



# DEVELOPING ITEMS FOR MEASURING QUALITY OF WORK LIFE AMONG MALAYSIAN ACADEMICS: AN EXPLORATORY FACTOR ANALYSIS PROCEDURE

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## Abstract

**Purpose of the study:** Quality of work life (QWL) is vital for all establishments to continue to hire and retain high-performance workers. However, from the review of previous literature on QWL, little is known about the dimensions that constitute high QWL among academics. Therefore, this study aimed at contributing to the literature by conducting a detailed validation of seven dimensions of QWL through the Exploratory Factor Analysis (EFA) procedure.

**Methodology:** This study employed a cross-sectional research design to establish reliable measures for the QWL construct. The items were adapted and modified to suit this study. Study data was obtained using a structured questionnaire from 100 randomly selected academics from the five Malaysian research universities. The study further conducted the Exploratory Factor Analysis (EFA) procedure using IBM-SPSS version 21.0.

**Main Findings:** A total of 51 items were initially developed to measure QWL construct, however, from the EFA procedure, the study found that 8 items with factor loading below the cut-off point of .60 were deleted and 48 items with a factor loading above the cut-off point of .60 were retained and deemed suitable to measure the QWL construct.

**Applications of this study:** This study validated the dimensions that lead to improved QWL. Therefore, this study is particularly useful to the Malaysian universities' management who aim to obtain benefits from super motivated and high-performance academics by making sure that the workers' overall well-being is protected in the workplace.

**Novelty/Originality of this study:** This study established a validated and reliable instrument for measuring the QWL construct among academics in the Malaysian research universities.

**Keywords:** *Quality of Work Life (QWL), Academics, Malaysian Research Universities, Exploratory Factor Analysis (EFA), Reliability Analysis.*

## INTRODUCTION

In a knowledge-centered economy, the job of the university is not just limited to the dispersion of knowledge through educating but, significantly, to the production of new knowledge and development of the existing knowledge base through research activities, along with the promotion and dispersion of knowledge to society through service and teaching (Wan et al., 2015). The competition among higher education institutions (HEIs) globally to be recorded in world-class ranking universities has changed Malaysian HEIs by intensifying research and innovation; whereas uplifting the country's knowledge-intensive economy (Ramli et al., 2013; Shariffuddin et al., 2017). Research universities (RUs) worldwide have become more central to their societies primarily because they represent the central knowledge resources in the societies (Sheriff & Abdullah, 2017; Yazit & Zainab, 2007).

The academics are strategic resources in any higher education institution, and the ability of universities to accomplish the task expected by the society depends on extremely motivated employees (Aslan et al., 2014). According to Leitão et al. (2019), in order to maintain high productivity and keep the employees motivated, the employer must improve the employees' perceived quality of work life (QWL). Daud et al. (2015) noted that understanding the QWL and its connection with organizational commitment (OC) would improve the degree of commitment among academics and motivate them to produce various high impact research papers. The HEIs will continue to produce excellent graduates at the same time. QWL is a multidimensional construct that incorporates a worker's sentiments about different components of their work including the job design, job stress, job security, pay and reward systems, organizational support, involvement in decision-making, work environment, work-related health and safety, training and career development opportunities, and the balance between personal life and job affairs (Adhikari & Gautam, 2010; Almarshad et al., 2019; Devin & Farbod, 2016; Mejbil et al., 2013).

The organization and job designs can amount a substantial influence on employees. It is, therefore, imperative to understand the factors that impact the perceived QWL of the workers. An improved QWL is critical for establishments to remain

attractive to the employees and enjoy continuous employment from the high performing ones in the organization ([Vadivel & Velmurugan, 2017](#)). The improvement of QWL at the workplace is a concept that has captured the interest of employers and employees equally. Several scholars have explored the concept of QWL and identified the determining factors (dimensions) at the workplace ([Almarshad, 2015](#); [Huda, 2017](#); [Kwahar & Iyortsuun, 2018](#); [Sojka, 2014](#); [Waghmare & Dhole, 2017](#)). Given these perspectives of QWL by these researchers, it is essential to pose this question, what amounts to a high QWL? A study of these dimensions of QWL is of great importance since a direct correlation between the quality of work life and motivation, satisfaction, and productivity has been confirmed by previous studies ([Leitão et al., 2019](#); [Ramawickrama et al., 2018](#)).

