

Factor Causing Gender Inequality in Residential Building Construction Projects: A Case Study of Bharatpur-11

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Abstract:

It is found that women workers are suppressed in all the discipline and occupations of construction not only in Nepal but worldwide. In this paper, we review 32 major factor that are accumulated from the different past research to recognize the causes of gender inequality that anticipate women from seeking after careers within the development field. These 32 factors are developed into a questionnaire and distributed to construction workers, contractors, consultants and clients. Survey were created in five points Likert Scale and ranked by Relative Importance Indices (RII). The factor analysis found five top ranked factors for gender inequality in construction were career break after having a child due to unavailable of childcare facilities, lack of professional development training, lack of opportunity to participate in development training, lack of promotion opportunities, and an absence of female role model with RII 0.9551, 0.865, 0.863, 0.835 and 0.832 respectively. The perception between the different groups of respondents look considerably different as discerned from Spearman's correlation coefficient. Government should therefore take a proactive role in reducing gender imbalance in the building industry.

Keyword: Gender Inequality, Female Construction Worker, RII, Construction

Introduction:

The lack of gender equality is a recurring problem recognized in any countries construction sector (Dainty, et al., 2000, 2007; Powell & Sang, 2013). According to the National Labor force Survey 2019, nearly 111,000 women are working in the construction sector and majority of them are working in informal work. This need of correspondence may be a since it has been appeared to amplify the abilities deficiencies, decrease efficiency and compel advancement in development segment of any nation (Toohey, et al.,2009).

When pursuing a career in construction, women experience a wide extend of separation. Since they only help men in the workplace, their skills are never upgraded and remain at the same level (Sebastian & Deepan, 2019). Women are unable to improve their abilities and financial standing in the industry because their spouses are frequently alcoholics or are discovered to have other sexual partners (Aadya & Kiran, 2013) The main factors that make it difficult for women to work in the construction business are domestic abuse, gender discrimination, and salary inequality (Devi & Kiran., 2013).

Development industry is the key for the victory of the globalization of Nepalese economy. Development segment is giving business to 7% of add up to world work (Ganesan, 2019) Despite all these facts government of Nepal has not formulated the policy to extend the women involvement in the construction sector and creating women friendly environment in construction sector. Due to lack of Government intervention women are facing a lot of problem which has become the restricting factors in empowering women in the sector.

The workforce demographics of the construction industry are afflicted with many problems requiring complex solutions. One of the more prominent issues are worker safety and how it affects their behavior in construction (Choi, et al., 2017).

However, a more pressing and critical issue is that Compared to their overall labor force participation rate, women are underrepresented in the field and do not enter or maintain work there. Therefore, the sector needs to comprehend potential discrimination, as shown by gender-based salary and employment inequalities. It should identify the status of various occupations and determine significant differences in employment levels and wages by gender within these defined jobs. By identifying positions with significant gaps can further help the industry to improve in these areas.

Therefore, this study aims to investigate employment distribution and wage gaps in the construction industry based on gender. With this, the study gives clear picture of current situation of Nepalese construction working women whether they feel comfortable or not in workplace and if so, in what challenges they experience regarding their career development.

LITERATURE REVIEW

Factors Causing Gender Inequality in construction

Women workers in Nepal are confronted with part more challenges than their partners within the other nations. Despite several past attempts, the female sector of society still suffers compared to the male section. In her own family, they are not given importance in social and financial issues. Presence of male overwhelming environment has driven to gender discrimination in this sector for work assignment and wage conveyance (Suchitra & Raj Shekhar, 2006). Lingard and Lin (2003) showed that the twin roles of women can awkwardness between work and family has genuine results in women's proficient career. Shah, et al. (2020) shows that the image of the industry, job experience, culture and working atmosphere, family responsibilities, male-dominated training and recruiting procedures are the main challenges to women in the construction industry. It is believing that males are physically capable and give better performance than women which create discrimination on work allocation and opportunities which make the working environment unsuitable for women. (Barreto, et al., 2017; Kehinde & Okoli, 2004; English & Jeune, 2012).

