

Constructing a Model to Examine the Influence of Quality of Work-Life on Work-Life Balance - Discernment of Civil Engineers from Construction Industry in Chennai

K. S. Anandh* and K. Gunasekaran

Department of Civil Engineering, SRM University, SRM Nagar, Kattankulathur, Kancheepuram District, Chennai - 603203, Tamil Nadu, India; anandh.ks@gmail.com, gunasekaran.k@ktr.srmuniv.ac.in

Abstract

Objectives: The prime intention of this exploration is to construct a model to examine the impact of Quality of Work-Life (QWL) on the Work-Life Balance (WLB) among the civil engineering professional from the construction industry in Chennai. **Methods/Statistical Analysis:** This research followed descriptive study design and the sample size is 500. The structured questionnaire was used to collect the Primary data and it was circulated among professional engineers working in selected construction companies in Chennai city. **Findings:** The outcome of the study explored that there is a high effect of QWL on WLB, which means if the employees satisfies with the QWL, they may be able to balance their personal and professional life in a better way. **Applications/Improvements:** The outcomes of the research may be useful to conduct depth study or reformulate the policies of the construction companies by the key executives, to improve the QWL and WLB of their employees. The survey was conducted only in Chennai city among the employees working in top five selected companies; hence there is future scope to do similar research as a comparative study among Civil Engineers working in small, medium and large scale construction companies.

Keywords: Construction Industry, Construction Management, Quality of Work-Life, Work-Life Balance

1. Introduction

Construction industry plays a critical role in Indian economy. This industry is impelling India's overall development and gets extreme focus from government for instigating policies that would ensure time-bound creation of world class infrastructure in the country. The construction sector is the major contributor to the Gross Domestic Product (GDP) in developing countries like India. Indian Construction sector growing at 24.1%

Compound Annual Growth Rate (CAGR) from 2011 and contributes 10% to the GDP¹.

Organizational success is dependent upon the effective management of people, because the human resources are the living assets of the organization, which takes the organization to reach its goals. The organizational life in the industry is not similar like decades. The tremendous changes occur due to hyper competition in the industries in almost all the sectors and they are attempting to entice the customers towards their products and services. Now-

*Author for correspondence

a-days the business houses spends enormous amount of time and efforts to win the race in the industry. Obviously, the man power has to devote more time on professional activities, rather than for personal life. Every one of us spares considerable time of our lifetime in an organization, in order to earn for our livelihood and meet our personal commitment. Since the employees spare major proportion of their life in workplace, the atmosphere and environment is a critical factor which influences their comfort. Quality of Work-Life refers to the holistic well-being of an employee instead of just focusing on work-related aspects². This present study deals with the Quality of Work-Life of the Civil Engineers in construction industry, because the working environment of the construction industry has tough times with dust and fumes, resource allocation, labor management, meeting deadlines, unexpected climate conditions, etc.

2. Quality of Work-Life (QWL)

QWL encircles the attitude towards the job peculiarities and conditions, intense the organizational drive to enhance employee well-being, both mental and physical and productivity as being central to its implementation³.

2.1 Work-Life Balance (WLB)

We work to live, not live to work. But today's business atmosphere makes men work up to his last breath⁴. The construction industry is a powerful and high-stress industry which demands extended working hours. Work-Life Balance is the capability of individuals to precede their personal and organizational life fruitfully, without undue pressures from one undermining the satisfactory experience of the other⁵. The concept of WLB has emerged due to change in culture where work dominates the personal life even for both genders. Less free time increases pressures in work and also in personal life, which causes endemic work-life imbalance^{6,7}. The old scenario of society has been shifting away from the traditional male breadwinner model of work and dual-earner households have become the standard, where both partners work and share the family responsibilities⁸. The significant change in Chennai is joint families are gradually vanishes and

nuclear families are emerging in the society. At the same time, work amplification has increased the pressures within the workplace. Due to these societal shifts, forces of work and life together are at all-time high⁹. Based on the survey of the Department of Trade and Industry's (DTI) of the United Kingdom¹⁰ on WLB campaign reveals that the majority of construction industry workers are doing overtime or skipping breaks because of the demands of their job. The average construction professional tends to work between 50 to 60 hrs during a week.

