

When Work Follows You Home: A Moderated Mediation Approach of Examining How Mobile Work Drivers Psychological Withdrawal Behaviour

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Abstract

Mobile work (MW) has developed as a result of the advance in information and communication technologies (ICTs), and has led to substantial changes in terms of current employment arrangements. Although MW increases versatility and productivity, at the same time, it also dissolves boundaries between work and out-of-work life, thereby creating tension, decreasing work-life balance (WLB), emotional exhaustion (EE), and psychological withdrawal behaviours (PWB). With reference to the Job Demands-Resources (JD-R) model and Boundary Theory, this research investigates the serial mediating effect of WLB and EE on the association between MW and PWB and that of segmentation boundary management preference (SP) as a moderator. Employing a cross-sectional survey design, information was gathered from 281 education and healthcare organisations' employees in Pakistan, who consistently employ mobile devices (smartphones, tablet PCs, or laptops) during non-office hours, i.e., an integration of work-life balance. Analyses performed using PROCESS macro in SPSS validated that MW is inversely correlated with WLB, which further enhances EE and then propels PWB. The SP was demonstrated to have a moderate effect between MW and WLB, meaning that individuals with a high level of segmentation are more effective in overcoming the adverse impact of MW. The findings develop theory by combining JD-R and Boundary Theory to account for the effects of MW and inform practice by providing implications for organisations to develop boundary-supportive policies and interventions.

Keywords: Mobile Work; Work-Life Balance; Emotional Exhaustion; Psychological Withdrawal Behaviour; Segmentation Preference; JD-R Model; Boundary Theory.

Introduction

No one could have guessed that the nature of work would be transformed as fundamentally as it has in the past few decades due to the sheer speed of technology development, and the proliferation of mobile devices. Mobile work (MW)- the ability to perform work activities beyond the typical working hours and physical location using ICTs such as smartphones, tablets, and laptops (Ferguson et al., 2016)- now represents a widespread phenomenon in the global sector. The COVID-19 pandemic increased the mobile connection, as it restructured the working processes worldwide and made flexible and tech-sided agreements the new standard (Maillot et al., 2022). Although MW has become more responsible because of its ill shadow due to fluid boundaries, flexibility, and responsiveness (Messenger and Gschwind, 2016), academic research has made it increasingly the guilty party in terms of tarnishing its good image: greater autonomy, flexibility, and responsiveness turn out to be the means through which it has been found guilty (Derks et al., 2014; Bhat et al., 2023). MW process is even more complex in developing economies, like Pakistan. In Pakistan, the ICT penetration rate has been high and more than 190 million cellular subscribers and internet penetration exceeding half of the entire population was recorded in 2023 (Pakistan Telecommunication Authority [PTA], 2023). This growth has contributed to the emergence of work intensification in new ways because workers are digitally attached to work outside office hours. Nevertheless, unlike most developed economies, Pakistan does not have a systematic system of digital-wellbeing protections and/or statutory right-to-disconnect legislation in place, and national reports and civil-society studies show that regulatory provisions and implementation challenges predispose mobile connection to work intensification, as opposed to the flexibility that it should bring (Digital Rights Foundation, 2023). The problem is particularly acute in such areas as healthcare and education that require a high level of service and experience the increasing dependence on mobile devices. The medical communities are increasingly being anticipated to be linked to one another in a way that they can deliver services to the clients, but the teachers are not only being overburdened with more digitalizations in the areas of e-learning and online communication, but also in the areas of e-administration. Such conditions make the Pakistani environment more than timely, but also essential in the study of the negative effects of mobile work.

One of the most worrying effects of MW is its effect on employees' well-being and job engagement. MW disrupts recovery periods and renders it difficult to mentally tune down by bringing work stress into personal life (Sonnetag and Fritz, 2015). Employees end up with reduced WLB, EE and PWB. WLB can be defined as "employees' satisfaction and good functioning of multiple roles among work and non-work (family or personal domains)" (Kalliath & Brough, 2008)". Emotional exhaustion refers to "The draining of emotional resources and is gauged by the presence of fatigue and stress reactions" (Maslach et al., 2001). PWB, which includes behaviours like daydreaming, absenteeism, tardiness, and disengagement (Hulin et al., 1985), is a mild

but harmful manifestation of employee withdrawal that demeans organisational productivity (Peng & Li, 2023). Understanding how MW leads to PWB is thus both of theoretical and practical significance.

Various aspects of this relationship have been discussed in the current literature. Research indicates that MW interferes with WLB (Brown & Palvia, 2015), and that reduced WLB correlates with EE (Kotera et al., 2021). Subsequently, EE has invariably been seen as an antecedent to withdrawal behaviours (Nauman et al., 2020; Rubiano et al., 2023). These studies lay a ground for comprehending the mechanisms by which MW relates to PWB, yet there are gaps. To begin with, few investigations have examined a serial mediation model in which MW influences PWB through WLB and EE. Second, even though MW is perceived in a varied way based on personal liking, little attention has been paid to SP- that has been expressed as “A coping response characterized by a preference to build up and maintain a clear line between work and family lives” (Nippert-Eng., 1996) - inclination to distinguish between work and non-work spheres - mediating negative effect of MW on WLB.