Some research works have been carried out to determine measures of QWL among academics in Malaysia ([Daud et al., 2015](#); [Khairunneezam et al., 2017](#); [Mohammadi & Karupiah, 2019](#); [Rahman et al., 2019](#)). Despite all the previous studies, there is still a lack of extensive research on some of the QWL dimensions such as social support, job security, and physical work environment ([Daud, 2010](#); [Farid et al., 2015](#)). Therefore, this study aims at contributing to literature by conducting an in-depth validation of these seven QWL dimensions; job stress, job security, fair compensation, career development, work-life balance, physical work environment and perceived organizational support through exploratory factor analysis (EFA) procedure to help in reducing the ever-emerging debates in determining the appropriate dimensions to measure QWL construct among academics in the Malaysian research universities.

## LITERATURE REVIEW

### Quality of work life (QWL)

The concept quality of work life (QWL) was at first presented in the late 1960s as a method for concentrating on the impacts of employee encounters ([Bowditch & Buono, 2015](#)). The observation of workers' perceptions about the quality of their work-life helps the employers get an awareness of where improvements can be made for better performance ([Mejbel et al., 2013](#)). In organizations, QWL is critical for the efficient and smooth running of organizations, because with having QWL commitment and loyalty of employees created, their optimal potential can be developed and utilized ([Beloor et al., 2017](#)). QWL is a complex and complicated construct that each dimension is being built on a different base; therefore, there is no agreement about the precise definition of QWL since it is a dynamic construct that developed with the growth of management. Thus, QWL can be seen as a broad management of various factors such as physical, social, psychological, and technological aspects that affect the organizational environment and its culture ([Al-Shawabkeh & Hijjawi, 2018](#)).

[Serey \(2006\)](#) defined QWL as a chance to practice one's abilities and limits to confront difficulties and circumstances that require autonomy, initiative, and self-motivation. [Rethinam and Ismail \(2008\)](#) defined QWL as the efficiency of the workplace that supports improved well-being, job stability, career satisfaction, skill improvement, and balance among work and non-work life of workers. QWL has likewise been connected to improved job restructure, flexible work arrangements, career development, and work security ([Reddy & Reddy, 2013](#)).

According to [Rahman et al. \(2017\)](#), QWL is considered as a concept that influences all issues in the organizational existence of workers that shapes the procedure of their continued employment and job satisfaction. [Rekhi and Sharma \(2018\)](#) mentioned the following dimensions of the QWL; fair and adequate compensation, healthy and safe working environment, chances for individual growth and development, the fulfillment of social needs at work, harmony among work and non-work undertakings, protection of employee privileges and the social significance of work life. [Almarshad \(2015\)](#) identified job stress, job occupied, work satisfaction, and working conditions as the underlying dimensions of quality of work life. According to [Kwahar and Iyortsuun \(2018\)](#) study, compensation and benefits, job satisfaction and job security, training and individual autonomy, work-life balance, safe and healthy work environment were found as the QWL dimensions most considered by employees in the Nigerian hotel industry.

### Dimensions of Quality of work life (QWL)

The above discussions on the explanations and dimensions of QWL show that QWL is a multidimensional construct, which consists of various interconnected components such as job stress, job security, fair compensation, career development, work-life balance, physical work environment, and perceived organizational support. When all these identified factors are managed properly, they help individuals actualize their full potentials at the workplace.

### Job Stress

[Baqutayan \(2015\)](#) described stress as the reaction of a person to the outcomes of the extreme environmental conditions that amount undue mental, behavioral and physiological burdens on that person. Stress includes how an individual reacts to outside pressures. Job stress is a result of the condition of a work environment that poses a danger to an employee ([Muda et al., 2014](#)). According to ([Gharib et al. 2016](#)), job stress is customarily experienced when the imbalance between requirements of the workplace and the people's capabilities increases, therefore at work, stress might be an awareness shown



by conflict, ambiguity, and burden emerging from the workplace and the characteristics of the person. Some establishments may require the staff to accomplish a certain level of work, while their workers may lack the ability to cope with the given tasks. It is thus believed that the demand exceeds the capability of an individual, which concurrently fails to fulfill the expected outcome. Additionally, job stress has been recognized collectively as a social problem that has a combination of aspects that disrupt the employees physically and psychologically and affects their overall welfare ([Bhui et al., 2016](#)).

### **Job Security**

Job security is described as workers' validation or confidence that they will remain employed by the same employer in the future ([Artz & Kaya, 2014](#)). It refers to the sense of security, or a sort of feeling wherein a person's needs and wants are fulfilled ([Mosaybian & Jafari, 2017](#)). The feeling of security is determined by the ability of individuals to protect what they have with the assurance of making earnings in the future ([Daud, 2017](#)). Job security can be defined as security against employment loss ([Kraja, 2015](#)). It is concerned with the state of realizing that one's employment is secure, with no likelihood of being terminated or made jobless ([Sanyal et al., 2018](#)). Jobs which are not supported by unlimited contract or lack the assurance for reasonable duration are considered to be insecure ([Lucky et al., 2013](#)). Employee job security is one of the critical components that aids employees' attachment with the employer ([Ahmed et al., 2017](#)).

