

Does 4IR and Covid-19 Effect the Quality of Work Life and Living Standard of Women Workers? Evidence from Selected RMG Firms in Bangladesh

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ABSTRACT

Purpose: The study's main objective is to find out the impact of the fourth industrial revolution and covid-19 on women workers of selected Ready-Made Garments (RMG) sector in Bangladesh.

Methodology: This study mainly followed a quantitative research approach with survey study. Total 18 garments (case) have been chosen randomly from DSE listed RMG firm based on access priority. Sample size for survey study has been determined by statistical method is 384. But this study consider total (15*27) = 405. Data have been collected from selected respondents (women workers) using structured questionnaire.

Findings: The study reveals that women workers in the RMG sector exhibit a remarkable lack of anxiety about their work-life quality, largely due to their experience and resilience in handling the challenges of their profession. It highlights the adaptability of these workers and underscores the importance of targeted support and interventions to promote sustainable livelihoods and better working conditions amid persistent challenges.

Practical Implications: The study's findings can inform policymakers about the specific challenges faced by women workers in the RMG sector due to the convergence of 4IR and the COVID-19 pandemic.

Originality/Value: This study's originality and value lie in its intersectional analysis, empirical evidence, contextual specificity, practical implications, and contributions to knowledge, all of which enrich our understanding of the complex dynamics shaping the lives of women workers in Bangladesh's RMG sector amidst the challenges of 4IR and COVID-19.

Limitations: The study's findings may be limited by the scope of the selected RMG firms and the sample size of women workers included in the research. While efforts were made to ensure diversity within the sample, the findings may not be representative of all women workers in the RMG sector in Bangladesh, limiting the generalizability of the results.

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1. Introduction

The wave of new trends that the 4th Industrial Revolution (4IR) has created around the world has come to Bangladesh in recent times. Looking at the Bangladeshi growing industries, it can be seen. Among the potential business sectors of Bangladesh comprising of various industries such as readymade garment (RMG), leather goods, outsourcing, agro processing, pharmaceuticals etc., Bangladeshi exports are mainly dependent on readymade garments. Despite many possibilities, no other industry in Bangladesh has been as strong as the readymade garments industry. The impact of the 4th Industrial Revolution is already becoming noticeable in the readymade garment industry of Bangladesh, which is moving forward with the challenge of doing well on the issue of compliance. Now a days, AI-based vision is giving firms great competitive advantage. In particular, advances in IoT technologies has taken manufacturing operation to different levels in the last decade (Kroupenev, 2020). Moreover, as the robot is ahead in terms of self-sufficiency, gaining knowledge, learning from people, and adaptability, the robot is being used to handle various complex tasks (Bahrin et al., 2016; Gilchrist, 2016; Iyer, 2018). In addition, 3D simulation makes it possible to reflect the physical world into a virtual model that incorporate machine and human (AbouRizk, 2010; Gilchrist, 2016; Jaghbeer et al., 2017). Industry 4.0 is working as a blessing to tie the whole organization in the same thread (Gilchrist, 2016). With the blessings of Industry 4.0, modern industries are getting excellent cyber security through machine access management systems (Drath and Horch, 2014; Gilchrist, 2016; Berawi, 2018). Industries need to be able to combine vertical and horizontal systems to benefit from Industry 4.0 (Avgerou and Walsham, 2017). The implementation of cloud advances has made significant changes to the manufacturing execution systems (Coronado et al., 2018). There is still a lot of much needed untapped data in the industrial world. As the inevitable part of Industry 4.0, only big data analytics can examine the massive sets of data which will greatly help in understanding the market trends and customer interest.

