning	76	51	25			
Employee Experience	< 5 years	120	70	50	3.486	0.175	NS
	6 - 15 years	236	113	123			
	> 15 years	79	41	38			

*Sat-Satisfied; N-Sat - Not Satisfied. Sig - Significance

Based on the Chi-square analysis, the nature of the activity is only one demographical attributes of employees, which are significantly associated with the status of QWL of employees at 5% of the significance level. The study results are in line with the research outcomes of Bolhari et al. (2011) and Jorfi et al. (2011). In contrast, the other demographic characteristics, namely: gender, education qualification, nature of the job, and employees' work experience, are not associated with the status of QWL of employees working in the LPG bottling industries.

CONCLUSION

In the competitive business and workforce market, it is a challenging job to retain and manage talented employees. In the present day, there are several opportunities for skilled and qualified employees. In these scenario organizations have to adopt appropriate human resource strategies to maintain skilled employees. Implementing Quality of Work Life (QWL) interventions in the organization are strategies to retain the employees Nanjundeswaraswamy and Swamy (2015). LPG bottling industry has to implement Quality Management Practices (QMP) because it comes under the group of hazardous sectors; in these kinds of industries, safety is the high priority, for effective implementation of QMP in the industries employee's involvement is necessary Kochan et al. (1995) and Arora and Gupta (2020). In this backdrop, it is essential to examine the present status of QWL of employees working in the organization; based on the outcome, it is possible to take necessary interventions to enhance employees' QWL. The present research is one among the few studies, and many researches have been done on the QWL of employees in other sectors. Still, minimal research has been done in the LPG Bottling industries, especially to explore the relationship between employees' QWL and demographic factors. The present study investigates the status of QWL of employees working in the LPG bottling industries using a validated measuring instrument.

For this study, nine predominant components of QWL are selected through a literature survey; the components were considered based on the frequency of the usage of the components by the different researchers they are "Work Environment (WE); Training and Development (TD); Relation & Cooperation (RC); Organization Culture (OC); Job satisfaction & Job safety (JSS); Facilities (FA); Compensation & Rewards (CR); Autonomy of Work (AW) and Adequacy of Resources (AR).

An instrument was designed with a five-point Likert scale, and the 50 items represented the selected nine components. The survey instrument was analyzed, and items were reduced using EFA; the extracted seven items through the EFA are "Work Environment (WE); Training & Development (TD); Relation & Cooperation (RC); Organization Culture (OC); Job satisfaction & Job safety (JSS); Compensation & Rewards (CR) and Autonomy of Work (AW)" based on the Eigenvalue. The extracted and grouped seven components were confirmed once again using CFA; the established four factors, along with 19 items were the confirmed factors are Work Environment; Organization Culture; Job satisfaction and Job safety, and Compensation and Rewards. The proposed four-factor measurement model is examined for the model fit; all the model fit indices are within the acceptable range. It indicated that the proposed measurement model would able to gather the intended data and information. By considering the grand mean as a threshold value, the status of QWL of employees was determined. About 51.5% of employees are satisfied with the present level of QWL in the LPG Bottling industries. To explore the relationship between demographic characteristics and the status of QWL of employees, a Chi-square analysis was conducted; the analysis revealed that only the nature of activities is significantly associated with QWL. This paper's outcome provides guidance for managers in LPG Bottling industries to implement proposed components to enhance the employees Quality of Work Life. The limitation of the present research is that data were collected from 435 employees working in four industries because of time constraints; therefore, it is not possible to generalize the outcome for the industries' specific sector. The study was limited to the LPG Bottling Industry in India, and for this reason, the study outcomes cannot be

generalized to other sectors. Additionally, the present study's responses were limited to 435 employees from the four LPG Bottling Industry in Bangalore, India. LPG Bottling industries are trying hard to retain skilled and talented employees by enhancing employees' quality of work-life and quality of life. In this context, this study provides insight into the status of quality of work-life of employees and the predominant dimensions influencing the employees in LPG bottling industries, which will help to build an appropriate plan on human resources.

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