Risk Associated with Women Involvement in Construction Projects in Lagos State

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Abstract *-- Low level of women involvement in construction has been of great concern to many researchers and one of the reasons for this could be attributed to the risk and uncertainty attached to the profession in relation to gender issues. As a result, the study appraised risk associated with women involvement in construction projects with a view to enhancing women participation in construction related activities. In all, seventy-four (74) construction professionals were randomly selected consulting, contracting and government organisations in Lagos State, Nigeria. Data related to risk in women involvement were collected through the administration of structured questionnaire on construction professionals that comprised Architects (18), Quantity Surveyors (33), Builders (4) and Engineers (13) and 6 other construction workers that didn't specify their profession in Lagos State. The collected data were subjected to Risk Factor Index (RFI) analysis and Principal Component Analysis (PCA). Findings from the study revealed that factors constituting risk associated with women in construction included selection and promotion procedure (RFI=3.54), family commitment (RFI=3.45) and gender discrimination (RFI=3.40). All the identified factors had high indices (2.81<RFI<3.54) with mean RFI=3.15. "Selection and promotion procedure" was the factor with highest probability and impact of occurrence while family commitment had the highest degree of risk occurrence. Result of PCA grouped risk factors into six (6) major components. These included gender bias related factor (Eigenvalue= 5.730), job security related factor ((Eigenvalue= 1.893), recruitment criteria related factor ((Eigenvalue= 1.709), communication related factor (1.471), job commitment related factor ((Eigenvalue= 1.291) and health and safety related factor ((Eigenvalue= 1.042) with gender bias related factor being the most factor contributed to risk associated with women involvement in construction industry. The study concluded that the highly occurred risk factors should be given considerable and urgent attention to enhance the participation of the females in construction industry.*

Indexed Terms: *Construction, Nigeria, Project, Risk, Women*

I. INTRODUCTION

Report by Global Construction Perspective and Oxford Economics in 2010 showed that Nigeria have the potential to be one of the biggest construction markets on the planet. While the world is still struggling to emerge from the global economic collapse, Nigeria's construction industry is growing fast and is likely to grow astronomically over the next decade. The construction industry is closely linked to the economy of every country and contributes to the growth of that economy. If the construction sector and the economy of a country are so closely linked, then it makes sense to effectively manage the human resources within that industry (Braam and Kingma, 2012 cited in Danso 2012). The impact of an individual professional, men and women contributes to the successful delivery of construction projects. The complexity of construction activities had pave way to both male and female in delivering the projects. However, construction activities had been dominated majorly by male professionals (Tyler, 2017). Tyler (2017) stated clearly that "case studies in the construction industry indicate that team performances are enhanced when women are involved in the workforce. Women bring new or alternative perspectives on how best to approach challenges in the workplace. A review conducted by the Harvard Business Review determined that the overall intelligence of teams was greater when females were incorporated as team members. It is clear that women on construction sites can bring a lot to the table, not just in compensating for labor shortages, but also in contributing to problem solving and efficiency." All it entails is for individual to be professionally sound and proactive in managing their roles in order to have quality production. Despite the fact that the involvement of women in construction activities is low, yet, they faced risks and these risks are of less

concern to the researchers rather, the issue of gender in construction has been the concern of many researchers neglecting the risk associated with the gender itself. The role of women in any activities cannot be overemphasized, they (women) tends to be calm and listen to co-workers, ready to take advice even from men co-workers. Despite these qualities, risk which is inevitable in all aspect of life needs to be critically assessed in order for women to be proactive and take necessary action when risk occurred. The peculiarities of the construction workplace have been used to excuse the industry's failures to implement equal opportunity for women. Nevertheless, Moir, Thomson and Kelleher (2011) affirmed that, quiet number of construction industry leaders who have succeeded in integrating women have shown that the same mixture (male and female operations) that work in other sector can as well work in the construction sector. The focus of this paper is to now assess likely risks associated with women involvement in construction project with a view to encouraging female in participating in construction activities effectively.