On the other hand, COVID-19 has created an unexampled crisis in human life which is taking away not only life but also human livelihood on a large scale. The economic impact of the pandemic has wreaked havoc on the lives of many people, especially those who have lost their jobs or faced curtailed salary or have no savings. Most of them have not yet recovered from that loss (ILO, 2020). In particular, unskilled female workers and working mothers with child have been largely hard hit. The careers of 70 per cent working women have lagged far behind due to this epidemic (Deloitte, 2020). This crisis has made the need to adopt 4IR technology inevitable. In general, there is a growing demand for 4IR technologies related to automation. This shift may create digital gap, gender inequality and income inequality and reduce the chances of getting the job back (The Global Risks Report 2021). The choice of automation comes from the concept of how firms will deal with the new realities of the post-pandemic economy. Reportedly, about 1 million garment workers in Bangladesh have lost their paid jobs amid COVID-19 (Frayer, 2020). Moreover, almost 47 per cent of Bangladeshi garment workers have not been paid during pandemic and their job security is uncertain (The Daily Star, 2020). The pandemic is thought to have had a devastating effect on the wellbeing of women workers (Cousins, 2020). Industry experts fear that the precariousness of job and income of readymade garment workers, especially women workers, who are inevitably affected by the Industry 4.0 and the pandemic, will endanger their lives. Due to the uptake of 4IR technology of RMG industries before the epidemic, the chances of job recovery for those female workers who lost their job before pandemic are further reduced (Karr et al, 2020). The economic collapse due to COVID-19 will make a huge difference between those who have just initiated digitizing and those who have come a long way in terms of digitization (Kroupenev, 2020).

Although women's participation in the workforce has increased by about 35 per cent over the past decade (ILO, 2018), the number of women in the total workforce is still below 30 per cent (CPD, 2018). The readymade garments sector is the most important industrial sector in Bangladesh as more than 80% of export earnings come from this sector (Akter, 2018). Majority of approximately 3.5

million women working in the RMG sector in Bangladesh are semi-skilled and low-skilled (Akter, 2018). Among the women working in the RMG sector of Bangladesh, the job opportunities of unskilled, low-skilled and semi-skilled women are gradually decreasing (CPD, 2018). With more than 60 per cent women in the RMG sector, the impact of the changes caused by the 4IR is expected to weigh heavily on them. As many jobs in the RMG sector are being replaced with automation, it is expected that these working women will be disproportionately affected. Automation, digitalization, and data exchanges in manufacturing technologies on the one hand, and poor professional know-how on the other, will jeopardize the jobs of women workers in the RMG sector (Lasi et al., 2014; Berawi, 2018).

The RMG sector of Bangladesh has been going through many challenges including compliance issue, competitive pressure from sourcing countries, and proposal for reduced price from international buyers in recent times, especially after the Rana Plaza collapse (Anner, 2020). As a result, the RMG industry authorities are planning about choosing automation as a possible solution to reduce costs and gain competitive advantage (bdnews24.com, 2018). Experts in the field have identified that the jobs of low-skilled women are most vulnerable due to automation. Patriarchal perceptions of employers are evident in training to handle modern equipment. As a result, low-skilled women in this sector are becoming obsolete in the age of automation due to lack of adequate training. Industry leaders apprehend that automation will be the main reason for the loss of jobs for women in Bangladesh's readymade garments sector in the coming years (CPD, 2018). The International Labor Organization (ILO, 2020) have published in its research that 80 per cent of jobs in developing countries could be lost due to automation. Automation is increasing productivity as well as reducing labor requirements, so RMG industries are considering automation as a priority. As high performing RMG industries tend to adopt 4IR technology, automation is accelerating. Due to the increase in the use of robots in the workplace as well as automation, it is cutting a lot of jobs as a robot can do the work of about six workers (Krenz et al, 2018). As the world's second largest producer of readymade garments, the garment workers in Bangladesh are highly relevant with this concern. Again Due to Covid 19 scenario of world market has affecting living standard and job market of women workers at RMG sector and Bangladesh is not far behind this. Hence, this study focuses on the issue to investigate 4IR and Covid 19 effects on quality of work life and living standard of women workers.

This research is a systematic work on literature to conceptualize the relation among construct and hypotheses drawn based on depth literature review. Finally, a conclusion has been marked with careful attention to the empirical findings based on the tested hypotheses.