Iceland has been able to fill the gap on economic, political, education and health-based criteria whereas Nepal rank 113th out of 156 countries in term of gender inequality (World Economic forum). Nepalese women have practices as unskilled and skilled work in construction sector after massive earthquake. They set good outcome (Ismail, 2018). Due to male dominating culture women potential work are lagging behind in construction field. Numerous labor laws have been implemented by government to protect construction employees' fundamental right to safe working and living conditions. Such as Nepalese Constitution, National Gender Equality Program Provincial and local government support program, Gender- Based violence and gender Equality funds, UN agencies (ILO, UNFPA, UNICEF, UN Women), Constitution of Nepal, Labor Act 2017 and Social Security Act 2018. Still lack of implication made construction women in difficult environment.

Women encounter a wide range of prejudice in the construction business, as was previously mentioned. Table 1 compares different literary works to show the career obstacles experienced by women in the construction industry.

Table 1: Factor affecting gender inequality in construction industry and its sources

S.N.	Gender Inequality Factors	Sources
1	Acceptance to counterpart traits	Barreto, et al., 2017
2	Insecurity due to appearance difference.	English & Le Jeune, 2012
3	Heavy workload	English & Le Jeune, 2012
4	Absence of female role model	Abdullah, et al., 2013; English & Hay, 2015; English &

		Jeune, 2012; Navarro-Astor, et al., 2017; Linda, 2014;
5	Lack of promotion opportunities	Abdullah, et al., 2013; Fernando, et al., 2014; Kehinde & Okoli, 2004
6	Glass ceiling phenomena.	Abdullah, et al., 2013; Dainty, et.al., 2000; English & Hay, 2015; Fernando, et al., 2014; Fielden et al., 2001
7	Lack of career knowledge	English & Jeune, 2012; Kehinde & Okoli, 2004; Powell et al, 2010
8	Lack of professional development training.	Abdullah et al., 2013; Worrall et al., 2010; Kehinde & Okoli, 2004
9	Lack of opportunity to participate in development training	Abdullah, et al., 2013; Amartunga, 2006; Worrall, et al., 2010; Kehinde & Okoli, 2004
10	Difficulty in managing subordinate	Adogbo, et al., 2015; Worrall et al, 2010
11	Lack of decision-making level	Rai, 2015; Rai and Sarkar, 2012
12	Unavailable childcare facilities	Abdullah et al., 2013; English & Hay, 2015; Navarro-Astor et al, 2017
13	Work -life balance	Abdullah et al., 2013; English & Hay, 2015; Navarro-Astor et al, 2017; Fredman & Greenhaas, 2000
14	Payment discrimination	Abdullah et al., 2013; English & Jeune, 2012; Navarro-Astor et.al, 2017; Dave, 2012
15	Discrimination on incentives	English & Hay, 2015; Kehinde & Okoli, 2004
16	Lack of supervision and guidance from superiors	Abdullah et al., 2013; Dainty, et al., 2000; English & Hay, 2015; Navarro-Astor et al., 2017
17	Lack of Upward Mobility	Madikizela & Haupt, 2010
18	Nature of the construction industry	Barreto et al., 2017; English & Jeune, 2012; Kehinde & Okoli, 2004
19	Hostile work environment	Abdullah et al., 2013; Amaratunga et al., 2007; English & Jeune, 2012; Worrall et al., 2010
20	Excessive travelling	Abdullah, et al.,2013; Navarro-Astor et al, 2017; Adogbo, et al., 2015
21	Long working hours	Abdullah et al., 2013; Navarro-Astor et al., 2017; English & Hay, 2015

22	Unhealthy site	Devi & Kiran, 2013; English & Jeune, 2012; Kumar, 2013
23	Lack of worksite security	Abdullah et al., 2013; English & Jeune, 2012; Navarro-Astor et al., 2017;
24	Masculine in nature	Bagilhole et al., 2000; Cettner et. al.,2008; Ross Smith et al., 2010
25	Not allowed to learn skill	Bagilhole et al., 2000; Cettner et. al.,2008; Ross Smith et al., 2010
26	Unequal distribution of family responsibility	Bagilhole et al., 2000; Cettner et. al.,2008; Ross Smith et al., 2010; Adogbo, et al., 2015
27	Lack of trust in women's ability	Bagilhole et al., 2000; Cettner et. al.,2008; Ross Smith et al., 2010
28	Clothes are not fit for the work	Adogbo, et al., 2015
29	Traditional attitudes	Cettner et al., 2008; Ross-Smith et al., 2010; Adogbo, Ibrahim & Ibrahim, 2015
30	Harassment both physically and mentally	Tiwari & Ganopadhyay, 2011; Goldenhar et al., 1998
31	Poor adequate toilet and ablution	Anvekar & Manjunatha, 2015
32	Poor health and safety provision	Muiruri & Mulinge, 2014; Saeed 2017

