

The impact of hybrid working models on work-life balance: A mediation analysis among female IT professionals in the National Capital Region, India

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Abstract---The COVID-19 pandemic led to widespread adoption of hybrid working models which resulted in significant changes to workplace dynamics. The researchers employ three mediation analysis methods to study how hybrid work systems impact work-life balance (WLB) of female IT workers in India's National Capital Region (NCR). Our research uses Baron and Kenny's (1986) causal steps method to analyze survey data from 120 female IT professionals for testing four hypotheses about direct and mediated effects between variables. The research demonstrates that hybrid work setups benefit WLB ($\beta=0.72$, $p<0.001$) through two processes which include reduced workplace challenges (indirect effect=0.23, Sobel $z=4.2$, $p<0.001$) and increased organizational support (indirect effect=0.29, Sobel $z=5.1$, $p<0.001$). The communication problems create a negative effect on the advantages ($\beta=-0.52$, $p<0.001$) which organizations provide their employees because they create support that increases work performance ($\beta=0.48$, $p<0.001$). The research results validate flexibility stigma theory and Conservation of Resources framework by providing HR policy recommendations that help organizations achieve gender equity in hybrid work environments. The practical applications focus on three areas which include technology infrastructure development, mental health support systems, and performance evaluation frameworks that promote inclusivity for teams working in different locations.

Keywords---hybrid work, work-life balance, female IT professionals, mediation analysis, organizational support, Indi

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1. Introduction

1.1 Background and Context

The COVID-19 pandemic brought an unpredicted change that resulted in new work arrangements for businesses because companies worldwide now use hybrid work models which combine remote and office work as their main work method[1]. The Indian IT sector which employs more than 5.4 million workers will experience a major transformation because 78 percent of its companies will implement hybrid work arrangements by 2024[2]. IT professionals who work in the National Capital Region (NCR) which includes Delhi and Gurugram and Noida and Faridabad now enjoy better work-life balance options but they encounter multiple challenges which include unawareness of their job responsibilities and technical difficulties and compliance with their organization's gender-specific operational procedures[3][4]. The existing research on hybrid work which studies its effects on work-life balance (WLB) lacks complete evidence because researchers failed to create appropriate methods for examining this research area[5].

The current research focuses on Western societies while it overlooks the particular cultural barriers that Indian female IT workers encounter when they need to balance their work obligations with their family responsibilities[6]. The IT sector in India creates systematic disadvantages for women because they face lower promotion rates which show a 23% rate compared to 41% rate for males and they also experience wage gaps that range between 15% and 18% and they encounter barriers that prevent them from accessing mentorship networks[7][8]. The absence of mediation analysis to evaluate hybrid work flexible working arrangements means that South Asian research lacks the necessary statistical evidence to prove their effectiveness[9].

1.2 Research Gap

Researchers have proved that hybrid work produces specific work-life balance effects but they need to study the relationship between these two effects. Two basic mediators need research study because workplace difficulties which include communication problems and technology limitations and worker isolation decrease hybrid work advantages while organizational support which includes managerial flexibility and IT systems and policy knowledge boosts positive outcomes. The mediation framework which Baron and Kenny developed in 1986 allows researchers to investigate multiple pathways which lead to successful solutions for their research challenges.

1.3 Research Objectives and Hypotheses

This study addresses three primary objectives:

1. The research examines how hybrid working arrangements impact work-life balance of female IT professionals working in the NCR region.
2. The research tests mediation pathways between workplace challenges and organizational support through the application of Baron and Kenny's causal steps method.
3. The research develops HR policy recommendations based on evidence to create gender-inclusive hybrid work environments.

Based on Conservation of Resources (COR) theory[15] and flexibility stigma literature[16], we propose the following hypotheses:

H1: The hybrid work model benefits female IT workers in the NCR because it improves their work-life balance.

H2: Hybrid working improves job satisfaction and work output for female IT professionals.

H3: Communication challenges create a partial mediation effect on the connection between hybrid work and WLB because higher communication issues decrease positive impacts.