2.2 The Relationship between QWL and WLB

The QWL and WLB are interrelated terms which expects the employee well-being as the outcome. These factors also have critical role on the job satisfaction of the employees¹¹. The employee work performance is based on QWL and WLB¹². These two critical factors have dominant role in most of the employee Key Result Areas (KRAs) such as employee motivation¹³, engagement¹⁴, retention, commitment etc. Development of effective solutions for WLB is a fundamental prerequisite for ensuring the competitiveness of a construction enterprise, because the employees' productivity plays a forceful role in the construction sector, which includes efficient usage of resources and cost savings and ultimately affecting the bottom line of every effort in the construction sector.

3. Research Methods and Samples

This research is a kind of descriptive research, because through this researcher wants to describe the work and personal life style of the Civil Engineers in construction industry. This research may also explore the dimensions of job characteristics and personality of Civil Engineers, hence it may also be considered as exploratory research. The pilot study was conducted with the sample size of 50, the reliability and validity of the data collection instrument was computed and appropriate corrections were done based on the experts' opinion and respondents' feedback.

3.1 Sampling Design

The universe of this research is restricted to the Civil Engineers working in selected organized construction companies, in order to have homogeneous group to compare QWL and work-life balance. This study encompasses Civil Engineers having experiences of at least one year in various designation level of junior, middle and senior level executives who also have construction site supervision has a job component. The survey method of data collection was adopted to gather the primary data. The sample size of the survey is 500 and 50 from each company was selected as respondents for the survey. The samples were chosen from the population using stratified random sampling technique.

3.2 Questionnaire Design

The questionnaire has three fragments namely, demographic details, QWL scale and WLB scale. The first fragment of the questionnaire encompasses the questions

related to demographic profile of the respondents such as age group, gender, qualification, experience, etc. The second fragment of the questionnaire includes the questions related to the QWL, which was developed based on Nguyen's QWL scale. The third section contains the questions related to the Work-Life Balance which was formulated based on the Grzywacz and Carlson¹⁵ scale. The reliability of the scales was assessed and tabulated in Table 1.

Reliability of the data collection instrument was identified through Cronbach alpha coefficient. From the Table 1, it was identified that the reliability coefficient of certain constructs during pilot study was not in acceptable level (i.e. less than 0.75), but the same was improved during the main study and it was also found that all the sub-constructs mentioned in the Table 1 has the reliability Cronbach coefficient value more than 0.75. Hence it is established that the data collection instrument used in this research is an appropriate tool to measure the impact of QWL on WLB in construction industry.

Table 1. Constructs, sources and reliability of the variables

S. No	Constructs	No of items	Sources	Reliability in Pilot study	Reliability in Main study
1	QWL scale	16	Nguyen's scale (2011)	0.792	0.853
	Survival Needs (SN)	6		0.734	0.901
	Belonging Needs (BN)	5		0.842	0.891
	Knowledge Needs (KN)	5		0.682	0.721
2	WLB scale	18	Grzywacz and Carlson (2007)	0.801	0.923
	Work-to-Family Conflict (WFC)	4		0.803	0.942
	Family-to-Work Conflict (FWC)	4		0.853	0.912
	Work-to-Family Enrichment (WFE)	5		0.892	0.926
	Family-to-Work Enrichment (FWE)	5		0.652	0.798

3.3 Research Conceptual Model

The researcher designed and proposed a conceptual model to compute the influence of QWL on WLB in construction industry and it was illustrated in Figure 1.

4. Data Analysis and Discussion

The empirical study demands the collection and analysis of primary and/or secondary data, to reveal the new insights on the research area and to infer the findings to offer appropriate implications to the society, since this

research is also an empirical research, the primary data gathered were analysis through descriptive and inferential analysis tools using the IBM SPSS 22.0 and IBM AMOS 23.0 software packages.

4.1 Descriptive Statistics

The descriptive statistics summarizes the characteristics of the sample data using frequency distribution, mean, median, mode, standard deviation, etc. Table 2 presents the socio-economic profile of the respondents.