2. Literature Review

In the modern era, a crucial aim for advancing the Sustainable Development Goals worldwide is ensuring women's active participation in the workforce. The attainment of decent employment and stable income stands as fundamental components of either economic progress or the empowerment of women. Pandemics, such as the COVID-19 crisis, disproportionately affect various socio-economic groups, with vulnerable workers facing heightened risks of job loss. Extensive research delves into the gender discrepancies in how the COVID-19 crisis impacts the labor market, with concerns mounting over the looming economic downturn triggering panic, widespread unemployment, poverty, and homelessness. Already, the United States has witnessed a substantial surge in unemployment, and projections suggest that the economic repercussions of the lockdown measures might surpass the direct toll of the virus itself. The COVID-19 pandemic presents profound challenges to both the global healthcare infrastructure and economies, with developing nations like Bangladesh being no exception. Bangladesh's garment industry, a vital export-oriented sector crucial for employment generation, poverty alleviation, and the advancement of women's livelihoods, has been severely affected by the pandemic. Often addressed as the cornerstone of Bangladesh's economy, the garment sector now faces significant vulnerabilities, particularly impacting its predominantly female workforce. Amidst the

pandemic, some garment factories in Bangladesh have shuttered due to raw material shortages, while major brands and distributors have cancelled orders and delayed payments, exacerbating the sector's woes. The ramifications of these disruptions cannot be underestimated.

A recent publication discussing the Fourth Industrial Revolution (referencing Vogel et al., 2016; Liao et al., 2017) emphasizes the essential technology, innovation, and technological competencies required for organizations to thrive in this era. Again, from the perspective of older generation, organizational impact specifies technical knowledge and education (Schwab, 2017). Primarily based on the technical challenges, changing work environments, potential opportunities for 4IRs, and the skills are needed in the light of the future workforce (Nankervis et al., 2019).

Sophisticated automation, wage hiking, complex manufacturing processes in clothing sector and marriage limit the participation of female workers in the Bangladesh's clothing industry in accordance with the survey. In this study, the current ratio of male workers in the clothing sector showed 41.7 to 58.3. Recent women accounted for 65% of employment sector workforce, but this dropped to 58.3 percent. 1,562,383 of the export-oriented clothing factory worker, of which 1,494,011 is a woman (The daily star, 2020). Women grew in number at different junior levels or quit their jobs, but for a variety of reasons, mostly to suppress senior positions in the business, including a culture that discriminates against promotions and pay (Qian, 2016). Workplace environment is prioritized in post-COVID situations, but there is also insight into the 4IR work environment with relation to post-COVID work.

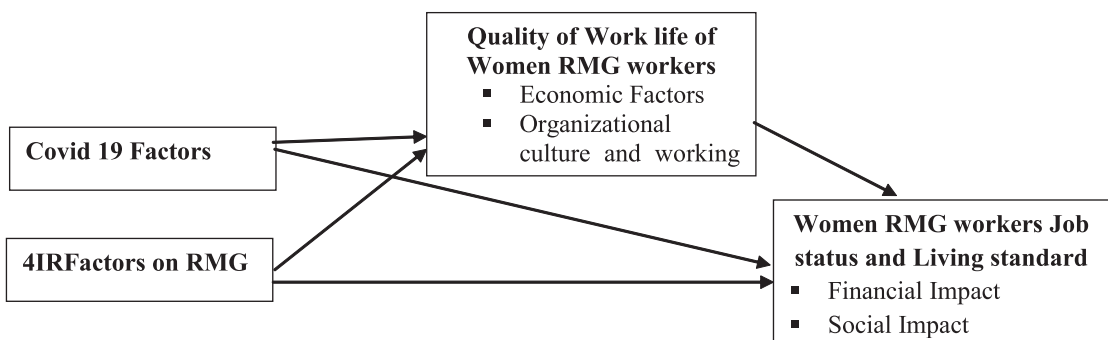


Figure 1.

Conceptual Model on Impact of Covid 19 Factors and 4IR on RMG Women Workers

Source: The Author based on the literature review

3. Hypothesis Development

The following hypothesis have drawn based on the literature review and conceptual model.