II. LITERATURE REVIEW

Construction industry is complex, craft-based and usually male-dominated (Aulin and Jingmond, 2011). Its significant contributions to the growth of nation's economy had pave way for its fast growing. Women in construction are seen as wrong gender in the industry, whereas, Menchs and Abraham (2007) established that, women are an important source of construction labor. Construction activities require not only manual agility but physical strength. Currently, the industry is employing less than 10% of the female in the workforce with even lower participation in crafts and trade (Aulin and Jingmond, 2011). The majority of women working in the construction industry undertake administrative, technical and professional work while the intake at the operative level is very low and the data are scarce to non-existence, but in most countries, these represent less than 1% of the workforce (Clarke, Pedersen, Michielsens and Susman, 2005). As increasing number of women enters the construction trade, concern about their health and safety are growing. This problem is unique to female construction workers and it has a circular effect (Occupation Safety and Health Administration OSHA, 1999). Clarke, Pedersen, Michielsens and Susman (2005) affirmed that, women are not physically strong to endure the strenuous activities of construction industry. Whereas, women needs to proof their competence, having acquired academic and professional qualifications so as to gain adequate experiences in their profession. On top of proving their technical skills, women workers need to have the ability to fit into the accepted behavior of the workplace which can even be more problematic (Aulin and Jingmond, 2011). Women normally faced a greater risk than men within the construction industry (NYCOSH, n.d). Wangle (2009) asserted that, women were twice as likely as men to leave the industry because of complaints of pain and injury. Likewise, the culture of the workplace creates problems to female workers sometimes on site. The findings of Occupational Safety and Health Administration (OSHA, 1999) established that, temporary sanitary facilities are usually unisex without privacy and not well maintained resulted to unclean facilities which can invariably lead to disease as well as urinary tract infection. Personal Protective Clothing (PPC) and Personal Protective Equipment (PPE) were usually designing in the light of men not considering been fitted for women, hence, this compromise personal health and safety of the women (OSHA, 1999). Due to the aforementioned and other related issues, the level of women involvement in construction is very low (Abidemi and Ayobami, 2015).

Risk Associated with Women in Construction Industry

The barriers to the entry of female professionals into the industry begin in the early socializing and education and continue throughout the training and recruitment. These barriers are further exacerbated by the industry as it continues to foster a male only image and remain entrenched in a culture which undermines the value of women (Fielden, Davidson, Gale and Davey, 2000). According to the Construction Industry Training Board (2003), women only accounts for 9% of the construction work force and this has made them to confront significant number of barriers such as difficulty in joining the field of construction and attaining the most senior position in the organisation's hierarchy, hence, construction continue to be a most male dominated industry. Women construction related

risks were identified from literature. Firstly, sexual harassment is nearly common on every works of life mostly in the construction industry (WWW, 2017). It is a serious problem for female construction workers. HASWIC (1999) asserted that, about 88% of women construction worker had experienced sexual harassment at work. This signifies that sexual harassment is a great risk associated with women involving in construction projects generally. Restricted to basic facility is another risk that faces women in construction industry. Normally, unclean facilities resulted in chronic disease; hence, women tend to delay urinating rather than using such unwanted rest room. Hostile workplace as been noted to represent health and safety concerns usually ranging from a lack of training and safety information to physical assault. Among other risk associated with women in construction are: family commitments, gender discrimination (Kumar, 2013) recruitment practices, male dominated training courses, problem of isolation, job insecurity (Gallie, Felstead Green and Inanc, 2012), restricted access to basic facility, constraints during wage payment, accidents and injury at workplace, common health hazards, personal protective equipment and clothing, ergonomics, reproductive hazards, unavailability of training and offensive language Moir *et al.,* 2011; WAWIC, 2013). Moreover, part of the discrimination women workers face are in the form of maintenance of a long working hours and enforcement of environmental instability. This contributes to the issue of balancing between having a successful career and family-oriented lifestyle (Dainty, Bagilhole, and Neale, 2000). Promotional opportunities within the organizations had been restricted to men, hence, prevent women for having opportunities to maintain existing hierarchy and work practices (Dainty *et al*., 2000). Resentment against women usually manifested in open and hidden discriminatory behaviour towards them (Dainty *et a.l*, 2000). These actions ranged from overt gender harassment and maltreatment where women workers face the problem of not reporting verbal jargons and unfair male attitude all for the fear of being rejected by their colleagues (Söderberg, 2009 cited in Radhlinah et al, 2011).

III. RESEARCH METHODS

The study made use of primary data which were collected through the administration of questionnaire on target respondents. Questionnaire had been described as an instrument for collecting data and a quick way of getting reliable results (Debois, 2019). The respondents which comprised quantity surveyors, architects, builders and engineers were randomly selected in the study area; hence, random sampling technique was employed for this study. The questionnaire addressed both the background information of the respondents and the subject matter; hence, two sections of questionnaire were designed. Data collected on background information were analysed using frequency table while data relating to the focus of the study were subjected to Risk Factor Index (RFI) and Principal Component Analysis (PCA).