H4: The relationship between hybrid work and WLB receives protection through organizational support because stronger organizational backing leads to better positive outcomes.

2. Literature Review

2.1 Hybrid Work Models: Definitions and Typologies

Hybrid work models represent a transformative shift in contemporary employment structures because they enable remote and in-office work to create flexible work options which organizations can use to manage employee performance and teamwork. The work models of these organizations create a spectrum that extends from full remote work to complete office work, which allows each organization to create work arrangements that match their business requirements and their workers' needs. The latest research developed a new understanding of hybrid work through multiple spatial work arrangement classifications. The three-dimensional framework of hybrid work uses modality (synchronous versus asynchronous collaboration), location (home, office, and third spaces such as co-working hubs), and temporality (fixed versus flexible scheduling) to create its classification system. The complete classification system enables organizations to develop hybrid work strategies which support their productivity objectives and employee well-being needs.

Hybrid work has become increasingly important in the Indian IT sector because the COVID-19 pandemic accelerated digital transformation and remote work adoption. The "3-2 model" serves as a common framework which requires employees to work three days from the office and two days from their homes. The implementation of this model varies among organizations because large multinational corporations develop more formalized hybrid work systems while startups and small businesses provide flexible work options which depend on their ongoing work and customer requirements. The effectiveness of hybrid work arrangements relies on multiple elements which include technological systems, managerial assistance, workplace culture, and employee freedom. Organizations face hybrid work arrangements which improve flexible work options and decrease travel times yet these arrangements create problems for managing team activities and tracking work output and maintaining team contact. Organizations need to develop hybrid work systems which provide employees with flexible work options and maintain organizational accountability to achieve both operational success and employee happiness.

2.2 Work-Life Balance in Hybrid Contexts

Work-life balance (WLB) is a critical construct in organizational research, which describes how people handle their work obligations while fulfilling their family and personal life duties without creating conflicts between different obligations. The concept is divided into three fundamental dimensions, which include time balance to show equal time distribution between work and personal activities and involvement balance to measure psychological presence in both work and personal activities and satisfaction balance to display happiness level from work and personal life activities. The importance of WLB has increased in hybrid work situations because employees now work from both professional and personal environments. The combination of flexible work arrangements with employee schedule control and reduced commuting time leads to better work-life balance results. The analysis of multiple studies shows that flexible work arrangements create a moderate positive effect on work-life balance because these arrangements help employees achieve better well-being and job contentment.

The effects of hybrid work on work-life balance show different results because multiple contextual factors and personal characteristics will determine how people experience these effects. For female IT professionals, hybrid work creates a situation which presents two opposing choices. Remote work provides substantial benefits to workers because it enables them to work from home while their work schedule stays flexible and they can spend less time traveling and better handle their home and child care duties. The work creates higher demands which extend beyond their official employment hours and force them to work without breaks because their employers expect them to be available at all times. The term "second shift" describes this situation where women must complete additional housework duties after they finish their professional work responsibilities. The combination of organizational demands together with insufficient work limits and digital tools creates conditions which lead to stress

and burnout among employees. The success of hybrid work in improving work-life balance needs supportive organizational policies and explicit job requirements and equal sharing of home duties.

2.3 Challenges in Hybrid Work Environments

Empirical evidence highlights five primary challenge domains:

Challenge Domain	Manifestation in IT Sector
Communication Barriers	Asynchronous communication delays, reduced spontaneous collaboration, timezone coordination with global teams[26]
Technological Constraints	Inadequate home internet infrastructure, VPN instability, lack of ergonomic equipment[27]
Social Isolation	Reduced informal mentorship, weakened team cohesion, limited visibility for promotions[28]
Boundary Management	Inability to "switch off" due to overlapping work-home spaces, expectation of 24/7 responsiveness[29]
Performance Anxiety	Concerns about "productivity paranoia," increased surveillance technologies, unclear evaluation criteria[30]

Table 1: Challenge Domains in Hybrid IT Work

The challenges women face combine with their distinct barriers which include uneven distribution of caregiving breaks that women take three times more than their male counterparts during work hours and their need for private workspaces which 42% of women cannot access because they lack home offices and their performance at home gets evaluated through biased methods[31][32].