H1: Factors of 4IR have direct impact on the living standard of RMG workers in Bangladesh

H2: Factors of 4IR have direct impact on the Quality of work Life (QWL) of RMG workers in Bangladesh

H3: Factors of Covid 19 have direct impact on the living standard of RMG workers in Bangladesh

H4: Factors of Covid 19 have direct impact on the Quality of work Life (QWL) of RMG workers in Bangladesh

H5: Factors of Quality of work Life (QWL) have direct impact on the living standard of RMG workers in Bangladesh

H6: Quality of work Life (QWL) mediates between factors of Covid 19 and the living standard of RMG workers in Bangladesh

H7: Quality of work Life (QWL) mediates between factors of 4IR and the living standard of RMG workers in Bangladesh

4. Objectives and Methodology

The study's main objective is to find out the impact of the fourth industrial revolution and covid-19 on women workers of selected RMG firms in Bangladesh. This study mainly followed a quantitative research approach with survey study. Since the study investigated the impact of the 4th industrial revolution and Covid-19 on women workers of selected RMG firms in Bangladesh, thus, each and every ready-made garment factory, regardless of its size and nature, has been considered as a case, and all the women workers of RMG industry are population while within the selected cases all the women worker are the working population of the study. Total 18 garments (case) has been chosen randomly from DSE listed RMG firms. Among 18 randomly selected firms, fifteen firms (case) has been finalized based on access priority. Sample size for survey study has been determined by statistical method is 384. But this study consider total 405 sample size from 15 DSE listed organization (27×15) = 405. Data have been collected from selected respondents (women workers) using structured questionnaire.

5. Analysis, Results & Discussion

5.1 Descriptive Statistics

Table 1.

Demographic Profile and Respondents' Opinion Regarding 4IR and Covid 19

Ownership Form of the Factory	No.	(%)	Marital status of the respondent	No.	(%)
Sole Proprietorship	151	37.3	Single	124	30.6
Partnership	185	45.7	Married	268	66.2
Others	69	17.0	Separated	13	3.2
Total	405	100.0	Total	405	100.0
Education of the respondent	No.	(%)	Type of employment	No.	(%)
Illiterate	11	2.7	Permanent	380	93.8
Primary	158	39.0	Temporary	20	4.9
Junior high school	111	27.4	Not permanent	5	1.2
SSC	68	16.8	Total	405	100.0
HSC	53	13.1	Length of the services of the respondent	No.	(%)
Graduate	4	1.0	Less than 2 years	111	27.4
Total	405	100.0	2-3	179	44.2
Age of the Respondent	No.	(%)	4-5	104	25.7
Below 20	23	5.7	Above 5 years	11	2.7
20-25	147	36.3	Total	405	100.0
25-30	137	33.8	Family type of the respondents	No.	(%)
30-35	63	15.6	Nuclear	223	55.1
35-40	21	5.2	Joint	182	44.9
Above 40	14	3.5	Total	405	100.0
Total	405	100.0	Monthly income of the family	No.	(%)
Household size	No.	(%)	Below 10,000	94	23.2
1 to 3	200	49.4	10,000-15,000	121	29.9
4 to 5	135	33.3	15,000-20,000	100	24.7
6 to 7	32	7.9	20,000-25,000	38	9.4

More than 7	38	9.4	Above 25,000	52	12.8
Total	405	100.0	Total	405	100.0
Opinion regarding 4IR and Covid 19			Yes	No	Total
4IR have strong positive emotion in live and the workplace			325 (80.24%)	80 (19.76%)	405 (100%)
Job sustainability increased due to 4IR			51 (12.6%)	354 (87.4%)	405 (100%)
Working with new technology is more complex and laborious than traditional model			385 (80.24%)	20 (19.76%)	405 (100%)
Covid 19 affected your job and family life			403 (99.5%)	2 (0.5%)	405 (100%)
Your quality of life is improved after joining this organization			377 (95.1%)	28 (4.9%)	405 (100%)