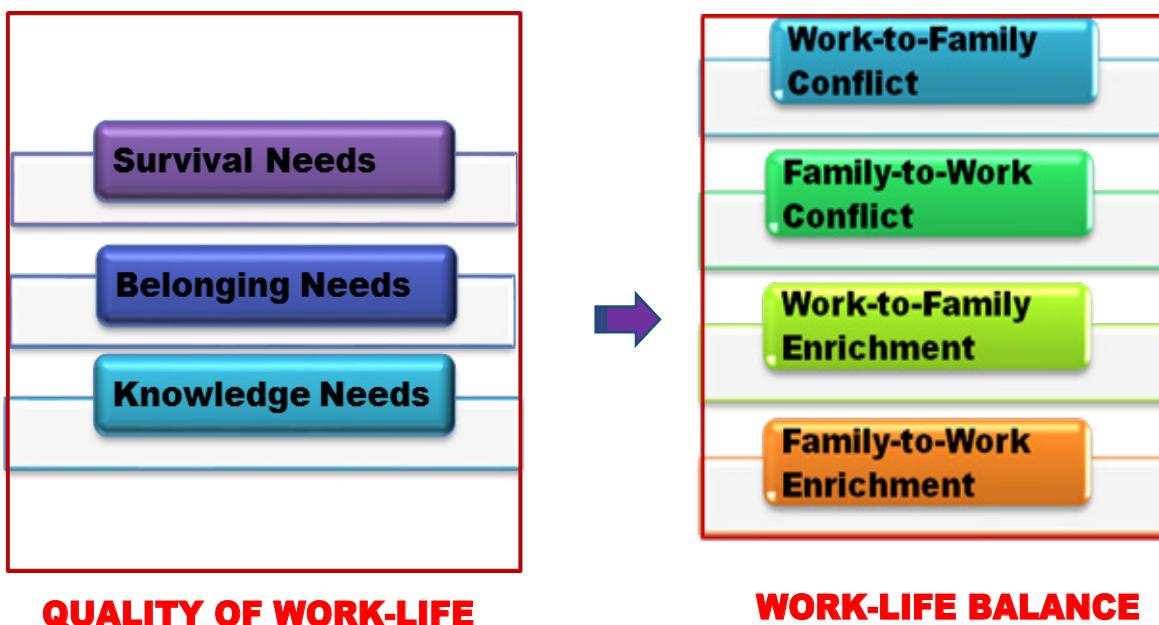


Figure 2. Research Conceptual Model

Table 2. Demographic profile of the respondents

S. No	Particulars	Frequency	Percentage
1	Gender		
	Male	98	88
	Female	14	12

Table 2 Continued

S. No	Particulars	Frequency	Percentage
2	Age Group		
	Up to 25 Years	17	15
	25 – 30 Years	28	25
	30 – 35 Years	36	32
	Above 35 Years	31	28
3	Total Experience in Construction industry		
	1 – 5 Years	19	17
	5 – 10 Years	32	29
	10 – 15 Years	47	42
	Above 15 Years	14	13
4	Position		
	Junior	32	29
	Middle	56	50
	Senior	24	21
5	Designation		
	Site engineer/Sr. Site engineer	28	25
	Site supervisor/Sr. Site supervisor	41	37
	Site Manager/Dy. Site manager	27	24
	Project Manager/Asst. Project Manager	16	14
6	Marital status		
	Single	24	21
	Married	76	68
	Others	12	11

Table 2 Continued

S. No	Particulars	Frequency	Percentage
7	No. of Dependents		
	None	29	26
	One	34	30
	Two	38	34
	More than two	11	10
	Total	112	100

(Source: Primary Data)

From the Table 2, it is revealed that the most (88%) of the respondents are male and remaining were female. 32% of the respondents fit in to the age category of 30-35 years. 42% of the respondents are having 10-15 years of experience, whereas only 13% of the respondents are having experience above 15 years in construction industry. Majorities (50%) of the respondents are working in middle level of management and only 14% of respondents are at the Project Manager/Asst. Project Manager Level. 34%

of the respondents are having two dependents, whereas 26% of the respondents are not having any dependents.

Table 3 summarizes the level of satisfaction towards QWL. 48% of the respondents perceived moderate level of satisfaction towards the QWL. The cause of poor satisfaction may be long working hours, more travel time to the construction site from residence and/or office, meeting short deadlines, nature of working environment (i.e. noise, fume and dust) and finding difficulty in managing materials availability and labor.