### **Fair Compensation**

Compensation is the duty of an organization to appreciate its workers for their accomplishment of the assigned task ([Darma & Supriyanto, 2017](#)). Compensation refers to all the available tangible and intangible remunerations an employee receives from the employer as part of the employment affiliation ([Muguongo et al., 2015](#)). According to [Dessler \(2013\)](#), employee compensation includes all methods of reimbursement or rewards going to workers and arising from their employment, and it may be direct financial or indirect financial payments. Compensation is the "glue" that holds the worker and the establishment together, and it is prepared in the form of a mutually mandatory legal document specifying the amount to be paid to the worker and the contents of the package ([Yamoah, 2014](#)). Compensation includes expenses such as profit sharing, bonuses, overtime, and rewards that include financial and non-financial payments ([Gupta & Shaw, 2014](#); [Mabaso & Dlamini, 2017](#)). The compensation procedure is vital and a foundation of dispute in most establishments. It is concerned with how people are rewarded based on their contributions to the organization ([Christopher, 2019](#); [Njoroge & Kwasira, 2015](#)).

### **Career Development**

[Omotayo et al. \(2014\)](#) defined career as a series of positions a person is employed in all through his/her lifetime. Career is the continuous improvement, involvement, and skill attainment of an individual in a specific job role ([Dialoke & Nkechi, 2017](#)). Career development is the lifetime procedure of managing learning, transitions, work, and leisure to be able to attain an individually determined and progressing ideal future ([Armstrong, 2009](#)). Career development is defined as "an ongoing, formalized effort by an organization that focuses on developing and enriching the organization's human resources in light of both the employees' and the organization's needs" ([Kaya & Ceylan, 2014](#)). An organization's support is vital in any successful career development program. The organization that shows consideration to career development planning is at an improved position to gain high productivity from adequately trained, experienced, and talented employees ([Gyansah & Guantai, 2018](#)). Career development covers a worker's professional life; it begins with employees' orientation, on-demand training, specialized courses, and diplomas or postgraduate studies ([Salah, 2016](#)). Employee development is the basis on which the self-confidence and competence of an individual employee are established ([Robbins & Judge, 2013](#)). A successful employee development program aids to maintain a steady workforce and improve their morale ([Ababneh, 2013](#); [Khan et al., 2015](#)).

### **Work-life balance (WLB)**

Work-life balance (WLB) is defined as establishing cooperation by building an amicable connection between 'job' (career and ambition) and 'personal life' (family, health, leisure, pleasure, and spiritual aspects) ([Nayak & Sahoo, 2015](#)). Work-life balance is in light of people's subjective assessments of harmony among their job and different aspects of their lives ([Brough et al., 2014](#)). [Agha et al. \(2017\)](#) described work-life balance as the way a person strives for a suitable equilibrium between the facet of work and life. [Wong et al. \(2017\)](#) noted that work-life balance is divided into three dimensions, for example, time balance (equal time dedicated to job and family tasks), participation balance (the same psychological participation in job and family duties), and satisfaction equilibrium (equal satisfaction derived from work and family responsibilities). Workers must make an effort to modify their job and non-job responsibilities, consequently to avoid role conflict and improve life satisfaction and job commitment ([Omar et al., 2015](#)). On the other hand, organizations need to make extra efforts to provide workers with an adequate support system in the workplace and life because they are often overburdened with workload ([Chung, 2018](#)).

## Physical Work Environment

[Oludeyi \(2015\)](#) defined the work environment in its purest form as the settings, circumstances, and conditions under which individuals work. The work environment was further explained by [Briner \(2000\)](#) as a very comprehensive classification that comprises the physical background (e.g., equipment and heat), job design (e.g., task complexity and work capacity), broader organizational characteristics (e.g., culture and history) and even features of the added organizational setting (e.g., work-home affairs, local labor market situations, and industry sector) (as cited in [Nzewi et al., 2017](#)). Therefore, the work environment is the entirety of the interrelationship that exists among the workers, the organizations, and the environment in which the workers carry out their duties. It also comprises of the human, the technical, and the organizational environment. Consequently, most workers spend 50% of their lives in the workplace, which impacts the way they reason, understand, behave, communicate with colleagues and connect to their works ([Chandrasekar, 2011](#); [Hameed & Amjad, 2009](#)). [Sehgal \(2012\)](#), and [Sultan et al. \(2016\)](#) explained that the consideration for an improved physical workplace environment is on the idea that comfortable individuals are far more motivated and productive.