Source: Authors Calculation

Descriptive statistics provide an overview of the characteristics of the respondents. Among the 405 respondents, the majority of garment organization units fall under either Public or Private Ownership, comprising nearly 69 (17%) of the total respondents. Additionally, 185 (45.7%) report partnership in profit distribution, while 151 (37.3%) operate as sole proprietorships. In terms of marital status, 268 (66.2%) are married, 124 (30.6%) are unmarried, and a small fraction, approximately 13 (3.2%), are separated. Educational attainment varies, with 39% (158) completing only primary education, 27.4% (111) finishing eighth standard, 16.8% (68) completing SSC, and smaller percentages achieving HSC, Graduation (13.1% or 53), and 1% (4) respectively. The majority, 93.8%, work as permanent employees, while 6.2% work on a temporary basis. Regarding tenure, approximately half of the respondents (44.2% or 179) have been employed for 2 to 3 years, while 111 (27.4%) have served for less than 2 years. Productivity data indicate that about one-quarter (25.7% or 104) have worked for 4 to 5 years, and only 11 (2.7%) have been actively engaged in their roles for over 5 years. The age of the respondents is below 20 is 5.7% (23), 20-25 is 36.3% (147), 25-30 is 33.9% (137), 30-35 is 15.6% (63), and 35-40 is only 5.2% (21) and above 40 is only 3.5% (14). The family structure determines that 55.1 is nuclear of small family belongs and other 44.9 comes from joint family and they hold it. The family size of the respondent is important factor in the related field of women workers living standard. The members 1 to 3 is 200 (49.4%) small family, 4 - 5 is 135 (33.3%), 6 -7 is 32 (7.9%) and more than 7 large family size is 38 (9.4%). The income level of the respondents, less than 10K is 23.2%, 10K to 15K is 29.9%, 15 to 20K is 24.7% and 20 to 25K is only 9.4%. In the case of strong positive emotions in life and the workplace, most respondents replied yes (80%) while most of the respondents about (87%) replied negatively that 4IR increases job sustainability. All the respondents believe that covid 19 affected their family and personal life.

5.2 Structural Equation Modelling (SEM) Analysis

In Partial Least Squares Structural Equation Modeling (PLS-SEM), data analysis entails examining the path model, which comprises two main components. Firstly, the measurement model (outer model) elucidates the indicators and their associations with the constructs. Secondly, the structural model (inner model) integrates the constructs and their path connections. Consequently, the structural model serves as the theoretical backbone of the path model (Hair et al., 2017), depicting the causal or correlational relationships between the measurement models examined in the study. Constructed from the latent constructs and their anticipated interconnections, the structural model plays a pivotal role in uncovering the underlying relationships within the data (Awang, 2012).

5.2.1 Evaluation of the Measurement Model

Confirmatory factor analysis (CFA) was employed to assess the reliability and validity of the hierarchical components. The measurement model underwent scrutiny for indicator reliability, composite reliability, convergent validity, and discriminant validity, following the guidelines of Hair et al. (2017). Factor loadings, detailed in Table 2, were scrutinized to evaluate the reliability of indicators for reflective constructs. It was ensured that indicator factor loadings were equal to or greater than 0.7, indicating that the shared variance between the construct and its indicators surpassed the variance of the error term (Fornell & Larcker, 1981). The outcomes of the evaluated measurement model are depicted in Figure 2 and Table 2.

Table 2.
Reliability and Validity Measurement

Construct	Indicators	Factor Loadings	Cronbach's alpha	CR	AVE	VIF
4IR Factors ((Berawi, 2018; Iyer, 2018; Nankervis, 2019)			0.865	0.903	0.651	
Training to cope with 4IR	IR_5	0.720				1.543
Employees required multiple skills	IR_6	0.841				2.290
Employees required sufficient general education to learn new technology in the organization	IR_7	0.817				2.343
Employees required sufficient technical education to learn new technology in the organization	IR_8	0.811				2.257
Employees required technological know-how	IR_9	0.838				2.114
Covid 19 Factors (Karr et al., 2020; Anner, M. 2020)			0.801	0.871	0.627	
Regular working hour is not possible for the worker	C_4	0.782				1.570
Working time minimized	C_5	0.762				1.503
Cannot move outside from home for extra earning	C_6	0.838				1.893
Unproductive time passing at home	C_7	0.784				1.665
Quality of Work Life (Qian, 2016)			0.881	0.903	0.586	
Job insecurity increase	C1	0.661				2.832
Work load increase	C6	0.588				1.967
Delay in payment of wages/salary	E2	0.749				1.800
Cutting wages/salary	E6	0.704				1.650
Cancel festival bonus	E7	0.733				2.572
Lack of Motivation	W1	0.773				2.923
Nepotism and corruptions	W2	0.765				2.575
Increase harassment	W3	0.781				2.776
Sexual harassment of female workers	W5	0.800				2.886
Clumsy work environment	W6	0.730				2.448