Table 3. Level of satisfaction towards QWL

Scale	Level	Mean	Standard Deviation	Median	Frequency	Percentage
QWL	Low (1.0-3.0)	4.38	1.485	4.00	36	32
	Moderate (3.1 – 5.0)				54	48
	High (5.1 – 7.0)				22	20
	Total				112	100

(Source: Primary Data)

Table 4. Level of satisfaction Work-Life Balance

Scale	Level	Frequency	Percentage	Mean	Standard Deviation	Median
Work-life Balance	Low (1.0-3.0)	62	55	3.74	2.837	3.5
	Moderate (3.1 – 5.0)	34	30			
	High (5.1 – 7.0)	16	14			
	Total	112	100			

(Source: Primary Data)

From the Table 4, it is identified that majority (55%) of the respondents perceives low level of WLB; whereas only 14% of the respondents perceives high level of WLB and remaining were having moderate level of satisfaction of WLB. The source of inadequate satisfaction towards WLB are unable to take leave during illness or family functions, less number of holidays, mandatory to attend official phone calls even during leave/holidays, very less hours to

spare with family members and the effect of occupational health hazards and stress on individual's physical, mental, psychological health etc.

4.2 Inferential statistics

The inferential statistical tools are very useful to infer new discernments about the population based on the analysis

Table 5. Scale means and inter-scale correlations

Factors	Mean	A	B	C	D	E	F	G
Survival Needs	4.65	1.000						
Belonging Needs	4.24	0.405	1.000					
Knowledge Needs	5.52	0.764	0.306	1.000				
Work-to-Family Conflict	4.35	0.604	0.262	0.033	1.000			
Family-to-Work Conflict	4.98	0.366	0.236	0.197	0.081	1.000		
Work-to-Family Enrichment	3.24	0.499	0.849	0.077	0.352	0.362	1.000	
Family-to-Work Enrichment	4.78	0.587	0.060	0.053	0.004	0.001	0.043	1.000

(Source: Primary Data)

and interpretation of the samples. In this research correlation and Structural Equation Modeling (SEM) inferential tools were used to infer the characteristics of the population.

The Table 5 Characterizes the scale means and inter-scale correlations. The minimum scale mean is one and maximum is seven, since the scale measure through seven point Likert scale. From the Table 5, it is found that the scale means values are moderate, because it falls between 3.24 and 5.52. For example, the respondents less satisfied with work-to-family enrichment, whereas with respect to knowledge needs they are satisfied more than moderate level with scale mean value of 5.52, they opined that the organizational life contributes fulfilling their knowledge needs. The correlation coefficient value generally exists in the range between -1 to +1 from the Table 5, it is identified that interrelationship between the scales are positive. However, the interrelationship between certain scales has correlation coefficient close to zero, which means no correlation or very meager correlation. In general, the correlation coefficient value more than 0.50 shows good

positive relationship between the constructs. For example, the correlation coefficient between belonging needs and work-to-family enrichment is 0.849 (i.e. 84.9%), which shows more positive relationship between the constructs.

4.3 Structural Equation Model

In this research, Structural Equation Modeling (SEM) approach was used to test the relationship between QWL and WLB with special reference to construction industries in Chennai city.

The Figures 2 and 3 illustrates the Structural Equation model with unstandardized and standardized estimates respectively. There are two latent variables in the above model namely QWL and WLB. The above mentioned model has seven observed variables such as survival needs, belonging needs, knowledge needs, work-to-family conflict, family-to-work conflict, work-to-family enrichment and family-to-work enrichment. The path between the constructs/variables represents the relationship which has to be verified through the hypothesis testing.