In order to cover these shortcomings, this research combines the JD-R model (Demerouti et al., 2001) and Boundary Theory (Ashforth et al., 2000; Nippert-Eng, 1996). JD-R model, clarifying that mobile work can be viewed as a job demand. These requirements drain out the personal resources of the employees and cause strain. In this paradigm, WLB and EE are the primary mediating variables that mediate job demands and poor outcomes. Boundary Theory emphasizes that there are individual differences in dealing with the boundaries between work and non-work life. Employees who enjoy high level of segmentation can defend their personal time and are thus less vulnerable to the disturbing impacts of mobile work. These theories can be combined to construct a moderated serial mediation model that links MW and PWB with the help of WLB and EE, where SP acts as a buffer or mediates the relationship between MW and WLB.

This research has four major contributions. First, it builds on JD-R model by theorizing MW as a technological based job demand, which exhausts personal resources (Demerouti et al., 2001). However, this study is the first to empirically determine a serial mediation mechanism where MW lowers WLB, which indirectly increases EE, which then leads to psychological withdrawal behavior (PWB) (Sonnetag and Fritz, 2015; Kotera et al., 2021). Second, it develops Boundary Theory (Ashforth et al., 2000; Nippert-Eng, 1996) by testing preference in segmentation as a resource of boundary that mediates the association between the MW and WLB. Although earlier studies have already associated SP with after-hours work detachment (Derks et al., 2016; Haun et al., 2022), the given research offers the evidence of SP as a protective factor in a moderated serial mediation model, thus combining personal boundary strategies with organizational work needs. Third, it also adds to the cross-cultural literature, placing the said dynamics within the context of healthcare and education in the Pakistani setting, where the level of ICT penetration is high and the policies of digital well-being are not developed (PTA, 2023). Majority of the current

MW-based studies are Western-based (Messenger & Gschwind, 2016), and the study contributes to theory by demonstrating how resource shortages and collectivism-based work norms intensify the negative outcomes of MW in third world countries. Lastly, it provides practical implications to the organizations by targeting practical changes, including the implementation of digital disconnection policies, example of healthy boundary practices displayed by the leadership, and customized well-being interventions within the industry of high demand (Maslach and Leiter, 2016).

Literature Review and Hypothesis

Mobile Work Conceptualization and Context

Mobile work (MW) is the application of mobile devices and ICTs to carry out work activities outside the conventional workplaces and out of the normal working hours (Ferguson et al., 2016). In comparison to telework, where one is bound to different alternative locations (e.g., home offices), MW focuses on location flexibility and connectivity at all times (Messenger and Gschwind, 2016). Although early evidence linked MW to productivity advantages, flexibility and cost-effectiveness (Rocha and Amador, 2018), more recent findings report more and more unintended effects of this trend, including social isolation, increased workload, and lack of recovery chances (Derks et al., 2014; Kim and Heo, 2019).

Globalization, the needs of the competitive environment, and the COVID-19 pandemic have intensified the development of MW and reorganized the working conditions around the world (Maillot et al., 2022; Ropponen, 2025). It has been empirically proven that MW is a predictor of after-hours work engagement, raises stress levels, and is a cause of burnout (Bhat et al., 2023; Ariasari and Tjahjono, 2024; Noor et al., 2025). Regardless of such learnings, MW continues to be confused with telework and remote work. This research paper will take a further restrictive approach to define MW as the usage of mobile devices to fulfill job duties, external to standard working hours, through working at home (Ferguson et al., 2016). This difference is significant since unlike telework or remote work, which are performed during the working hours at another location, MW directly disrupts the recovery time and personal time of the employees (Wajcman and Rose, 2011). Available literature is inclined to describe the effects of MW, focusing on stress, boundary blurring, and the problem of recovery. Nevertheless, there are limited researches that have broken down the psychological processes that underlie the conversion of MW into withdrawal behaviors. This is covered in this study through placing MW in a serial mediation model between WLB and EE.

Work Life Balance

There is a general agreement that WLB is the level of satisfaction and proper functioning in both work and non-work domains of the people (Greenhaus and Powell, 2006; Kalliath and Brough, 2008). Homeostasis leads to improved recovery, well-

being, and performance, and homeostatic failure to stress, dissatisfaction, and health issues. Studies have continuously attributed WLB to job satisfaction, organizational commitment, and retention (Kotera et al., 2021), whereas the lack of such a balance was reported to correlate with role conflict and burnout (Cheung et al., 2021).

WLB has been demonstrated to mediate the impact of the technological demands on employee well-being in collectivist settings, like South Asia (Noor et al., 2025). It has been proven that MW weakens WLB by creating an always-on mentality and minimizing the chance of detachment (Brown and Palvia, 2015). Simultaneously, there is research to indicate that MW could bring beneficial results, including autonomy and flexibility, provided with the help of healthy organizational norms (Basile and Beauregard, 2020; Ismawati et al., 2023). Although the centrality of WLB in employee well-being is well-established, most of the studies use WLB as an outcome but never as a mediating mechanism. Very little exists regarding the explanation of the connection between MW and strain-related outcomes, e.g. EE and psychological withdrawal, by WLB. The present research fills this gap through placing WLB as a mediator in a moderated serial mediation model.

Emotional Exhaustion

The primary burnout dimension that is of interest to us is emotional exhaustion (EE), which describes the feeling of being stretched and emptied of resources in an emotional sense (Maslach and Jackson, 1981). JD-R model classifies EE, one of the most important consequences of unbalanced demands and lacking resources (Demerouti et al., 2001).