Living Standard Factors (Mbiza and Sinha, 2023)			0.917	0.919	0.534
Decreasing purchasing power for food, clothing, health and shelter	FI2	0.623			1.910
Lack of support from institutional organization	FI3	0.875			2.010
Facing problem in loan payment	FI4	0.720			1.752
Decreasing savings	FI5	0.738			2.453
Decreasing consumption	FI6	0.710			1.787
Losing social status	PI3	0.619			1.867
Exploitation and Harassment	PI4	0.707			2.440
Facing social discrimination	PI5	0.758			2.437
Decreasing standard of living.	SI1	0.597			1.822
Facing a very bad situation in terms of fulfilling basic needs.	SI6	0.568			1.740

Source: Authors Calculation

All items, depicted in Table 2 and Figure 2, surpass the 0.5 threshold. However, indicators scoring between 0.4 and 0.7 should only b e removed if they detrimentally affect the average variance extracted (AVE) of their construct (Hair et al., 2017). Since this wasn't the case, all indicators were retained. Additionally, Cronbach's alpha (CA) and composite reliability (CR) were utilized to assess the internal consistency of the constructs. Cronbach's Alpha (> 0.70) exceeds the recommended level for all variables (Table 2). Nonetheless, all constructs exhibit a CR value above 0.70, meeting the acceptable minimum. While PLS-SEM prioritizes indicators based on individual reliability, CA assumes uniform trustworthiness across all indicators. Conversely, CR considers discrepancies in item

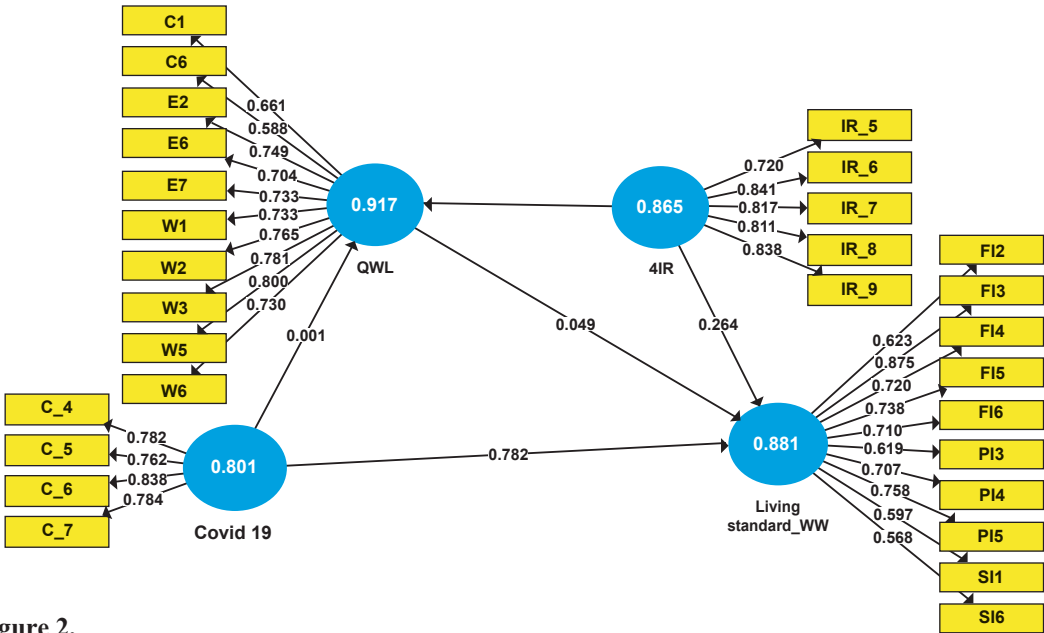


Figure 2.
Measurement Model Analysis.
Majority of the path shows path coefficient and construct shows Cronbach Alpha.
Source: Authors Calculation

dependability, making it a preferable choice for evaluating internal consistency reliability within PLS-SEM (Hair et al., 2017). Consequently, it can be affirmed that all constructs demonstrate internal consistency. Subsequently, the average variance extracted (AVE) was evaluated to ascertain the convergent validity of the reflective constructs. According to Fornell & Larcker (1981), a construct's AVE should exceed 0.5 to indicate convergent validity, a criterion met by all constructs in Table 2. AVE illustrates a construct's ability to explain variance among its indicators and the extent to which variance is attributable to measurement error (Chin et al., 2010).