## Perceived Organizational Support (POS)

Perceived organizational support (POS) has stirred much attention among scholars in the studies of management and psychology ([Allen et al., 2008](#); [Aube et al., 2007](#); [Claudia, 2018](#); [Herachwati et al., 2018](#); [Kurtessis et al., 2015](#); [Zhong et al., 2015](#)). Based on organizational support theory (OST) ([Eisenberger et al., 1986](#); [Eisenberger & Stinglhamber, 2011](#); [Krishnan & Mary, 2012](#)), workers build up a standard view concerning the degree to which the employer appreciates their commitments and genuinely concerned about their welfare. In the literature, POS has been defined in different ways. POS is also defined as "how much the organization values employees' contributions and cares about them" ([Allen et al., 2008](#)). Employees also recognize organizational support because of how they humanize the organization ([Burns, 2016](#)). A study detailed that employees' views of organizational support will intensify or decline based on how they attribute humanlike features to the company ([Caesens et al., 2017](#)).

## RESEARCH METHODOLOGY

The methodology employed is crucial in achieving the aim of any study. This study employed a cross-sectional research design to establish reliable measures for the quality of work life (QWL) construct among academics in the Malaysian research universities. The approach for this study is quantitative, and data was obtained using a self-administered questionnaire. A detailed literature review was carried out to identify items measuring the QWL construct. The items were adapted and modified to suit this study. A total of 100 academics from the five Malaysian research universities were randomly selected and given the self-administered questionnaire for data collection. The Exploratory Factor Analysis (EFA) procedure using IBM-SPSS version 21.0 was carried out.

## Research Instrument

In order to obtain data for establishing the appropriate measures of quality of work life (QWL) among Malaysian academics, a structured questionnaire was prepared with 51 items on a 10-point interval scale ranging from 1 = strongly disagree to 10 = strongly agree. Job stress was measured using a 13-item measure established by [Parker and Decotiis \(1983\)](#), which covers organizational and job-related stress. A sample item is "I have too much work and too little time to do it." Job security was assessed using a 7-item measure established by [Lahey and Kuhnert \(1988\)](#). A sample item is "I can be sure of my present job as long as I do good work." Fair compensation was assessed using a 10-item measure adapted from [Williams et al. \(2002\)](#) and [Folger and Konovsky \(1989\)](#). A sample item is "I currently receive much more benefits compared with others working for this university." Career development was measured using a 6-item measure adapted from [Kim \(2015\)](#). A sample item is "I make an effort to engage in the greater professional community." The physical work environment was assessed using a 7-item measure adapted from [NLSA \(2007\)](#) and [FLoV \(2017\)](#). A sample item is "I am aware of the risks and hazards of my work environment." Work-life balance was measured using a 4-item scale developed by [Brough et al. \(2014\)](#). A sample item is "I currently have a good balance between the time I spend at work and the time I have available for non-work activities." Perceived organizational support was measured using a 4-item measure adapted from [Eisenberger et al. \(1986\)](#). A sample item is "The organization values my contribution to its well-being."

## EXPLORATORY FACTOR ANALYSIS (EFA)

The researcher adapted the measuring instrument for QWL construct from previous literature and modified the items to suit the current study. According to [Bahkia et al. \(2019, 2020\)](#), [Hoque et al. \(2018\)](#), [Rahlin et al. \(2019\)](#), and [Shkeer & Awang \(2019\)](#), pre-test and pilot-test must be conducted to validate the modified instrument, mainly if the original instrument was developed in the population of different culture and industry from the present study. Once the modification process was concluded, the questionnaire was reviewed by two experts; a senior lecturer and a professor for content validity and face validity as a pre-test for this questionnaire to ensure that the measures are suitable for the intended purpose and understandable. The criterion validity was determined by the professor, who is a statistician and confirmed that the scales



used to measure data are suitable for the statistical analysis. The experts made some relevant comments for some of the questions to be shortened and reworded to avoid double-barreled questions. The questionnaire was reviewed accordingly and revised based on the suggestions of the experts and the researcher further pre-tested the questionnaire to 30 academics in a research university, they were asked to put down their comments on the clarity and relevance of the questionnaire to their jobs, and evaluate the uniformity in their responses.