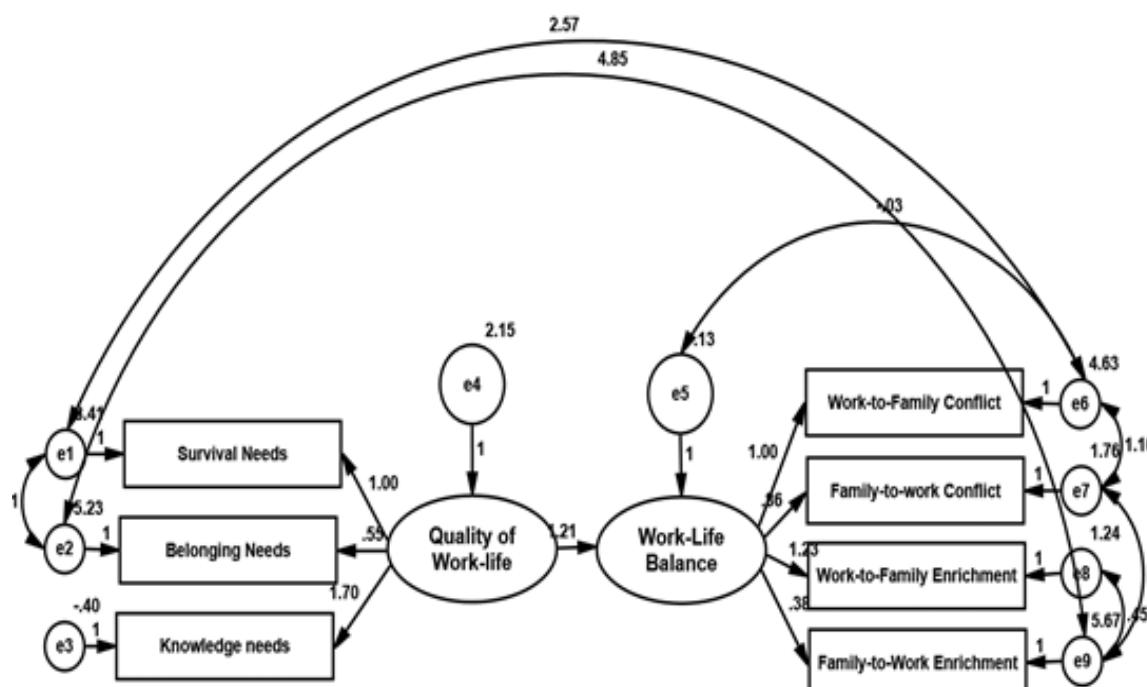


Figure 2. Research Model based on unstandardized estimates.

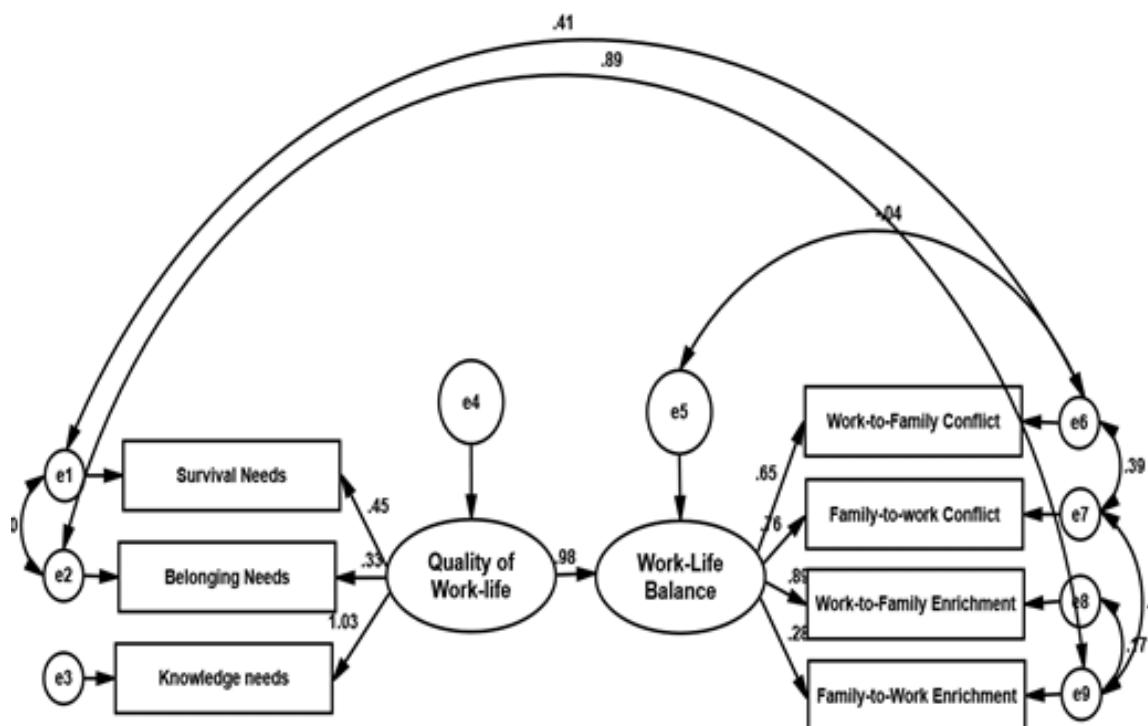


Figure 3. Research Model based on standardized estimates.