Lastly, discriminant validity was evaluated using the Fornell-Larcker (1981) criterion and cross-loadings, as is customary practice. This aspect assesses how distinct a concept is from other constructs within the model. According to the Fornell-Larcker (1981) criterion, the square root of each construct's AVE must exceed its correlation with other constructs (Table 3) to affirm discriminant validity (Hair et al., 2017). Consequently, all concepts meet the Fornell-Larcker criterion for discriminant validity. Moreover, cross-loadings evaluation further contributes to establishing discriminant validity. However, recent research suggests limitations in both the Fornell-Larcker criterion and cross-loadings evaluation in detecting discriminant validity issues (Henseler et al., 2015). Instead, Henseler et al. (2015) propose the heterotrait-monotrait ratio (HTMT) as an alternative measure. This ratio compares the average correlations of indicators across constructs measuring different phenomena to those within the same construct (Ullman, 2007). For discriminant validity to be supported, the HTMT ratio should be below 0.85, according to Henseler et al. (2015). In Table 2, the data indicate that the HTMT requirement is satisfied. In conclusion, the reflectively assessed constructs fulfill all model evaluation criteria, underscoring their validity and reliability.

Table 3.

Measurement of Discriminant Validity

Fornell-Larcker Criterion					Heterotrait-Monotrait Ratio			
	4IR	Covid 19	Living standard WW	QWL	4IR	Covid 19	Living standard WW	QWL
4IR	0.807							
Covid 19	0.443	0.792			0.528			
Living standard_WW	0.618	0.702	0.697		0.735	0.751		
QWL	0.153	0.069	0.143	0.731	0.152	0.101	0.152	

Source: The Authors

5.2.2 Evaluation of Structural Model

Using Smart PLS, the evaluation of a structural model followed the assessment of the measurement model. This involved examining both direct and indirect effects. The confirmation of hypotheses relied on route coefficients and "t" values. Additionally, R-Squared (R²) and predictive relevance (Q²) were scrutinized. The current investigation, depicted in Table 4 and Figure 3, encompasses seven direct hypotheses. Among these, two hypotheses (H1 and H3) were supported as their t-values exceeded 1.96, while three hypotheses (H2, H4, and H5) were not supported as their t-values fell below this threshold.

Table 4.

Structural Model Assessment (Direct Effect Results and Decision)

Hypothesis	Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Values	P Values	Decision
H ₁	4IR -> Living standard	0.264	0.265	0.026	10.080	0.000	Supported
H ₂	4IR -> QWL	0.153	0.153	0.099	1.550	0.122	Not Supported

H ₃	Covid 19 -> Living standard	0.782	0.781	0.025	31.216	0.000	Supported
H ₄	Covid 19 -> QWL	0.001	0.006	0.079	0.016	0.987	Not Supported
H ₅	QWL -> Living standard	0.049	0.048	0.034	1.411	0.159	Not Supported