One of the major determinants of EE is LB. When the WLB is low, the result is enduring pressure, and workers do not have an opportunity to restore emotional barriers (Sonnentag & Fritz, 2015). Kotera et al. (2021) confirm that WLB is a strong determinant of EE in the representatives of such occupations who have to work in high-stress industries. Imran et al. (2025) demonstrate that low WLB can lead to augmented EE among the healthcare personnel who is already prone to high levels of emotional demands. Therefore, WLB can potentially be conceived as a route-linking factors such as MW to EE.

Psychological withdrawal Behaviour

Psychological withdrawal behaviours (PWB) are characterized by such behaviours as lateness, absenteeism, daydreaming, and a deliberate reduction of effort (Hulin et al., 1985). In contrast to physical withdrawal (i.e., the act of a resignation), PWB is the unofficial way of withdrawal that damages productivity and group performance (Peng & Li, 2023).

PWB is a major precursor to EE. The empirical evidence shows that workers who feel fatigued tend to disengage in their job, have escaping arrays like absenteeism,

and they are psychologically withdrawn (Nauman et al., 2020). Rubiano et al. (2023) state that EE is a very strong predictor of PWB in those cultures that are more collectivistic in nature where workers will not say no but will withdraw in an indirect manner.

Though some studies have found out the correlation between MW and WLB and WLB with EE and EE with PWB, not all the chain reactions have been examined. In their research, Hou et al. (2022) found out that the ICT demands devise a interceding role in the relation between EE and work-family conflict, then between confirming the hypothesis of withdrawal. By extension, the current study will argue that MW reduces WLB, which makes it easy to achieve EE, which ultimately leads to PWB. This locus of serial mediation corresponds to the job demands-resource (JD-R) model where the job demands (MW) deplete resources (WLB) that causes strain (EE) and worse outcomes (PWB).

Segmentation Boundary Management preference as Moderator

It described as, a preference developed in a coping response that involves building and enforcing a distinctive boundary between work & family life (Nippert-Eng., 1996). A theory called Boundary Theory (Ashforth et al., 2000; Nippert-Eng, 1996) assumes that individuals differ in the manner in which they negotiate boundaries among the work and the isolated lives. SP is an indication of the preference to separate the roles and integration preference is an indication of willingness to merge them. Demonstration suggests that flexible work influence on the WLB occurs through SP (Derks et al., 2016). The more highly SP the employees, the more likely to protect personal time and hence cushion the drawbacks of MWs. The disruption to WLB of integrators can go up. SP alleviates the adverse impact of MW on WLB in three mutually beneficial ways. First, boundary enactment: The strong segmenters actively perform temporal, behavioral and physical boundaries (e.g., set-in-stone off hours, the separation of devices, the device rules about work-related messaging) which make the work domain less objective and perceived to be permeable (Nippert-Eng, 1996; Kreiner, 2006). These implemented rules restrict intrusion of work by timing and behavioral channels, cutting off the opportunities to have after-hours contact with work, thereby undermining the ability of MW to infiltrate non-work time.

Second, self-control and cognitive distraction: people with high SP are more likely to exert more self-regulatory control over techno-behavior (selective availability, delayed response standards), and are also more likely to experience deliberate psychological withdrawal when not working (Sonnentag and Fritz, 2015). This self-regulation ability minimises rumination and "telepressure" to mobile prompts thereby safeguarding subjective work-life balance despite the presence of mobile demands. Third, social and normative processes: SP conceals perceived organisational and social availability norms. In the cases where the segmenters have co-worker and managerial norms to discourage after-hours contact (or where they are able to communicate their

boundaries), the social pressure to respond is reduced and the spillover of MW attenuated (Derks et al., 2014; Haun, 2022; Wajcman and Rose, 2011). Overall, SP can work both on the individual (enactment/self-regulation) and social (norms/perceived expectations) to make mobile demands less permeable and salient to buffer the MW - WLB relationship.

Basile and Beauregard (2020) reveal that segmentation strategies such as setting communication boundaries are associated with a reduction in conflict and burnout. Haun et al. (2022) add a detail: SP employees also play with electronic norms: where communication during non-core working hours is usual, they experience lower negative spillover than integrators. Hence SP is a theoretically-guided moderator of the MW-WLB connection.

Conceptual Framework

This study integrates JD-R model and the Boundary Theory in the development of a moderated serial mediation framework. MW is a JD that consumes personal resources, WLB is the mediating resource par excellence, and EE is the strain pathway to PWB under JD-R. Boundary Theory explains as to why SP moderates the MW-WLB relationship. Mechanistically, SP is supposed to moderate the MW - WLB route through the mechanisms of boundary enactment (temporal/ behavioral regulations), increased self-regulation and detachment, and supportive normative frameworks, which relieve after-hours availability pressure (Nippert- Eng, 1996; Haun, 2022). These models, together, constitute a robust basis on which synthesis of intricate interrelation of MW, WLB, EE, PWB and SP is being presented as:

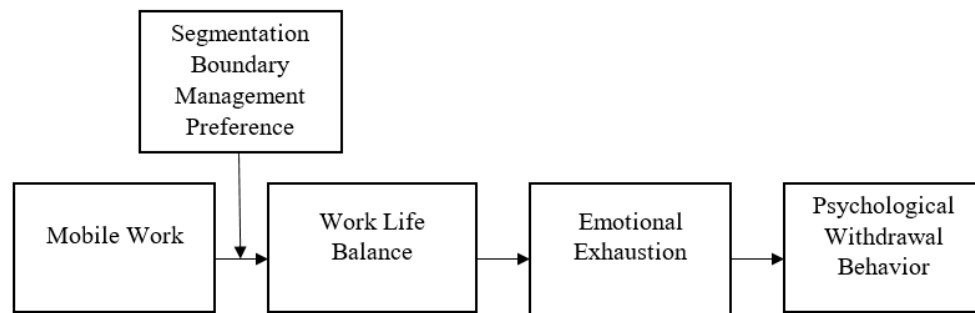


Figure 1. *Conceptual Model-Moderated Serial Mediation Model*

Relationship of Variables and Hypotheses

Although previous researchers have proposed a connection between MW and such aversive behaviours as stress, role conflict, and work-family interference (Derks et al., 2014; Bhat et al., 2023), comparatively few studies have directly tested its effects on such withdrawal behaviours as absenteeism, daydreaming, and disengagement

(Hulin et al., 1985). This creates a knowledge gap on whether MW does not translate beyond strain to behavioural withdrawal consequences which lower productivity.

H1: Mobile Work (MW) has a positive effect on Psychological Withdrawal Behaviour (PWB).

The studies indicate that MW interferes with WLB by occupying non-working time and obstructing the possibility of having time off (Brown and Palvia, 2015; Wang and Hu, 2024). Meanwhile, WLB has been identified as the poor determinant of job satisfaction and increased strain (Kotera et al., 2021). However, WLB as a mediating variable between MW and PWB is seldom testable using empirical studies, particularly in collectivist societies like Pakistan where family commitments are added to work-life conflict (Noor et al., 2025). This gives a theoretical and contextual gap that is filled here. Therefore:

H2: Mobile Work (MW) has an indirect effect on Psychological Withdrawal Behaviour (PWB) through Work-Life Balance (WLB).

Previous studies systematically prove that EE is one of the central aspects of burnout and a prelude to withdrawal behaviours (Maslach et al., 2001; Nauman et al., 2020; Rubiano et al., 2023). In spite of the fact that MW has been linked to strain and anxiety (Derks et al., 2014), not many studies test EE directly as the mediating process between MW and PWB. This study elucidates which psychological process MW exploits resources of employees and leads to withdrawal by the inclusion of EE as a mediator. Hence:

H3: Mobile Work (MW) has an indirect effect on Psychological Withdrawal Behaviour (PWB) through Emotional Exhaustion (EE).

Segmentation boundary management preference is used to ensure that people keep the line between work and non-work distinct, ensuring the absence of role conflict and balance (Nippert-Eng, 1996; Haun et al., 2022). Nevertheless, the SP is not tested directly as a buffer to the negative impact of MW on WLB although previous studies have not investigated it in collectivist and resource-constrained contexts that may impose cultural pressures to be always available (Derks et al., 2016). The proposed research fills this gap in the boundary conditions by placing SP in the role of a moderator between MW and WLB relationship.

H4: Segmentation Boundary Management Preference (SP) moderates the relationship between Mobile work (MW) and Work life balance (WLB).

The current literature indicates that MW has a negative impact on WLB (Brown and Palva, 2015), WLB deprivation is a factor leading to EE (Kotera et al., 2021), and EE is also associated with withdrawal behaviours (Nauman et al., 2020; Rubiano et al., 2023). However, the studies of these relationships have been conducted independently. Very little research investigates a progressive process whereby MW

wears off WLB that subsequently promotes EE, and further stimulates PWB. Being tested as a serial mediation, this study is the way to combine the pieces of information into a logical explanatory process. Thus:

H5: There is a serial mediation effect of Mobile Work (MW) on Psychological Withdrawal Behaviour (PWB) through Work-Life Balance (WLB) and Emotional Exhaustion (EE).

Methodology

The study is based on a cross-sectional research design of the quantitative research study to test the proposed moderated serial mediation model that linked mobile work (MW) to psychological withdrawal behaviour (PWB) as mediated by WLB and EE and modulated by SP. The choice of design was made because of the positivism research paradigm that is defined by objectivity, measurement, and hypothesis testing with the help of statistical analysis (Creswell, 2014).

The methodology that was used was purposive sampling which is a non-probability method of sampling. The study followed the addition standards of; full-time employees that used mobile devices to work beyond work hours. Such an approach is consistent with other occupational behaviour studies and it is reasonable to use it to reach hidden groups (Nikolopoulou, 2022). The study was specifically chosen as education and healthcare sectors on four interconnected grounds. One, the two sectors have gone through the rapid digitalization process and have increased the dependence on mobile connectivity, which increased throughout the COVID-19 pandemic and that have continued to support after-hours digital interactions (e.g., online instruction and assessments in education; telehealth and remote consultations in healthcare) (Maillot et al., 2022). National telecommunications statistics show extensive penetration of mobile and broadband in Pakistan which forms the infrastructural base of ubiquitous after-hour connections (Pakistan Telecommunication Authority [PTA], 2023; OECD, 2021). Second, the tasks performed by education and healthcare professionals are knowledge intensive and often involve ongoing cross organizational communication (e.g. curriculum coordination, parent-teacher interactions, clinical referrals and follow-ups). These features of the job enlarge boundary permeability and a necessity of self-regulatory effort to maintain recovery time, which makes these domains of special interest in exploring the effectiveness of MW on WLB (Wu et al., 2013). Third, empirical evidence records high strain, exhaustion, and mental-health burden in both teachers and healthcare workers since the pandemic-factors that make the concept of EE a theoretically suitable variable to study mediate relationships between MW and PWB. According to systematic reviews and meta-analyses, there are significant burnout and well-being issues in the professions which highlight their susceptibility to extended digital demands (Ghahramani et al., 2021). Lastly, in Pakistan, the policy salience of these areas is high: national telecommunication trends, new telehealth initiatives, and current attempts to digitalize education imply that the results of these