After all the necessary adjustments according to pre-test results have been completed, the researcher distributed the questionnaire to the respondents to obtain data of a minimum of 100 responses for the exploratory factor analysis (EFA) (Hair et al., 2010; Rahlin et al., 2020; Baistaman et al., 2020, 2020a). Hair et al. (2014, p.92) stated that "factor analysis is an interdependence technique whose primary objective is to define the underlying structure among the variables in the analysis." The factors are latent constructs that cannot be measured directly; instead, they represent a group of the items for their measurements. EFA procedure is employed when there is ambiguity about the number of factors that may exist in a set of variables (Nayak, 2016). The primary purpose of this procedure is, to sum up the data enclosed in a large number of the initial items into a smaller set of new factors with the smallest loss of details (Baistaman et al., 2020, 2020a; Hair et al., 2014, p.94; Hoque et al., 2018; Mahfouz et al., 2019; Rahlin et al., 2020a).

## RESULTS

### The Exploratory Factor Analysis (EFA) for Quality of Work Life (QWL) construct

The quality of work life construct consists of 51 items in a questionnaire. The 10-point interval scale was supported by Awang et al. (2016), who state that 10 points scale is more accurate when compared to 5 points scale in the measurement model because of more extensive choice and more independence. The items are coded as Q1 to Q51 (Table 1). The results in Table 1 show the descriptive statistics for each item measuring the QWL construct. The mean value for every item ranged from 4.12 to 8.31, while the standard deviation of the value ranged from 1.719 to 3.036.

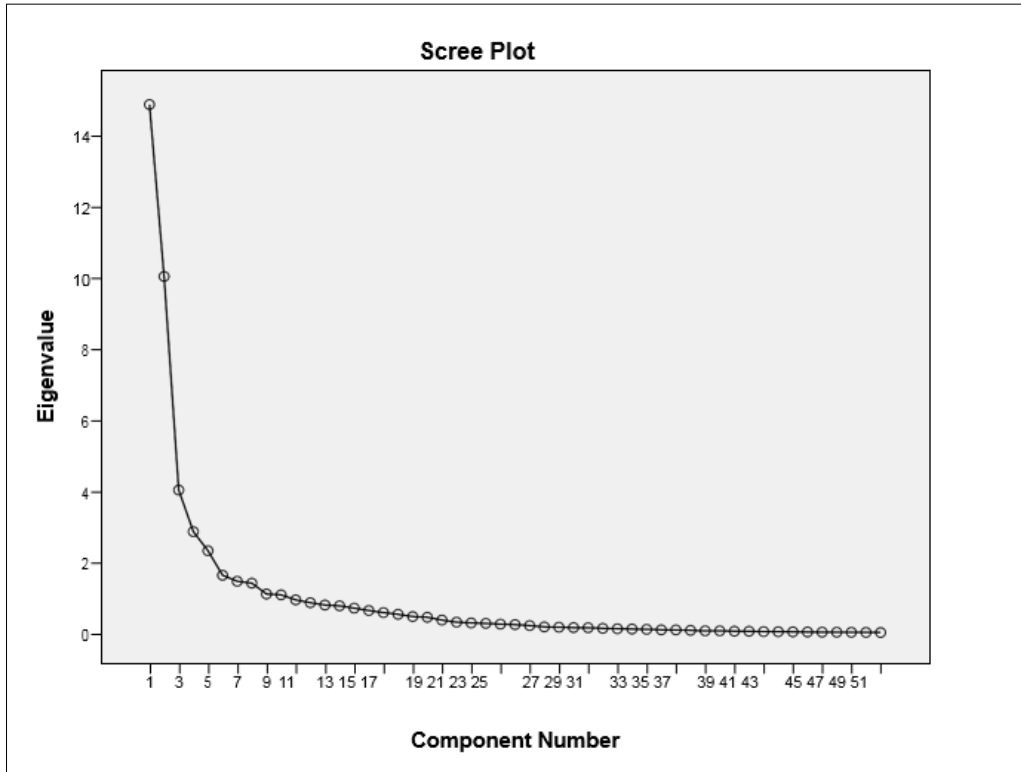
**Table 1:** The Descriptive Statistics for items measuring QWL Construct