Source: Authors Calculation

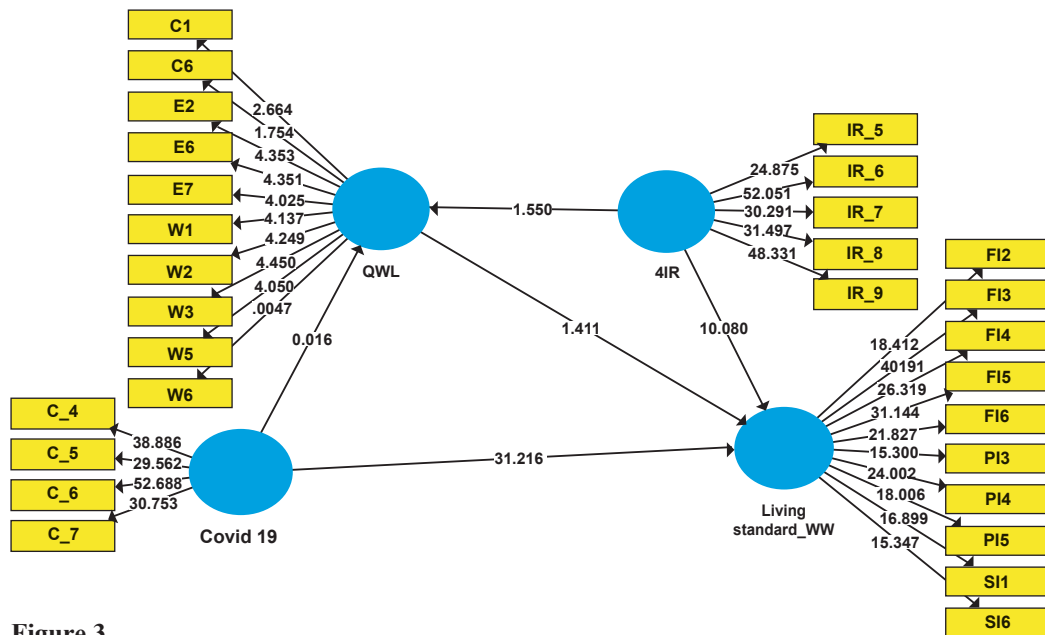


Figure 3.

Direct Effect Measurement by Structural Model Assessment.

Source: Authors Calculation

To assess the mediation effect, the study employed PLS (SEM) bootstrapping, a method favored for analyzing small samples according to Hair et al. (2017). Additionally, the approach outlined by (Ullman, 2007) for evaluating mediation effects, as recommended by Hair et al. (2017), was followed. Using Smart PLS (Ringle et al., 2015), the study explored the mediating effect of Quality of Work Life (QWL) through bootstrapping with 500 resamples to examine the t-value. The mediation analysis findings are presented in Table 5. In both cases, the t-values were below 1.96, leading to the rejection of both hypotheses. Consequently, no indirect effect between Covid 19 and the living standard of women workers, as well as between 4IR and the living standard of women workers in the RMG industry of Bangladesh was found.

Table 5.

Structural Model Assessment (Direct Effect Results and Decision)

Hypothesis	Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Values	P Values	Decision
H ₆	4IR -> QWL -> Living standard_WW	0.007	0.007	0.007	1.015	0.310	Not Supported
H ₇	Covid 19 -> QWL -> Living standard_WW	0.000	0.000	0.004	0.014	0.989	Not Supported

Source: Authors Calculation

The coefficient of determination R^2 serves as an indicator of the predictive capability of the research model. It signifies the collective impact of all exogenous latent factors on the endogenous latent variable. Previous research has categorized R^2 values of 0.75, 0.50, and 0.25 as representing substantial, moderate, and weak prediction power, respectively (Hair et al., 2017). In Table 6, R^2 values of 0.874 for Living standard and 0.019 for QWL are presented. Based on these findings, the study model demonstrates a range of prediction potential from strong to weak for its endogenous components.

Table 6.

Measurement of Prediction Power and Predictive Relevance

	R Square	R Square Adjusted	Effect size
Living standard	0.875	0.874	Strong
QWL	0.024	0.019	Weak

Source: Authors Calculation

6. Conclusion

This study concludes that Covid 19 and 4th industrial revolution has direct impact on the living standard of the women workers of RMG sector of Bangladesh. But, these people have no anxiousness about their work life quality as they are experienced and habituate with their struggle life. The findings illuminate the direct repercussions of these dual challenges, highlighting the need for targeted interventions to mitigate adverse effects on livelihoods and working conditions. Despite facing formidable obstacles, it is striking to note the absence of anxiety among these women regarding their work-life quality. This resilience is attributed to their extensive experience and accustomed adaptation to the inherent struggles of their profession. Such findings emphasize the remarkable resilience and adaptability of women workers in the RMG sector. However, it is imperative for policymakers, stakeholders, and employers to recognize and address the underlying issues to ensure sustainable livelihoods and improved working conditions for these women. Efforts should be directed towards fostering an environment that supports their resilience while addressing systemic challenges to promote greater equity and well-being in the RMG industry.

Declarations:

Funding: This research has been funded by Shahjalal University of Science and Technology (SUST) research centre.

Ethical Approval: This study is self-initiated and has not undergone formal review by any institutional review board.

Informed Consent: Participants were given the opportunity to express their willingness to participate in the study, and their involvement was contingent upon obtaining their informed consent.

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