areas can be immediately applied to organizational policy (e.g., digital-wellbeing guidelines, telework/telehealth protocols) as well as to the interventions that are specific to the sector in preserving WLB and alleviating strain (PTA, 2023). Put collectively, the above deliberations render education and healthcare ideologically enlightening and practically impactful environments of exploring MW, WLB, EE and PWB in a resource-limited, collectivist environment.

A priori the G+ Power 3.1 software was used to regulate the sample size of 300 respondents (Faul et al., 2009). Multiple regression analysis power analysis was done with an estimated medium effect size ($f^2 = 0.15$), an alpha value of 0.05, and a power value of 0.80. The analysis revealed that a least number of 138 contributors was to be used. Nevertheless, the research model involved effects of mediation and moderation, and based on the advice by Kline (2016) and Hair et al. (2019) regarding, ensuring parameter estimate stability in a structural equation modeling (SEM), a more extensive sample was aimed at. The sample of 300 respondents selected will over and above the required threshold and will increase the statistical power, precision, and generalizability of the results. In this way, the selected sample size is methodologically sound and suitable to the current study. 300 people were surveyed by the questionnaire with the consent form, some demographics, and questions based on the aforementioned scales was created online using Google forms and will be delivered to the respondents. Form was sent to people by the online social media websites (Whats app, Email). Before sending forms to the employees, organizational heads were consulted. They were also asked to send the survey to their workmates who would qualify to take part in the research study. The objective of the research was explained to the participants. This was a voluntary and anonymous participation. The answers were uploaded and processed in Google Sheets automatically and analyzed in SPSS. After discreetly cleaning of the data by removing unfinished, varying, or invalid answers, 281 valid answers were left, which constituted a valid response rate of 93.6 per cent. Out of 281 respondents who responded and could respond, 145 (51.6) were employees of the education sector mainly the universities and colleges whereas 136 (48.4) were the healthcare organizations such as hospitals and clinics. This percent ratio is consistent with the presence of mobile work in both industries, where digitalization has increased pressure on the need to be responsive in the after-hours. The inclusion of the sectoral breakdown will improve the contextual strength of the outcomes and point out the weaknesses of the sector to mobile work demands in resource-restricted environments.

All the measuring tools used were based on the scales that had previously been tested with a slight variation where the Mobile Work (MW) scale was developed built on a 7-point Likert response scale adjusted to a 5-point Likert scale. A 5 point Likert scale is also favored because it is easy, less time consuming and more likely to be responded to as it takes less intellectual load on the users and it is easy to analyze as well (Babakus and Mangold, 1992; Dawes, 2008). The SPSS was used to measure reliability and validity. Internal consistency was also established with Cronbach alpha

exceeding the 0.78 cutoff level in all constructs hence ratifying sufficiency of the measures. Mobile Work (MW) scale was measured with 3 items of Ferguson et al. (2016) that demonstrated the extent of presence of after-hours connectivity to work and the use of mobile devices during work. Sample item: I often use a mobile device to perform job related task when I am engaged in family time ($\alpha = .78$). WLB was approximated as an 8-item measure included by Wu et al. (2013) and suggesting satisfaction with work and the personal life. An example is the item, "There is a good fit between my personal life and work life." ($\alpha = .87$). EE was stated with the 5-item scale of the Maslach Burnout Inventory (Maslach & Jackson, 1981) e.g. "I feel emotional exhausted during my work." ($\alpha = .70$) Measurement PWB was understanding on an 8-item scale what and Lehman and Simpson (1992) referred to as behaviours of absenteeism, lateness and daydreaming. The item is, I daydream on the job during working hours. ($\alpha = .89$). SP was measured on a 5-item scale utilizing Kreiner (2006), such as, "I like to leave work life at work." ($\alpha = .74$). All the scales had already been tested in a workforce study and provided satisfactory reliability in the present sample.

Data Analyses

The research is proposed to determine how mobile work affects psychological withdrawal behaviour in the education and healthcare sectors in the city of Lahore. In particular, the questionnaire will investigate the mediating roles that WLB and EE play, with the aspect of SP playing a moderating role on the extent of balance-related influence of mobile work. The paper focuses on how boundary blurring caused by mobile technologies can be detrimental to well-being and cause withdrawal tendencies, although boundary management strategies can interpose as protective intercessions. The synthesis of the Boundary Theory and Job Demands-Resources model generates theoretical insights and practical guidance to organisations that may address the challenges of working on the move and retain the well-being of the workers and reduce engaging in counterproductive behaviours.