IV. DATA ANALYSIS, RESULTS AND DISCUSSIONS

In all, a one hundred (100) construction professionals were randomly sampled with the aid of questionnaire in which seventy-four (74) responded to the administered questionnaire. The respondents included Architects (18), Quantity Surveyors (33), Builders (4) and Engineers (13) with six (6) of them silenced in disclosing their designation. Hence, seventy-four (74) questionnaires were used for the study given a response rate of 74% which this study considered adequate following the submission of Moser and Kalton (1979) that the results of a survey would be taken as bias and of little value if the response rate is lower than 30 - 40%.

4.1 Characteristics of the Surveyed Respondents

The result from Table 1 revealed that, about 68.9% of the respondents were male while 31% represented female that have directly linked with the construction activities. The result obtained on designation of the respondents indicated that, 44.4%, 24.3%, 5.4% and 17.6% were quantity surveyors, architects, builders and engineers respectively. In addition, The Table showed that, about 73% of the surveyed respondents were members of their professional bodies. About

36.5% of the respondents belong to Nigerian Institute of Quantity Surveyors, 18.9% were member of Nigerian Institute of Architects, 4.1% belong to Nigerian Institute of Builders and 13.5% were member of Nigerian Society of Engineers while 27% of the respondents failed to disclosed their professional affiliation. The result of the analysis further revealed that, 77% of the respondents were private organization, 2.7% falls within the public organization, those that operated within the government parastatal were 16.2%. Nevertheless, 2.7% of them silence on this question. Information received on academic qualification showed that, 58.1% had their first degree. Moreover, 16.2% had their second degree which signifies that, data collected can be relied upon. Likewise on the academic qualification, 23% of the respondents had their HND while only 2.7% of them possessed OND. Similarly, 35.13% of the respondents had more than ten years of professional experience in the construction industry with average year of 9 years experience while 27.03% had between 6-10 years of experience. In view of the analysis of the respondents' profiles, it can be established that the targeted respondents are capable of providing reliable, adequate and suitable information for this research work.

Table 1: Profile of the Surveyed Respondents

Respondents' particulars	Frequency	Percentage (%)
Sex of the Respondents		
Male	51	68.9
Female	23	31.0
Total	74	100.0
Profession of the Respondents		
Quantity Surveyor	33	44.6
Architect	18	24.3
Builder	4	5.4
Engineer	13	17.6
Others	6	8.1
Total	74	100.0
Professional Affiliation		
NIQS	27	36.5
NIA	14	18.9
NIOB	3	4.1
NSE	10	13.5
No response	20	27.0
Total	74	100.0
Type of Organisation of the Respondents		
Private	57	77
Public	2	2.7
Consortium	1	1.4
Government Parastatal	121	16.2
No response	2	2.7
Total	74	100
Academic Qualification of the Respondent		
OND	2	2.7
HND	17	23.0
B.Sc.	29	39.2
B.Tech	14	18.9
M.Sc.	12	16.2
Total	74	100.0
Years of Experience of the Respondents		
1-5years	28	37.84
6-10years	20	27.03
11-15years	11	14.86
16-20 years	2	2.70
Over 20 years	13	17.57
Total	74	100
Mean = 9 years		

4.2 Assessment of Risk Associated with Women in Construction Industry

The paper focused on assessment of risk associated with women in construction. Risks can be assessed through their factors. Therefore, in measuring the risk factors, a personally device index described as Risk Factor Index (RFI) was developed. The RFI was achieved through the aggregate of Probability of Occurrence Index (POI), Impact of Occurrence Index (IOI) and Degree of Occurrence Index (DOI) (see Equation 1).

$$POI + IOI + DOI = RFI \qquad \textit{Equation 1.}$$

Equally, to ascertain that a risk has occurred, its factor index must be higher than the mean aggregate index. The responses of the respondents were analysis through this device and the results is as presented in Table 2.