Table 6. Regression weights of the default model

Observed variable		Latent variable	Unstandardized Estimate	Standardized Estimate	S.E.	C.R.	P
WLB	<---	QWL	1.210	0.981	0.205	5.890	<0.001**
Survival Needs	<---	QWL	1.000	0.451	-	-	-
Belonging Needs	<---	QWL	0.545	0.330	0.155	3.521	<0.001**
Knowledge Needs	<---	QWL	1.702	1.034	0.337	5.050	<0.001**

Table 6 Continued

Observed variable		Latent variable	Unstandardized Estimate	Standardized Estimate	S.E.	C.R.	P
Work-to-Family Conflict	<---	WLB	1.000	0.645	-	-	-
Family-to-Work Conflict	<---	WLB	0.861	0.762	0.094	9.186	<0.001**
Work-to-Family Enrichment	<---	WLB	1.231	0.894	0.149	8.285	<0.001**
Family-to-Work enrichment	<---	WLB	0.383	0.280	0.129	2.972	0.003**

** denotes the path is significant at 1% level.

Table 7. Default model fit summary

S. No	Test Factor	Value	Suggested Value
1.	CMIN or Chi Square Value	3.231	Range from as high as 5.0 [16] to as low as 2.0 [17].
2.	P value	0.253	> 0.05 [18]
3.	GFI (Goodness of Fit Index))	0.912	>0.90 [19]
4.	RMR (Root Mean Square Residuals)	0.057	<0.08 [19]
5.	RMSEA (Root Mean Square Error of Approximation)	0.016	<0.08 [19]
6.	AGFI (adjusted Goodness of Fit Index)	0.958	>0.90 [20]
7.	CFI (Comparative Fit Index)	0.924	> 0.90 [21]
8.	TLI (Tucker-Lewis Index)	0.932	> 0.95 [21]
9.	NFI (Normed Fit Index)	0.916	> 0.95 [22]

The Table 6 summarized the standardized and unstandardized regression coefficient of the default model from which it is identified that all the paths drawn in the default model are significant at 1% level of significance.

Table 7 indicates that all the model fit indices are within the acceptable values, hence it is proved that there is sturdy bond between the QWL and WLB and the research model is found to be fit with regard to construction industry in Chennai city.

5. Conclusion

The QWL and WLB are like two sides of the coin, because the employees are with emotions, which means the good and/or bad in personal life and organizational life may affect their performance in each other²³. Through the extensive literature survey and the results of this research it is found that the Civil Engineers in construction industry may struggle to balance their personal and organizational life, which affects their motivation, performance, commitment, morale and productivity, even it leads to intention to quit from the organization^{24,25}. The result of the constructed model revealed that there is a robust correlation within the QWL and WLB; through this research it is suggested to the key officials and policy makers to regulate the working hours, workload of the Civil Engineers in the construction industry in order to enhance their WLB. It is also recommended that the training sessions on stress management and time management can also be offered to them to manage the occupational and family stress, which may result in happy personal and organizational life of civil engineers.

6. Acknowledgement

The Authors would like to thank the SRM University for their constant support to complete this study and those who were involved directly or indirectly. The Authors also thank Dr. N. Santhosh Kumar, Associate Dean, Department of Management Studies, SRM University. We would extend our sincere thanks to Dr. V. Akbar Jan, Associate Professor, Vel Tech High Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Chennai for his

support in scrutinizing, questionnaire design and data analysis.