Demographic Profile

The sample consisted of 56.6% males and 43.4% females, which gave an adequate gender balance among respondents. The largest proportion of respondents were fresh, with 40.2% between 18 and 25 years, while the mainstream at 53.7% were aged between 26 and 35 years. The smallest groups were 3.6% between 36 and 45 years, 2.1% between 46 and 55 years, and a mere 0.4% over the age of 56. The gender is moderately skewed given the fact that married respondents constituted 52.7 of the sample and 47.3 of the respondents were not.

In terms of expertise with their present organisation, the greatest number of respondents, 35.9%, had between 1 to 3 years' experience, tracked by 41.6% with fewer than 1 years' experience. A further 15.3% had between 4 and 6 years' experience, and

7.1% between 7 and 10 years' experience. When it comes to employment fields, the population was almost evenly divided with 51.6% employed in the education field and 48.4% in the health field. Organisational type-wise, 48.4% were employed in the public sector and 40.6% in the private sector. 3.2% of the population were working in non-profit or NGO organisations and 7.8% in other organisational types.

Validity and Reliability Analysis

The internal consistency reliability was checked by means of Cronbach alpha and all constructs ranged above .70. Construct validity was also ascertained and it was found that all items had a high loading on their respective factors where the factor loading was above or equal to .50. Convergent validity was demonstrated based on measured average variance extracted (AVE) values of each construct exceeding .50 whereas discriminant validity was demonstrated through the calculated square root of AVE surpassing interrelated construct correlations (Fornell & Larcker, 1981). The reliability test of the scales is estimated as shown below with a range of 709 to 872 represented as values of Cronbach's Alpha:

Table 1

Cronbach's Alpha of each scale of the current study (N= 281)

Sr. No.	Variables	No of items	Reliability
1	Mobile Work	3	0.781
2	Psychological Withdrawal Behaviour	8	0.896
3	Work-Life Balance	8	0.872
4	Emotional Exhaustion	5	0.709
5	Segmentation Preference	5	0.747

The Cronbach alpha reliability analysis revealed that, all variables included in the research were proved to have acceptable to high internal consistency with the values ranged between 0.709 to 0.896. SP, WLB, Mobile Work, EE and PWB all had the criteria above 0.70 of the bare minimum. Scales used in the research proved, thus, to be quite reliable and stable to undergo further analysis.

Descriptive Statistics

Descriptive analysis shown in Table 2, gave a general overview of employees' experience with mobile work and accompanying outcomes. Results were such that mobile work ($M = 3.86$) and emotional exhaustion ($M = 3.69$) were relatively high, while work-life balance was low ($M = 2.73$), indicative of considerable strain. The degree of psychological withdrawal behaviour ($M = 3.31$) was moderate as well as was the segmentation boundary management preference ($M = 3.73$). In general, the findings

indicate that as employees work actively on the move, it destabilizes their balance and wellbeing, hence there is a need for further hypothesis testing.

Correlation analysis showed that MW is positively correlated with PWB ($r=0.467$, $p < 0.01$) and emotional exhaustion ($r=0.623$, $p < 0.01$) as well as negatively correlated to WLB ($r = -0.727$, $p < 0.01$). PWB was significantly associated inversely with WLB ($r = -0.449$, $p < 0.01$) and with EE ($r = 0.501$, $p < 0.01$) as well as SP ($r = 0.501$, $p < 0.01$). The EE was negatively associated with WLB ($r = -0.633$, $p < 0.01$), and SP ($r = -0.445$, $p < 0.01$) as well. Finally, the correlations between EE and SP were also significant ($r = 0.678$, $p < 0.01$), which further confirms a strong set of correspondences between the study variables. The results may be seen in Table 2.

Table 2
Descriptive Statistics and Correlations

Variables	Mean	SD	N	1	2	3	4	5
1. MW	3.8565	0.841	281	1				
2. PWB	3.3194	0.882	281	.467**	1			
3. WLB	2.7331	0.859	281	-.727**	-.449**	1		
4. EE	3.6954	0.722	281	.623**	.501**	.633**	1	
5. SP	3.7338	0.657	281	.614**	.501**	-.445**	.678**	1

Notes: MW= Mobile Work; PWB= Psychological Withdrawal Behaviour; WLB= Work-Life Balance; EE= Emotional Exhaustion; SP= Segmentation Preference, N=281, Correlation is significant at the 0.01 level (2-tailed)

Regression Analysis

Linear regression findings shown below in Table 3, indicated that mobile work was a negative predictor for WLB ($\beta = -0.459$, $p < 0.001$, $R^2 = 20.2\%$) and a positive predictor for PWB ($\beta = 0.490$, $p < 0.001$, $R^2 = 21.8\%$). It also had a significant positive impact on EE ($b = 0.431$, $p < 0.001$, $R^2 = 25.1\%$). EE was a significant predictor of withdrawal behaviour ($b = 0.761$, $p < 0.001$), whereas WLB was a significant negative predictor ($b = -0.746$, $p < 0.001$, $R^2 = 52.8\%$). These outcomes both confirm H1 and emphasise the devastating effect of MW on destabilising balance and well-being and, therefore, causing withdrawal.