Study method

To identify the cause of gender inequality in the residential construction building, a mixed-method approach was used. The present investigation employed a mixed-method strategy that integrated qualitative and quantitative research methodologies to achieve the study's objectives. This included a comprehensive assessment of relevant literature, the construction of a questionnaire, survey administration, and analysis. This strategy aims to maximize the benefits of each unique approach while minimizing its drawbacks (Fellows & Liu, 2015). To examine and gather information on all possible causes of gender inequality from the available literature, an extensive literature review was done. This produced a list of 32 factors that are seen as gender inequality in the building construction as shown in Table 1.

The approach employed to develop the questionnaire is a five-point Likert scale which ranges from "Strongly Disagree", "Disagree", "Neutral", "Agree" and "Strongly Agree" and will be indicated as 1,2, 3,4 and 5 respectively. The RII is used to rank gender inequality following the respondents' responses in the construction site of Bharatpur - 11, Chitwan. The questionnaire was prepared and survey was done to reach respondents (i.e., consultants, client's workers and contractors). The total response rate of respondents is 138 where the equal distribution of male and female are found.

The number of samples collected in this stratified samples was as in Table 2.

Table 2: Stratified number of samples for questionnaire

Description of Strata	Sample Size
1. Client	20
2. Consultant	10
3. Contractor	10
4. Labor	100

The Relative Importance Index was calculated for these stratified samples using an equation

$$RII = \frac{\sum W}{A * N}$$

Where,

W =weighting as assigned on Likert’s scale by each respondent in a range from 1 to5.

A = Highest weight (here it I 5)

N=Total number of respondents

$$N=(n_1+n_2+n_3+n_4+n_5)$$

$$\sum W=1 *n_1+2 *n_2+3 *n_3+4 *n_4+5 *n_5$$

To understand the correlation between the strata’s rank of the factors, Spearman’s correlation coefficient between the ranks of client and consultant, client and contractor, client and labor were produced using following formula.

$$\rho = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$

where, ρ =Spearman’s rank correlation coefficient

d = difference between the two ranks of each observation

n =number of observations

∑d² = the sum of d- squared values

Finding and Discussion

The most of the respondent were found from the age group 36-40 years with work experience between 4-10 year and most of the worker are from the family background. The women worker feels discrimination and male dominating environment on the workplace. Most of the women on the construction site performed the unskilled jobs and get low wage in comparing to their male worker. As all the 32 factors were analyzed through RII, the results obtained are discussed below:

Table 3: Overall perception on gender inequality in the construction of residential building in Bharatpur-11

Rank	Statement	RII
1	Women need to have career break after having a child.	0.9551
2	Women do not have professional development training.	0.8652
3	Women are not given opportunity to participate in development training.	0.8638
4	Women do not have same promotion opportunities as male.	0.8348
5	Women feel absence of female role model to encourage them.	0.8319
6	Women are not strong enough to handle physical construction work.	0.8246
7	Women lack of understanding of career opportunities.	0.8232
8	Construction jobs consists of unhealthy site.	0.7957
9	Construction jobs have long working hours.	0.7899
10	Women experience discrimination in construction and do not experience upward mobility in comparison to their male counterparts.	0.7841
11	Women are not able to make connection and mange subordinators.	0.7812
12	Women have to deal with hostile work environment to pursue their career.	0.7797
13	Construction site has poor health and safety provision.	0.7783
14	Women face unequal distribution of family responsibility.	0.7768
15	Construction women face glass ceiling phenomena.	0.7754
16	The nature of the construction industry poses threat to the career development of women.	0.7754
17	Construction job lack of worksite security.	0.7725
18	Women face numerous challenges to integrate their work and family activities.	0.7623
19	Women are acceptance as counterpart traits.	0.758
20	Construction jobs are masculine in nature.	0.7145
21	There is lack of trust in women's ability.	0.7116
22	Women face discrimination on incentives in respect to male co-worker	0.6971
23	Women's participation in decision-making level is relatively lower than man.	0.6928
24	Women feel insecurity due to appearance difference.	0.6797
25	Construction worker have to travel excessive for workplace.	0.6768
26	Women face harassment both physically and mentally.	0.6493
27	Women lack of supervision and guidance from superiors	0.6406
28	Women do not get same rates of payment as males for same nature of work.	0.6362
29	Construction site has poor in adequate toilet and ablution facilities.	0.6348
30	Women are not allowed to learn skill from male coworker	0.6232

31	Traditional attitudes of family and society	0.6029
32	Women's clothes are not fit for the work.	0.4

In Table 3, it can be seen that among 32 factors, the most influencing factor is career break after having a child due to unavailable childcare facilities which has the highest RII value of 0.955. and do not have professional development training has second highest whose RII value is 0.8652. Then followed by a lack of opportunity to participate in development training as an RII value of 0.8638.