Descriptive Statistics			
Item	Statement	Mean	Std. Deviation
<b>Job Stress</b>			
Q1	I have felt nervous as a result of my job	5.59	2.864
Q2	Working here makes it hard to spend enough time with my family	5.05	2.532
Q3	My job gets to me more than it should	5.46	2.483
Q4	I spend so much time at work	5.97	2.548
Q5	Working here leaves little time for other activities	5.54	2.564
Q6	There are lots of times when my job drives me right up the wall	5.16	2.619
Q7	Sometimes when I think about my job I get a tight feeling in my chest	4.21	2.618
Q8	I frequently get the feeling I am married to my job	4.36	2.757
Q9	I have too little time to do all the work I have	5.23	2.795
Q10	I feel guilty when I take time off from a job	5.32	2.729
Q11	I feel like I never have a day off	4.80	2.988
Q12	I sometimes fear the telephone ringing at home because the call might be job-related	4.12	2.675
Q13	Too many people at my level in the university get burned out by job demands	5.50	2.393
<b>Job Security</b>			
Q14	I can keep my job for as long as I want it	7.27	2.581
Q15	This job has retirement security	8.13	2.389
Q16	I am not really sure how long my job will last	4.69	3.007
Q17	There is a real need for my position in this university	7.88	2.310
Q18	If my particular job were phased out, the university would try hard to replace it	6.44	2.738
Q19	I can be sure of my job as long as I do good work	8.03	2.422



Q20	I am afraid of losing my job	4.49	3.036
<b>Fair Compensation</b>			
Q21	I currently receive much more benefits compared with others working for this university	6.54	2.076
Q22	Compared with others in my job category at this university, I receive much more benefits	6.19	2.177
Q23	Compared with others in my job category outside of this university, my current benefits are much more	6.41	2.628
Q24	Compared with others I know with similar abilities and training, my current benefits are much more	6.21	2.450
Q25	Compared with others my age, my current benefits are much more	6.17	2.578
Q26	Compared with others with my level of seniority, my current benefits are much more	5.90	2.480
Q27	Compared to my friends and family, my current benefits are much more	6.95	2.354
Q28	Compared with the benefits I need to meet my financial needs, my current benefits are much more	6.18	2.231
Q29	The size of my last raise was very fair	6.46	2.430
Q30	My most recent raise when compared to my expectations was much more than expected	6.03	2.226
<b>Career Development</b>			
Q31	I make an effort to engage in the greater professional community	7.47	1.749
Q32	I proactively modify my work approach in order to develop the best practice	7.80	1.831
Q33	My supervisor provides feedback on a regular basis to develop my expertise	6.34	2.379
Q34	I have frequent contact with more experienced people in the same field I work	6.92	2.232
Q35	My work involves multiple roles and responsibilities	8.31	1.784
Q36	I am closely guided by others with more expertise	5.72	2.574
<b>Physical Work Environment</b>			
Q37	I am aware of the hazards of my work environment	7.35	2.171
Q38	My department is committed to ensuring the safety of its employees	7.64	1.783
Q39	I am aware of my role in protecting my personal safety in the workplace	7.88	1.748
Q40	My work premises are well suited for the work to be performed	7.98	1.775
Q41	The shared staff areas are clean	7.46	2.007
Q42	There is sufficient space at my workplace	8.25	1.719
Q43	There are no problems with being too hot or too cold at my workplace	7.86	2.122
<b>Work-Life Balance</b>			
Q44	I currently have a good balance between my work and non-work activities	7.06	2.223
Q45	I have difficulty balancing my work and non-work activities	4.53	2.683
Q46	The balance between my work and non-work activities is just about right	6.58	2.305
Q47	Overall, I believe that my work and non-work life are balanced	6.92	2.359
<b>Perceived Organizational Support</b>			
Q48	The university values my contribution to its well-being	6.31	2.431
Q49	The university strongly considers my goals and values	6.39	2.481
Q50	The university cares about my general satisfaction at work	6.12	2.547
Q51	The university takes pride in my accomplishments at work	6.72	2.578

The screen plot in Figure 1 shows that ten components surfaced from the EFA procedure for this construct. The EFA procedure grouped the 51 items into ten distinct components. Each component has a certain number of items. The rotated component matrix shows the items that are grouped under which component.



**Figure 1:** The Scree Plot for QWL Construct extracted four components

The EFA procedure using Principal Component Analysis (PCA) with Varimax Rotation was carried out on the 51 items assessing QWL construct. The results in Table 2 show that the Bartlett's Test of Sphericity is significant (P-Value < .05). Additionally, the measure of sampling adequacy by Kaiser-Meyer-Olkin (KMO) (.741) is acceptable since it is above the minimum value of .60 (Awang, 2012; Bahkia et al., 2019, 2020; Rahlin et al., 2020a). These two results (Bartlett's Test is significant and KMO > .60) indicate that the data is satisfactory to continue with the data reduction technique (Awang et al., 2015; Hoque et al., 2018; Shkeer & Awang, 2019).