Table 2: Factors Contributing to Risk Associated with Women in Construction

		Prob. of Occurrence		Impact of Occurrence		Degree of Occurrence		Risk Occurrence	
S/N	Risk Factors	POI	R	IOI	R	DOI	R	RFI	R
1	Selection and promotion procedure	3.57	1	3.58	1	3.32	4	*3.49	1
2	Family commitment	3.31	7	3.50	2	3.49	1	*3.43	2
3	Gender discrimination	3.51	2	3.46	3	3.14	11	*3.37	3
4	Cultural norms of the industry	3.20	8	3.43	4	3.48	2	*3.37	3
5	Access to standard sanitary facility	3.38	3	3.20	11	3.39	3	*3.32	5
6	Recruitment and retention criteria	3.35	5	3.38	5	3.18	7	*3.30	6
7	Job insecurity	2.92	17	3.16	13	3.16	8	*3.30	6
8	Personal protective equipment and clothing	3.35	5	3.36	6	3.16	8	*3.29	8
9	Individual mind set	3.37	4	3.23	8	3.23	5	*3.28	9
10	Hostile work place	3.00	12	3.22	9	3.19	6	3.14	10
11	Physical strength of women	3.00	12	3.22	9	3.15	10	3.12	11
12	Accident and injury on construction site	2.99	14	3.28	7	3.03	13	3.10	12
13	Hazard reporting and link to job security	3.2	8	3.11	16	2.99	15	3.10	12
14	Offensive language on construction site	3.05	11	3.18	12	3.07	12	3.10	12
15	Common health hazard related to construction site	2.99	14	3.12	15	3.03	13	3.05	15
16	Ergonomic consideration of women size and weight in design of materials and equipment	3.06	10	3.15	14	2.92	16	3.04	16
17	Sexual harassment	2.99	14	3.00	18	2.73	20	2.91	17
18	Constraint in wage payment	2.77	18	3.04	17	2.88	18	2.90	18
18	Isolation of women in industry	2.76	19th	2.99	20th	2.92	16th	2.89	19th
20	Reproductive hazards	2.66	20th	3	18th	2.76	19th	2.81	20th
	Mean Aggregate	3.12		3.23		3.11		3.15	

POI = Probability of Occurrence Index; IOI = Impact of ooccurrence Index; DOI = Degree of Occurrence Index; RFI = Risk Occurrence Index; * Risk Occurrence

The result presented in Table 2 revealed the top nine (9) risk factors as risk associated with women in construction with selection and promotion procedure (RFI = 3.49) as the most occurring and impacting risk. The result is expected because the issue of selecting female for topmost cadre and promotion has been an issue in the construction industry. Sang and Powell (2012) asserted that, women are not well recognized in all construction occupations and professions. Likewise, family commitment (RFI=3.43) is another vital issue affecting women in construction industry. The complexity and time-consuming nature of construction works is not as easy for women especially married ones who are to cater for family. No wonder this was ranked second. Its degree of occurrence ranked first showing the high risk for women working within construction industry. Lingard and Lin (2004) affirmed in their study conducted in Australian construction industry that, no family variables were correlated with organizational commitment. This signifies that, family commitment should not been seen as a barrier for women especially when recruiting and selecting for topmost positions especially in Nigerian construction industry. Other risk factors associated with women involved in construction works included: gender discrimination (RFI=3.37); cultural norms of the industry (RFI=3.37); access to standard sanitary facility (RFI=3.32); recruitment and retention criteria (RFI=3.30); job insecurity (RFI=3.30) and personal protective equipment and clothing (RFI=3.29). All these had RFI greater than mean aggregate of 3.15 (see Table 2); hence, risk occurred. However, the least risk associated with women involved in construction works comprised: reproductive hazards; isolations of women in the industry; constraint in wage payment; sexual harassment; and ergonomics all at RFI < 3.15.

For further assessment, data were subjected to factor analysis with each factor treated as a variable. The need to ascertain the extent of adequacy of the data collected led to the use of Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity. The KMO measures how suited is the data obtained for Factor Analysis.

The closer the KMO to 1 the suitable the data obtained (Garrett-Mayer, 2006; Field, 2009 and Stephanie, 2016). Bartlett's Test of Sphericity on the other hand measures the null hypothesis that the original correlation matrix is an identity matrix. The result shown in Table 3 revealed that, factor analysis is suitable for the data collected as KMO value is 0.726 and it is highly significant ($x^2 = 532.459$; p=0.000).