However, as per the perception of female construction workers (50 female workers), the top 5 ranks factors are as shown in table 4. The overall perception of the factors and the perception of the factors of female construction workers look similar except that for women facing glass ceiling phenomena is considered a top factor by female construction workers which is not considered top factor by overall respondents in average.

Table 4 Rank of factors by female construction workers

Rank	Statement	RII
1	Women do not have professional development training.	0.96
2	Construction women face glass ceiling phenomena.	0.952
2	Women need to have career break after having a child.	0.952
3	Women do not have same promotion opportunities as male.	0.944
4	Women feel the absence of female role model to encourage them.	0.932
5	Women are not given opportunity to participate in development training.	0.928

Table 5 shows the perception of consultant women's top six factors (write numbers). Consultant women with their rank of factors feel that construction site is not made women-friendly. Factors such as unhealthy sites, threats to career development, harassment chances of having high RII prove consultant women are not sure of the construction site's proper condition for women's empowerment.

Table 5: Rank by Consultant women

Rank	Statement	RII
1	Women are not given opportunity to participate in development training.	0.8
1	Women need to have career break after having a child.	0.8
1	The nature of the construction industry poses threat to the career development of women.	0.8
1	Construction jobs consists of unhealthy site.	0.8
1	Women face unequal distribution of family responsibility.	0.8
1	Women face harassment both physically and mentally.	0.8

Table 6 shows the rank and RII as per female clients of top 5 factors. The table rank of the factors suggests that female client also perceive female to be weak and deem the male counterpart's unacceptance as the main factor in contradiction to that of female workers.

Table 6: RII and Rank as per Clients, top 5 factors

Rank	Statement	RII
1	Women are not strong enough to handle physical construction work.	0.84
2	Women are acceptance as counterpart traits.	0.8
2	Women feel absence of female role model to encourage them.	0.8
2	Women lack of understanding of career opportunities.	0.8
2	Women do not have professional development training.	0.8

So, overall, all these three female groups deemed professional development opportunities are most important for gender equality in the construction site. Moreover, the women, female workers don't feel the way the client and consultant women feel regarding the construction site's unsuitability. It shows the difference in the perception between the client, consultant and workers. This can also be seen through the Spearman's rank correlation coefficient in Table 7

Table 7. Spearman's rank correlation

Particulars	Spearman's rank correlation
Labor and Consultant	0.59
Client and Labor	0.473
Client and Consultant	0.731

The correlation showed that there is difference between responses of labor and client; labor and consultant. Hence, result showed that labor who are already in the field in construction have different perception then that of client and consultant.

It is demonstrated that even in the highly development country there exist the problems of unequal payment, uncomfortable environment, male dominating attitudes on the workplace of construction. It shows that women either in Nepal or other countries encounter the gender discrimination on the construction industry even more than in any other field.

Conclusion

Work distribution among the male and female coworkers also showed that female workers were limited to works that would assist skilled male workers such as site clearance, load carrying, breaking stone, mixing mortar and tying foundation. A discrimination was also seen in the unskilled working category wage distribution. The results from the calculation of the RII method from different group point of view, indicated that the most important top five ranked factors for gender inequality in construction of residential building in Bharatpur-11 were career break after having a child due to unavailable of childcare facilities, lack of professional development training, lack of opportunity to participate in development training, lack of promotion opportunities, absence of female role model with RII 0.9551, 0.865, 0.863, 0.835 and 0.832 respectively. An unfriendly workplace is an essential obstacle in gaining entry for women in the construction field. Therefore, through relevant programs and regulations, the government must strongly offer possibilities for women to grow in their careers. Among the measures that can be considered are promotion, fair compensation, and training. Besides, the study also showed that there is difference between the perceptions of workers and one who observes the construction work from outside the site. Other perceive

the construction site to be harsher to women than the male and consider the site to be male dominated in regards to opportunities.

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