**Table 2:** The KMO and Bartlett's Test

KMO and Bartlett's test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.741
Bartlett's Test of Sphericity	Approx. Chi-Square	6100.206
Df		1275
Sig.		.000

**The Components and Total Variance Explained**

The results in Table 3 shows there are ten components from the EFA procedure based on the Eigenvalue greater than 1.0. The eigenvalues ranged from 1.071 to 14.892. While the variance explained for component 1 is 29.200%, component 2 is 19.697%, component 3 is 7.891%, component 4 is 5.593, component 5 is 4.539, component 6 is 3.183, component 7 is 2.850, component 8 is 2.745, component 9 is 2.148 and component 10 is 2.099. The total variance explained for measuring the QWL construct is 79.946%, and has surpassed the minimum requirement of 60% (Awang et al., 2015; Noor et al., 2015; Yahaya et al., 2018).

**Table 3:** The Components and Total Variance Explained for QWL Construct

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14.892	29.200	29.200	14.892	29.200	29.200



2	10.045	19.697	48.897	10.045	19.697	48.897
3	4.024	7.891	56.788	4.024	7.891	56.788
4	2.853	5.593	62.382	2.853	5.593	62.382
5	2.315	4.539	66.921	2.315	4.539	66.921
6	1.623	3.183	70.104	1.623	3.183	70.104
7	1.453	2.850	72.954	1.453	2.850	72.954
8	1.400	2.745	75.699	1.400	2.745	75.699
9	1.095	2.148	77.847	1.095	2.148	77.847
10	<b>1.071</b>	<b>2.099</b>	<b>79.946</b>	<b>1.071</b>	<b>2.099</b>	79.946

Table 4 presents the ten components and respective items. The factor loading for each item except Q20, Q31, Q32, Q35, Q36, Q37, Q41, and Q43 is higher than .60. Accordingly, the eight items with factor loading less than .60 were deleted (Awang, 2014; Baistaman et al., 2020, 2020a; Yahaya et al., 2018). Therefore, forty-three (43) items will be retained and are suitable to assess the QWL construct. Furthermore, no item was assigned to component six (6) and ten (10) because the factor loading for items under these components was below the cut-off point of .60.

**Table 4:** The ten components and their items

Rotated Component Matrix										
	Component									
	1	2	3	4	5	6	7	8	9	10
Q1		.638								
Q2		.821								
Q3		.852								
Q4		.871								
Q5		.780								
Q6		.867								
Q7		.795								
Q8		.795								
Q9		.863								
Q10		.721								
Q11		.892								
Q12		.737								
Q13		.718								
Q14					.772					
Q15					.694					
Q16									.818	
Q17							.775			
Q18							.831			
Q19					.864					
Q20 Deleted Item										
Q21		.853								
Q22		.842								
Q23		.802								
Q24		.914								
Q25		.894								
Q26		.878								
Q27		.850								
Q28		.779								
Q29								.663		
Q30								.676		
Q31 Deleted Item										
Q32 Deleted Item										
Q33		.707								





Q34	.657
Q35 Deleted Item	
Q36 Deleted Item	
Q37 Deleted Item	
Q38	.786
Q39	.891
Q40	.914
Q41 Deleted Item	
Q42	.675
Q43 Deleted Item	
Q44	.723
Q45	.665
Q46	.776
Q47	.758
Q48	.686
Q49	.715
Q50	.638
Q51	.702
Extraction Method: Principal Component Analysis.	
Rotation Method: Varimax with Kaiser Normalization.	
a. Rotation converged in 11 iterations.	

### The Internal Reliability for the Instrument Measuring QWL Construct

The final test is to determine the value of Cronbach's Alpha for every component to evaluate the internal reliability of each component measuring the QWL construct. The internal reliability assesses the consistency of results across items measuring the same construct. The value of Cronbach's Alpha should be greater than .7 for the items to achieve high internal reliability (Rovai et al., 2014).

**Table 5:** The Reliability Analysis for every component measuring QWL Construct

	Name of Component	No of items	Cronbach's Alpha
1	Component 1	14	.965
2	Component 2	14	.956
3	Component 3	4	.904
4	Component 4	3	.957
5	Component 5	3	.878
6	Component 6	0	-
7	Component 7	2	.750
8	Component 8	2	.912
9	Component 9	1	-
10	Component 10	0	-

The Cronbach's Alpha for the ten components assessing the QWL construct, as presented in Table 5, ranged from .750 to .965. Therefore, the items in all seven components analyzed have attained the acceptable internal reliability since their Cronbach's values are higher than .7. However, component nine (9) internal reliability (Cronbach's Alpha) could not be determined because of the limitation of having only one item. Additionally, no item was assigned to component six (6) and ten (10) because the factor loading for items under these components was below the cut-off point of .60; consequently, their Cronbach's Alpha could not also be determined.