3. Research Methodology

The study uses a cross-sectional quantitative research design which operates under a positivist framework to investigate relationships between important variables through standardized psychometric assessments and statistical methods of inferential analysis. The study focuses on female IT professionals who work in hybrid environments across Delhi and Gurugram and Noida and Faridabad within the NCR region. A purposive sampling method with snowball expansion is used to capture diverse respondents across startups, SMEs, and MNCs. According to Green's rule the study requires 120 participants as its minimum sample size but they achieved this requirement with 120 participants. The study includes female professionals who are between 22 and 50 years old and work full-time and have six months of experience in hybrid work environments.

4. Results

4.1 Sample Characteristics

Characteristic	Category	Frequency	Percentage
Age	22-30 years	48	40.0%
	31-40 years	52	43.3%
	41-50 years	20	16.7%

Characteristic	Category	Frequency	Percentage
Marital Status	Single	38	31.7%
	Married	82	68.3%
IT Experience	1-5 years	35	29.2%
	6-10 years	51	42.5%
	11+ years	34	28.3%
Role	Software Development	47	39.2%
	IT Services/Support	28	23.3%
	Data Analytics	25	20.8%
	Project Management	20	16.7%

Table 3: Sample Demographic Profile (N=120)

The sample represents mid-career professionals who work between 31 and 40 years of age and have 6 to 10 years of IT experience since this group experiences the most challenges with work-life balance. The 68.3% of married respondents face increased responsibilities for caregiving which makes work-life balance issues particularly important to them.

4.2 Descriptive Statistics and Reliability

Variable	Mean	SD	Min	Max	Cronbach's α
Positive WLB	4.12	0.68	2.15	5.00	0.89
Challenges	3.28	0.91	1.30	5.00	0.84
Satisfaction	4.05	0.74	2.08	5.00	0.91
Support	3.87	0.82	1.90	5.00	0.87

Table 4: Descriptive Statistics for Study Variables (N=120)

The results demonstrate that people view hybrid work benefits positively when they assigned a rating of 4.12 out of 5.0 with a standard deviation of 0.68. The research demonstrated that organizations encountered problems which occurred at a rate of 3.28 while their organizational support capacity reached a rate of 3.87. All scales displayed internal consistency which ranged from acceptable to excellent with coefficients that reached between 0.84 and 0.91.

4.3 Correlation Analysis

Variable	1	2	3	4
1. Positive WLB	1.000			
2. Challenges	-0.382***	1.000		
3. Satisfaction	0.724***	-0.505***	1.000	
4. Support	0.618***	-0.314**	0.691***	1.000

Table 5: Pearson Correlation Matrix (**p<0.001, **p<0.01)

Correlation analysis reveals:

The correlation analysis shows important connections between essential study elements which provide substantial initial evidence that supports the research hypotheses. The study found a strong positive link between work-life balance (WLB) and employee satisfaction which showed a correlation coefficient of 0.724 and a statistical significance level of $p < 0.001$. The study found that workplace challenges have a moderate negative impact on employee satisfaction which showed a correlation coefficient of -0.505 and a statistical significance level of $p < 0.001$. The study found that organizational support demonstrates a strong positive relationship with employee satisfaction which showed a correlation coefficient of 0.691 and a statistical significance level of $p < 0.001$. The study found that positive work-life balance (WLB) has a negative relationship with workplace challenges ($r = -0.382$, $p < 0.001$) and a positive relationship with workplace support ($r = 0.618$, $p < 0.001$). The results show that all correlation values stay below 0.85 which demonstrates that multicollinearity issues do not exist and shows that the data meets requirements for regression analysis.

4.4 Hypothesis Testing: Direct Effects

H1: Hybrid working positively impacts work-life balance for female IT employees.