Table 3: KMO and Bartlett's Test of Probability of Risk Occurrence

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.726
Bartlett's Test of Sphericity	Approx. Chi-Square	532.459
	Df	190
	Sig.	0.000

Having ascertained the appropriateness of factor analysis for the data obtained, principal component analysis was carried out. Starting with the original data matrix, principal factors were extracted after interaction of communalities. Each factor with an Eigenvalue greater than 1 was retained for rotation. The result of the rotation for probability of risk occurrence was as shown in Table 4 while Table 5 showed how the items were loaded to factors after rotation.

Table 4: Total Variance Explained for Probability of Risk Occurrence

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.730	28.650	28.650	5.730	28.650	28.650	2.644	13.218	13.218
2	1.893	9.467	38.117	1.893	9.467	38.117	2.532	12.659	25.877
3	1.709	8.543	46.660	1.709	8.543	46.660	2.286	11.428	37.305
4	1.471	7.355	54.015	1.471	7.355	54.015	2.165	10.823	48.128
5	1.291	6.456	60.471	1.291	6.456	60.471	1.989	9.946	58.074
6	1.042	5.209	65.680	1.042	5.209	65.680	1.521	7.606	65.680
7	.918	4.588	70.268						
8	.843	4.213	74.481						
9	.792	3.960	78.441						
10	.641	3.203	81.644						
11	.612	3.061	84.705						
12	.555	2.776	87.482						
13	.523	2.617	90.098						
14	.409	2.047	92.145						
15	.392	1.962	94.107						
16	.304	1.522	95.629						
17	.270	1.351	96.981						
18	.259	1.297	98.278						
19	.179	.897	99.175						
20	.165	.825	100.000						

Extraction Method: Principal Component Analysis

It was found from Table 4 that factor analysis identified six (6) components with a first leading factor accounting for 28.650% of the observed variance and all the six components accounted for 65.580% of the observed variance; hence, signifies their high-risk zone. Therefore, the cumulative percentage (65.580%) of the common variance shared by the 20 variables can be accounted for by the identified six components.

Table 5: Rotated Component Matrix[a] for Probability of Risk Occurrence

S/N	Risk Factors	Component						
		1	2	3	4	5	6	Z
1	Gender-Bias Related Factor							0.6505
	Sexual harassment	0.823						
	Gender discrimination	0.784						
	Isolation of women in the industry	0.507						
	Offensive language on construction site	0.488						
2	Job Security Related Factor							0.6308
	Accident and injury on construction site		0.705					
	Constraint in wage payment		0.784					
	Common health hazard related to construction site		0.644					
	Job insecurity		0.532					
	Isolation of women in the industry		0.489					
3	Recruitment Criteria Related Factor							0.6116
	Recruitment and retention criteria			0.730				
	Cultural norms of the industry			0.578				

	Selection and promotion procedure			0.486				
	Offensive language on construction site			0.467				
4	Communication Related Factor							0.6205
	Ergonomics; consideration of women size and weight in the design of materials and equipment				0.849			
	Hazard reporting and the link to job security				0.603			
	Reproductive hazards				0.548			
	Personal protective equipment and clothing				0.482			
5	Job Commitment Related Factor							0.623755
	Family commitment					0.751		
	Physical strength of women					0.741		
	Job insecurity					0.515		
	Cultural norms of the industry					0.488		
6	Health and Safety Related Factor							0.592
	Access to standard sanitary facility						0.816	
	Personal protective equipment and clothing						0.500	
	Hazard reporting and the link to job security						*0.460*	
	Eigenvalue	*5.730*	*1.893*	*1.709*	*1.471*	*1.291*	*1.042*	
	% of variance	*28.650*	*9.467*	*8.543*	*7.355*	*6.456*	*5.209*	