Table 3
Regression Analysis

Variables and Impacts	Beta	S.E	R ²	T	Sig
Mobile Work → Psychological Withdrawal Behaviour	0.490	0.056	0.218	8.815	<0.001
Emotional Exhaustion → Psychological Withdrawal Behaviour	0.761	0.057	0.388	13.299	<0.001
Mobile Work → Work-Life Balance	-0.459	0.055	0.202	-8.391	<0.001
Mobile work → Emotional Exhaustion	0.431	0.045	0.251	-9.675	<0.001
Work-Life Balance → Psychological Withdrawal Behaviour	-0.746	0.042	0.528	-17.679	<0.001

Note: $N = 281$, $p < 0.01$

Mediation Analysis

Mediation analysis, using PROCESS with 5,000 bootstrap samples, indicated that mobile work was also found to be a momentous predictor of PWB (LLCI = 0.0340, ULCI = 0.2241), which supported H1. The effect of work-life balance dampened this relationship and the effect varied across levels of segmentation boundary management preference and the significant index of mediated moderation (LLCI = 0.0563, ULCI = 0.2102) confirmed H2 and H4. The relation with MW to PWB was also mediated by emotional exhaustion (LLCI = 0.0144, ULCI = 0.0958) thus confirming H3. Finally, mediation of series of WLB and EE had a significant impact justifying H5.

Table 4
Mediation Analysis Results

Effect	Effect	SE	p	LLCI	ULCI
Total Effect (Direct + Indirect)					
Direct Effect (MW → PWB)	0.1291	0.0483	0.0080	0.0340	0.2241
Indirect Effect 1 (MW → WLB → PWB)					
at SP = -0.6571	0.0919	0.0413		0.0146	0.1817
at SP = 0.0000	0.1824	0.0416		0.1055	0.2710

at SP = 0.6571	0.2729	0.0556		0.1720	0.3864
Index of Moderated Mediation (SP moderating)	0.1377	0.0394	0.0563	0.0563	0.2102
Indirect Effect 2 (MW → EE → PWB)					
at SP = -0.6571	0.0018	0.0167		-0.0256	0.0407
at SP = 0.0000	0.0243	0.0155		0.0017	0.0615
at SP = 0.6571	0.0467	0.0209		0.0114	0.0958
Index of Moderated Mediation (SP moderating)	0.0341	0.0164		-0.0047	0.0694
Serial Indirect Effect (MW → WLB → EE → PWB)					
at SP = -0.6571	0.0140	0.0073		0.0010	0.0308
at SP = 0.0000	0.0278	0.0098		0.0113	0.0470
at SP = 0.6571	0.0416	0.0140		0.0170	0.0708
Index (Serial Moderated Mediation)	0.0210	0.0083		0.0064	0.0389

Note: N=281 MW = Meaningful Work; WLB = Work-Life Balance; EE = Employee Engagement; PWB = Psychological Well-being; SP = Supervisor Support. LLCI = Lower Level Confidence Interval; ULCI = Upper Level Confidence Interval.

Moderation Analysis

The moderation analysis found that the undeviating outcome of MW on WLB was non-significant (LLCI = -0.4498, ULCI = -0.2151) whereas SP was significantly positive (LLCI = -0.4628, ULCI = -0.1541). Importantly, the relational outcome of MW and SP on WLB was significant (LLCI = -0.3802, ULCI = -0.1218) and thus confirming H4. These findings validate that more divided employees are less distressed regarding the mobile work to work-balance, stating the section preference as a moderator. The analysis is presented in Table 5.

Table 5
Segmentation Preferences on MW→WLB

Variables	β	S.E.	T	P	LLCI (95%)	ULCI (95%)
Constant	2.8024	0.0467	59.9932	< .001	2.7105	2.8944
Mobile Work (MW)	-0.3325	0.0596	-5.5783	< .001	-0.4498	-0.2151
Segmentation Preference (SP)	-0.3085	0.0784	-3.9337	< .001	-0.4628	-0.1541
MW × SP (Interaction)	-0.2510	0.0656	-3.8237	< .001	-0.3802	-0.1218

Note: N = 74, p < 0.01, MW = Mobile Work, WLB = Work-Life Balance, SP = Segmentation Preference Factor

Discussion

The literature on this study is helpful in that it supports and broadens what has been researched elsewhere. In line with previous studies, MW was identified to lower WLB and increase EE that further predicted PWB (Brown and Palvia, 2015; Kotera et al., 2021; Nauman et al., 2020). This is in stripe with the predictions of the JD-R model that technology-driven demands drain the individual resources and destroy well-being. The current research however builds upon this body of knowledge by experimenting a serial mediation model- demonstrating that MW weakens WLB which then spills over to EE and ultimately leads to PWB. Although previous researchers had analyzed these relationships individually (i.e., WLB - EE, EE - withdrawal), no one had considered them to be linked in a sequential manner particularly in a collectivist and resource-restricted context like Pakistan.

The moderation findings are also insightful as they enlighten us on the time when negative impacts of MW on WLB are most effective. SP acted as a strong buffer to the relationship between MW-WLB, indicating that the employees who hold high expectations of strong boundaries are also less susceptible to the commingling effects of work on personal life. This conclusion reminds Boundary Theory (Nippert-Eng, 1996; Haun et al., 2022) but takes a step further and proves the protective effect of SP in the situation when cultural and organizational values frequently promote the idea of always being available. Mediation and moderation therefore show some complementary processes: whereas mediation emphasizes the role of MW in undermining well-being and engagement, moderation shows to whom these processes are moderated.