7. References

1. Loosemore M, Dainty A, Lingard H. Human resource management in construction projects, strategic and operational approaches. London and New York: Spon Press, Taylor and Francis Group; 2003.
2. Hackman JR, Oldham GR. Work redesign. Reading. MA: Addison Wesley; 1980; 35(1): 73–93.
3. Lawler E. Strategies for improving the quality of work life. American Psychologist. 1982; 37(5):486–93.
4. Sandhya K, Choudary VBN, Kumar PD, Reddy VKK. Individual change management initiatives for better Work-Life Balance. Indian Journal of Science and Technology. 2011; 4(7):848–50.
5. Noon M, Blyton P. The realities of work. Palgrave, Basingstoke. 2007; 29(4):334–59.
6. Lewis L, Gambles G, Rapoport R. The constraints of a Work-Life Balance approach: An international perspective. International Journal of Human Resource Management. 2007; 18(1):360–73.
7. Families and Work Institute National study of the changing workforce, families and work. 2009. Available from: org/downloads/TimesAreChanging.pdf
8. Bardoel B, Moss M, Smyrnios S, Tharenou T. Employee characteristics associated with the provision of work-family policies and programs. International Journal of Manpower. 1999; 20(8):563–76.
9. Pherson M, Reed R. Managing Mayhem: Work-Life Balance in New Zealand. Wellington: Dunmore Publishing; 2007. p. 264.
10. The Third Work-Life Balance employee survey organized by Department of Trade and Industry. United Kingdom. 2016. Available from: <https://www.gov.uk/.../07-714x-third-work-life-balance-employee-surve>
11. Farah M. Work-Life Balance and job satisfaction among faculty at Iowa State University. Graduate Theses and Dissertations Paper; 2012. p. 141.
12. Obiageli OL, Uzochukwu OC, Ngozi CD. Work-Life Balance and employee performance in selected commercial banks in Lagos state. European Journal of Research and Reflection in Management Sciences. 2015; 3(4):63–77.
13. Esra E, Zeynel Z. The effects of work motivation in Quality of Work-Life and a study on banking sector. 3rd International Symposium on Sustainable Development; Sarajevo. 2012.
14. Kangure FM. Relationship between Work-Life Balance and employee engagement in State Corporations in Kenya. [Doctor of Philosophy (Human Resource Management)]

- thesis]. Jomo Kenyatta University of Agriculture and Technology; 2014. p. 1–204.
- 15. Grzywacz JG, Carlson DS. Conceptualizing Work-Family Balance: Implications for practice and research. *Advances in Developing Human Resources*. 2007; 9(4):455–71.
 - 16. Wheaton W, Muthen M, Alwin A, Summers S. Assessing reliability and stability in panel models. *Sociological Methodology*. 1977; 8(1):84–136.
 - 17. Tabachnick T, Barbara G, Linda S, Fidell F. Using multivariate statistics. Pearson; 2007. p. 120–4.
 - 18. Hair JF, Anderson RE, Tatham RL, Black WC. Multivariate data analysis. 5th ed. New Jersey: Prentice-Hall International; 1998.
 - 19. Hair J, Black W, Babin B, Anderson R, Tatham R. Multivariate data analysis. 6th ed. Uppersaddle River: Pearson Prentice Hall; 2006. p. 172–5.
 - 20. Hooper DD, Coughlan J, Mullen M. Structural equation modeling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods*. 2008; 6(1):53–60.
 - 21. Hu LT, Peter M, Bentler B. Fit indices in covariance structure modeling: Sensitivity to under parameterized model misspecification. *Psychological Methods*. American Psychological Association. 1998; 3(4):420–4.
 - 22. Bentler PM, Bonett DG. Significance tests and goodness of fit in the analysis of covariance structures. *Psychological bulletin*. American Psychological Association. 1980; 88(3):582–8.
 - 23. Kim HS, Jung YM. Self-differentiation, family functioning, life satisfaction and attitudes towards marriage among South Korean University Students. *Indian Journal of Science and Technology*. 2015; 8(19):1–9.
 - 24. Esetova AM, Pavliuchenko EI, Ismailova CT, Levitsky TY. System restructuring as a factor of increasing management efficiency in construction. *Indian Journal of Science and Technology*. 2015; 8(10):1–9.
 - 25. Kiruthiga K, Anandh KS, Gunasekaran K. Assessment of influencing factors on improving effectiveness and productivity of construction engineers. *International Journal of Applied Engineering Research*. 2015; 10(17):13849–54.