Z = Mean Loading Value

Table 5 presented the six components identified through principal component analysis whereby they were given generic names based on their loading factors. From Table 5 all the components have high mean loading values (Z). This inferred that, those reduced factors are very significant which needs to be treated very well if women should continue to operate in the construction industry. The first component was interpreted to be gender-bias related factor with highest eigenvalue of 5.730. This indicates that, this component has highest contribution to risk associated with women in construction. The issue of gender has been the concerns of many researchers and it has been established that women were mostly treated indifferently in workplace with construction industry inclusive. For instance, Kumar (2013) established that, discrimination against women staff is usually found at all levels among are level of employment whereby they are employed at lower paying jobs, selection for skilled jobs and promotions; hence, gender-based discrimination is a universal phenomenon (Kumar, 2013). Additionally, its mean loading value of 0.6505 could be interpreted to mean that, this component has the highest percentage (65%) contribution to risk associated with women in the construction industry. The items loaded under this component included: sexual harassment; gender discrimination; isolation of women in the industry and offensive language on construction site. These loading items are very significant; hence, they required urgent attention. Job security related factor is the second component which has a mean loading value of 0.6308 and eigenvalue of 1.893, in other words, about 63% of all the variables contributed to risks associated with women involved in construction. Job insecurity has been an issue for ages and it creates fears in the heart of workers mostly women at workplace (Gallie *et al.,* 2012). Several researches (Burchell, 2011; Dickerson and Green, 2009; Sverke, Hellgren and Naswall, 2006 and Ferrie, Shipley, Stansfeld and Marmot, 2002) had shown that the fear of job insecurity has strong negative effects on workers' health which its effects could be as strong as those of joblessness. Therefore, job security related factor should be looked into for the continual involvement of women in construction. The loaded items are: accident and injury on construction site; constraint in wage payment; common health hazard related to construction site; job security and isolation of women in the construction industry. The third component as identified through PCA was named as recruitment criteria related factor which has 0.6116 as mean loading value with eigenvalue of 1.709. In most cases, more emphases had been placed on selection modes between the men and women irrespective of their ages. Most organization especially construction industry believes that men performs better than women putting aside quality aspect of it. Studies (Dainty et al, 2000) have shown that, women were usually office based while men were allocated

professional roles which has different meaning to women. However, this component has the following loading items: recruitment and retention criteria; cultural norms of the industry; and selection and promotion procedure. Communication related factor is the fourth component with 0.6205 mean loading value and eigenvalue of 1.471. Mostly in all organization, communication skills have been seen as vital weapon of job sustainability. However, the way and manner in which languages are been communicated in the construction industry differs which has different meaning in women's' mind and to report jargons communication is another fear; hence, this makes it as one of the greater risk associated with women in construction industry and this has made communication in construction to be a problematic way. Nevertheless, the reason has been traced to the nature and culture of the construction which is usually prone to conflicts, lack of mutual respect and trust (Dainty, Moore and Murray, 2006). The following are the loading items: ergonomics; hazard reporting; and personal protective equipment and clothing.

The fifth component is interpreted as job commitment related factor. This component contributed to the risk associated with women in construction by 62% (Table 5) and it has eigenvalue of 1.291. Generally, commitment could be seen an attribute of being dedicated or performing an activity in a rightful way. However, construction activities attract long hours due to the pressure to perform those activities; its time consuming had makes family commitment suffers. It has been the culture of construction industry to endure long hours for effective production most especially on site. In a discussion paper commissioned by the National Association of Women in Construction (NAWIC, 2013), it was stated that women who remove themselves from the site are stigmatized with being unreliable or not hard working. As a result, women may not have opportunities given to men. Hence, trying to be committed to job by women created much more stress for them. Failure for them to be committed to their work could hinder them from certain benefits; with this, job commitment is one of the risks faced by women in construction. The loading items to job commitment are: family commitment; physical strength of women and job insecurity. Lastly is the sixth component which is named as health and safety related factor with an eigenvalue of 1.042. Health and safety is paramount to all workers either male or female. However, the level to which men will endure is different to that of women. Women were prone to serious health issue in construction. Studies (SHEWT, n.d) had showed that, women faced problems like inadequate bathrooms, chronic injuries, no paid sick leave and sexual harassment which made women to suffer. The items loaded under it are: access to standard sanitary facility; personal protective equipment and clothing; and hazard reporting. In all, the identified components through PCA had high mean loading values which signifies that, their probability of occurrence is very high; hence, the participants of construction activities should be proactive in dealing with the identified factors in order to motivate the women involvement in the construction industry.

V. CONCLUSION

The study assessed the risk associated with women involvement in construction. The analyses of the data obtained from respondents were performed and the following conclusions were drawn from the obtained results. Firstly, the findings through RFI revealed that selection and promotion procedure, family commitment and gender discrimination were the major risk faced by the women in construction. Furthermore, PCA reduced the identified risks to six (6) components which comprised: gender-bias related factor; job security related factor; recruitment criteria related factor; communication related factor; job commitment related factor and lastly, health and safety related factor. Gender-bias related factor contributed largely to the risk associated with women involvement in construction industry. The study therefore recommended that, all the professionals should treat women with care. Also, construction industry should be a place that will house both the male and female equally.

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