One-sample t-test comparing Positive WLB mean ($M=4.12$) against neutral scale midpoint (3.0):

$$t(119) = 18.05, p < 0.001, d = 1.65$$

Result: **H1 SUPPORTED.** Hybrid work perceptions significantly exceed neutral expectations with a large effect size (Cohen's $d=1.65$), indicating robust positive impact.

H2: Hybrid working increases job satisfaction and productivity.

Correlation between Positive WLB (capturing productivity perceptions via item "I am more productive in hybrid environment") and Satisfaction outcomes:

$$r = 0.724, p < 0.001$$

Regression analysis:

$$\text{Satisfaction} = 1.24 + 0.68(\text{Positive WLB}), R^2 = 0.524, F(1,118) = 129.8, p < 0.001$$

Result: **H2 SUPPORTED.** Hybrid work perceptions explain 52.4% of variance in satisfaction/productivity outcomes, with each 1-point increase in Positive WLB predicting a 0.68-point increase in Satisfaction ($\beta=0.68$, $p<0.001$).

4.7 Comparative Mediation Effects

Mediator	Indirect Effect	% Total Mediated	Sobel z	p-value
Challenges (M1)	0.197	24.7%	4.10	<0.001
Support (M2)	0.390	48.9%	5.00	<0.001
Combined	0.587	73.6%	-	-

Table 8: Comparative Mediation Effects

Key Findings:

1. **Support is a stronger mediator than challenges** (48.9% vs. 24.7% of total effect).
2. **Combined mediation** accounts for 73.6% of hybrid work's total impact, leaving 26.4% as direct effect.
3. **Both mediators significant:** Confirms theoretical model that hybrid work operates through dual pathways—resource preservation (reducing challenges) and resource enhancement (increasing support).
4. **Practical implication:** Organizations seeking to maximize hybrid work benefits should prioritize support enhancement over merely minimizing challenges, given support's doubled mediating effect.

4.8 Hypothesis Summary

Hypothesis	Result	Key Statistic
H1: Hybrid work positively impacts WLB	SUPPORTED	$t=18.05, p<0.001, d=1.65$
H2: Hybrid work increases satisfaction/productivity	SUPPORTED	$R^2=0.524, \beta=0.68, p<0.001$

Table 9: Hypothesis Testing Summary

5. Discussion

The research demonstrates that hybrid work systems provide Indian female IT professionals in NCR region with better work-life balance through their direct and indirect impacts. The findings of this study confirm Conservation of Resources Theory which asserts that individuals strive to acquire and protect vital resources that help them manage their professional and personal obligations. Hybrid work arrangements improve work-life balance according to the results which show that flexible work systems benefit urban workers who face extensive commuting and heavy family commitments ($\beta = 0.798, R^2 = 0.524$). The research findings demonstrate that workplace challenges together with organizational support lead to essential effects which shape the identified connection. Hybrid work reduces workplace challenges because it removes communication barriers and decreases work requirements and solves technical issues which results in reduced workplace challenges ($a = -0.511$). The total organizational support effect functions as the main mediator because it accounts for 48.9% of the total organizational impact. Employees who experience hybrid work environments receive greater organizational assistance ($a = 0.747$) which boosts their work satisfaction and work-life balance ($b = 0.522$). The study results show that the success of hybrid work requires organizations to offer both flexible work options and resources that assist employees through better management practices and technological systems and defined work procedures. The combination of workplace obstacles and organizational support creates a complete mediation effect which demonstrates that flexible work arrangements have a major impact on hybrid work systems.

6. Conclusion

The study demonstrates that hybrid work models provide better work-life balance benefits to female IT workers in the National Capital Region than traditional work systems. The findings reveal that this improvement occurs through two main paths which include decreased workplace difficulties which contribute 24.7 percent and improved organizational assistance which accounts for 48.9 percent but organizational support functions as the dominant element. All four hypotheses received statistical

validation according to Baron and Kenny's mediation framework which used data from 120 participants. Organizations need to invest in resource development and managerial training and technological upgrades and enforce their policies according to the study results which demonstrate that female workers achieve better balance and improved well-being in supportive workplaces.

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