These results are contextually important to highlight the unique issues in the education and healthcare sectors of Pakistan. Online teaching and telehealth services have been accelerated due to the pandemic and made after-hours digital interaction an ordinary practice. The blurred boundaries are especially expensive in collectivist societies with family commitments, where WLB strains and avoids by withdrawing. This paper thus not only points to general theoretical mechanisms, but also the increased vulnerability of workers in resource-limited environments, where legal rights to disconnect do not exist (PTA, 2023; Digital Rights Foundation, 2023).

Theoretical Implications

This study has numerous theoretic offerings. First, it is an extension of the JD-R theory where MW is conceptualized as the technology-based job demand in the digital workplace environment. Unlike the challenging demands such as workload or role conflict, MW gives an explanation on how digital interconnectivity drains the resources, and leads to pressure, thus where the JD-R theory can be applied to the digital era. Second, the inclusion of the Boundary Theory allows the research to shed light on the role the SP plays in mediating the relationship between MW and WLB, and

show that high segmentation preferences employees are able to neutralize the negative outcomes of MW thus making personal boundary management even more significant. Third, it extends the knowledge on the psychological withdrawal behaviour (PWB) by disentangling emotional exhaustion (EE) as the central mediator of MW-WLB-EE-PWB chain, as it has been found to result in a more complete understanding of how digital pressures lead into withdrawal. Fourth, the study focuses on employees working in education and the healthcare sector in Pakistan, where there are fewer organisational structures that support digital well-being, and this provides an excellent body of cultural understandings about the perceptions of MW in developing markets.

Practical Implications

The implications have suggestions on what should be done by policymakers, managers, and organisations in general. Explicit out-of-hours connectivity policies, e.g. right to disconnect policies, can help to limit the spillover of mobile work in to personal life, therefore protecting work -life balance and avoiding exhaustion. Secondly, the employees can be helped with training them to understand ways to practice boundary management like deactivating notifications or having different devices to the ones that are used at work. Third, the managers should lead by example by avoiding after-work communication to establish healthy norms that would not breach individual boundaries. Fourth, there are wellbeing activities such as counseling, mindfulness, and flexible work systems which can give the employees the tools they need to recover and de-stress. Finally, additional, disguised compensations such as staffing cushions and electronic well-being guidelines are also required in high-demand sectors, including the healthcare sector and pedagogics, where mobile work increased emotional labor. Combined, these practices will help reduce the drawbacks of working-on-the-move without losing the benefits of mobility and productivity.

Limitation and Directions

Despite its contribution, this research is limited in some aspects that can be used to conduct further research. The cross-sectional design constrains the causal inference and future research in terms of longitudinal or diary study can be conducted to take note of dynamic influences of MW, WLB, EE, and PWB. The reliance on self-report could also bring about standard approach bias and future studies should have multi-source data or objective measures such as rater/supervisor data or mobile usage data. The purpose of the study on the Lahore, Pakistani healthcare and education personnel limits its generalizability, and additional studies must be conducted so that the relationships would be studied across industries and cultures. Although the moderator of SP was also explored, other factors such as resilience, personality, or digital literacy could be considered and other mediators like work-family conflict, detachment, and sleep. Finally, with the growing development of digital technologies, the research is obliged to examine how the developing tools and forms of connectivity

can rearrange boundaries and whether existing theories based on the JD-R remain adequate to explain them.

Conclusions

The proposed work grants knowledge on the influence of MW on the well-being and behaviour of employees through a moderated serial mediation hypothesis in the education and healthcare sectors of Pakistan. This has been proven as MW compromises WLB that contributes to EE and eventual PWB. These findings confirm JD-R Model of demand-strain-outcome sequence with an extra addition of Boundary Theory. Particularly, the information which, as per, is mediated by the SP, is concerned with the defense side of the personal strategy of the management of the personal boundary in the case, wherein, the organizational cultures and social norms have been predisposed to support the idea of constant affiliation.

Theoretically, the study is significant as it demonstrates that MW influences the well-being not only directly but also has a transmissive aspect (the processes of psychology are interconnected). The MW-WLB-EE-PWB sequence chains the a priori broken knowledge of how digital requirements will be decoupled into what could better be thought of as a process. In addition, by framing these relations within a non-Western, resource-constrained setting, JD-R and Boundary Theory are stretched to the limits of the Western testing environments that predominate, and their importance in collectivist cultures whereby family commitments and poor protection of digital-rights exacerbate the work-life interface are highlighted.

In practice, the research highlights the dire necessity of organizations in the education and the healthcare sector implementing policies and practices that safeguard digital boundaries. The risks of MW can be reduced with the help of leadership support, workload regulation, and institutional strategies of digital wellness that will still allow enjoying the advantages of MW as the means of flexibility and responsiveness. The individual level may be well served with interventions that enhance the segmentation skill of employees, which will help in cushioning the work life encroachment.

In the future, longitudinal research should study these dynamics but need to be done in future studies to understand the nature of MW changing over time and be able to compare cross national settings with dissimilar digital policy protections. This kind of enquiry will play a decisive role in making sure that productivity gains of mobile work are not realised at the cost of the well-being of the employees and long-term organizational sustainability.

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