### DISCUSSION

The purpose of this study was to conduct a detailed validation of seven dimensions of quality of work life (QWL) among academics through exploratory factor analysis (EFA) procedure. According to the EFA results, ten components structure of the QWL instrument explained 79.946% of the variance in the configuration of associations among the items. Seven out of the ten components had high reliabilities (Cronbach's  $\alpha$  ranged between .750 and .965). Component nine (9) internal reliability (Cronbach's Alpha) could not be determined because of the limitation of having only one item. Furthermore, no item was assigned to component six (6) and ten (10) due to low factor loading below the acceptable cut-off point of .6 for



this study; therefore, their Cronbach's Alpha could not also be assessed. Forty-three items remained in the final questionnaire after eight items were deleted which were cross-loaded on multiple components with factor loading below .60 (component 1: 14 items; component 2: 14 items; component 3: 4 items; component 4: 3 items; component 5: 3 items; component 6: 0 item; component 7: 2 items; component 8: 2 items; component 9: 1 item; and component 10: 0 item). Accordingly, the ten components structure of the QWL instrument has been established in this study.

It was further established that the data used in this study were suitable for conducting a valid EFA based on descriptive statistical analysis. The sample size of 100 academics was adequate for the EFA ([Bahkia et al., 2019, 2020](#); [Hair et al., 2010](#); [Rahlin et al., 2019, 2020](#); [Shkeer & Awang, 2019](#)). Based on the results of the EFA, this study achieved a modest milestone with a structure of ten dimensions by deleting eight items that were cross-loaded in multiple dimensions with a factor loading below the defined threshold in this study.

This study examined the validity of the instrument during the initial stage of the instrument development process, using the qualified recommendations from two experts and thirty academics carefully. According to the results of the EFA in this study, academics, higher education management, or human resource administrators can use this QWL instrument in order to determine the workplace factors that constitute a high level of QWL for improved performance and commitment among the academics by measuring the identified factors in this study. Moreover, when academics come to recognize what factors aid their ability to perform and commit to a particular organization, the instrument may offer them a chance to enhance their enthusiasm towards carrying out their assigned duties. Nevertheless, more studies are needed to determine the existing relationships between the latent variables by carrying out a confirmatory factor analysis (CFA), as suggested by [Yu and Richardson \(2015\)](#).

## CONCLUSION

The dimensions of quality of work life (QWL) identified in this study are job stress, job security, fair compensation, career development, work-life balance, physical work environment, and perceived organizational support. The results from the exploratory factor analysis (EFA) disclosed that the measurement items from the seven dimensions adapted from the literature were grouped into ten components; however, the items with the acceptable factor loading of above .60 only loaded into eight components, components six and ten were empty with no recorded item that met the minimum factor loading requirement for the study. The results also showed that the construct could adequately be measured using forty-three items with the total explained variance above 60%. The Kaiser-Meyer-Olkin (KMO) value of .741 ( $> .60$ ) also shows that the data is adequate for use in this study. Additionally, the items in all measurable components assessing the construct possess excellent internal reliability since all Cronbach's values have surpassed the acceptable range of .7. The detailed measurement development and validation processes of the current study have confirmed that the new QWL instrument is internally consistent and reliable. Therefore, this current study contributes to the QWL literature by identifying the dimensions that contribute to high QWL among academics in the Malaysian research universities. This study also contributed by establishing a validated and reliable instrument for measuring the QWL construct.

## LIMITATION AND STUDY FORWARD

Firstly, a significant issue that was beyond our control during the process of data collection was respondents' bias, which could be as a result of their unwillingness to respond to the questionnaire or their busy schedules. Another limitation of this study was that it focused mainly on Malaysian research universities and utilized data from only 100 randomly selected academics. This drawback can be addressed in future studies by considering other Malaysian public universities and involving more samples to ascertain if the same identified and validated measures of quality of work life (QWL) in this study will be the same in other universities. Thirdly, this study employed a cross-sectional research design that involved the only one-time collection of data within a short period. However, further studies could look into a more long-term study of the identified measures of QWL to fully understand how they improve over time and their influence on the academics' motivation, commitment, and performance.

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## AUTHORS' CONTRIBUTION

**Amauche Ehido:** Conceptualization, Methodology, Formal analysis, Writing - Original Draft, Project administration.

**Zainudin Awang:** Supervision, Statistical Analysis, Validation, Resources, Writing - Review & Editing.

**Bahyah Abdul Halim:** Supervision, Project Administration.



**Chukwuebuka Ibeabuchi:** Investigation, Data Collection, Data management, Writing - Review & Editing.

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