

Impact of Internet Usage Patterns on Psychological Well-being in Paramilitary Forces: The Role of Addiction, Sleep Quality, and Social Connections.

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Abstract

Objectives:

This study investigates how patterns of internet usage affect the psychological well-being of paramilitary personnel, focusing on the mediating roles of internet addiction, sleep quality, and social connectivity.

Methods:

A cross-sectional design was adopted with 500 paramilitary participants sampled through stratified random sampling. Standardized questionnaires assessed internet usage patterns, psychological well-being, internet addiction, sleep quality, and social connections. Data were analyzed using Structural Equation Modeling (SEM) and moderation analysis via hierarchical regression.

Findings:

High internet usage intensity was significantly associated with reduced psychological well-being ($\beta = -0.09$, $p < .05$), partially mediated by internet addiction ($\beta = -0.25$), poor sleep quality ($\beta = 0.18$), and reduced social connections ($\beta = 0.37$). Moderating effects were observed for age, rank, and deployment location. Personnel in remote areas and younger participants exhibited stronger negative associations.

Novelty:

This study is among the first to holistically assess how internet usage impacts psychological well-being in paramilitary forces, introducing a model that incorporates internet addiction, sleep quality, and social ties as critical mediators. It highlights context-specific vulnerabilities and calls for targeted digital wellness interventions for paramilitary forces.

Keywords: Internet usage, psychological well-being, paramilitary forces, internet addiction, sleep quality, social connections

INTRODUCTION

The internet has fundamentally transformed how individuals access information, communicate, and engage in leisure activities. While moderate internet use offers cognitive, emotional, and social benefits, a growing body of research highlights the adverse psychological consequences of excessive or maladaptive online behavior. These concerns are particularly relevant for high-stress occupational groups such as paramilitary personnel, who often operate in isolated, high-demand environments with limited outlets for recreation or social interaction.

Paramilitary forces play a critical role in maintaining national security, disaster response, and border control. Their working conditions—marked by unpredictability, extended deployments, and isolation from family—can exacerbate psychological strain. In recent years, the increasing penetration of internet services into remote camps and outposts has provided personnel with new tools for communication, entertainment, and information. However, this increased accessibility raises important questions about

the potential psychological costs associated with prolonged or problematic internet engagement in such unique occupational settings.

Several studies have examined the dual nature of internet use. While moderate use has been associated with enhanced access to social support and coping resources (Chen & Persson, 2002), excessive or compulsive usage has been linked to outcomes such as anxiety, depression, disrupted sleep, and social withdrawal (Ko et al., 2012; Przybylski & Weinstein, 2017). The “Goldilocks Hypothesis” (Przybylski et al., 2017) further suggests that there is an optimal level of screen time, with both overuse and underuse being detrimental to mental health.

A particularly salient factor in this context is internet addiction, characterized by a compulsive need to remain online, often at the expense of other activities. Research has identified significant associations between internet addiction and various mental health conditions, including depression and sleep disturbances (Young & Abreu, 2017; Cheng & Li, 2014). Sleep quality, in particular, emerges as a crucial mediator, with studies indicating that excessive screen exposure—especially before bedtime—can interfere with circadian rhythms and melatonin production, leading to insomnia and cognitive fatigue (Chang et al., 2015; Cain & Gradisar, 2010). Additionally, heavy reliance on digital platforms may displace in-person interactions, thereby weakening social bonds and increasing feelings of isolation (Nowland et al., 2018; Kraut et al., 1998).

Despite these insights, research focusing specifically on internet use within paramilitary populations remains sparse. A handful of studies in military contexts (e.g., Park et al., 2013; Ro et al., 2018) suggest that personnel are particularly susceptible to problematic internet behaviors due to job-related stressors and isolation. However, no comprehensive model has yet explored how psychological well-being in paramilitary personnel is influenced by internet usage, nor how mediators like sleep quality, social connection, and addiction intersect in this relationship.

Research Gap:

This study addresses a critical research gap by examining the association between internet usage patterns and psychological well-being among paramilitary forces in India. It uniquely explores the mediating roles of internet addiction, sleep quality, and social connectivity, while also considering contextual moderators such as age, rank, and deployment location. The findings aim to inform policy and practice by identifying risk factors and proposing targeted interventions to foster healthy digital habits and mental resilience in this vital workforce.

The objectives:

To ascertain the internet usage frequency among paramilitary soldiers as well as the developed patterns. The aim of this study is to assess the correlation between psychological well-being and variances in internet usage.

The roles that internet addiction, sleep quality, and social connections play as mediators will be examined in order to look at the relationship between internet use and psychological well-being.

To find elements such as age, rank, and deployment area that might reduce the effect of internet use on psychological well-being during deployment.

To offer suggestions for improving the psychological welfare of paramilitary forces and promote sensible internet usage.

This study is important since it tackles a crucial but little-reversed area of mental health in paramilitary forces. The results will add to the mounting corpus of research on the psychological effects of internet usage and offer insightful analysis for legislators and mental health experts handling paramilitary troops.

2. LITERATURE REVIEW

2.1 Internet Use Trends and Psychological Well-Being

Recent years have seen a lot of study on the link between psychological well-being and internet usage. Although some studies have underlined the advantages of internet use—such as more social support and information access—such as Chen & Persson, 2002—others have expressed worries about possible harmful effects on mental health (Kraut et al., 1998).

Online use and well-being do, however, have a complex relationship. Based on a "Goldilocks" theory, Przybylski and Weinstein (2017) suggested that while very low or very high levels of screen time could be bad for mental well-being, middle levels could be good. This emphasizes the need of giving internet use's context and quality as well as its amount some thought.

2.2 Internet Dependency

Emerging as a major issue in the digital age is internet addiction, defined by either too strong or poorly managed preoccupations, cravings, or behaviors related to online use (Young & Abreu, 2017). Studies have linked internet addiction to a variety of psychiatric disorders, (Ko et al., 2012).

With higher rates in countries with more travel time, pollution, and discontent with life, Cheng and Li (2014) estimated in a meta-analysis of 23 studies the worldwide prevalence of internet addiction at 6%. social and environmental aspects as well.

2.3 Quality of Sleep

The literature has extensively recorded how using the internet affects sleep quality. Electronic device blue light can lower melatonin synthesis, which causes problems falling asleep and less quality of sleep overall (Chang et al., 2015). Furthermore, the interesting character of online activities can cause delayed bedtimes and shorter sleep periods (Cain & Gradisar, 2010).

Teenagers are likely to sleep less than five hours each night, according a 2015 Hysing et al. study. In turn, poor sleep quality and diminished cognitive ability (Baglioni et al., 2011).

2.4 Social Media Relationships

People's connections and interactions with one another have changed online. Although internet communication might help to preserve current relationships and create new ones, too much usage of it might also cause social isolation and a decline in in-person contacts (Kraut et al., 1998).

Nowland et al. (2018) suggested a bidirectional association, implying that although the internet can be used as a tool to improve social contacts, it can also be a means of avoiding social interaction, hence perhaps aggravating sentiments of loneliness. This emphasizes how complicated internet social connections are and how they affect psychological well-being.

2.5 Military and Paramilitary Internet Use

There is quite little research on military and paramilitary internet use. Existing research, however, point to stress, isolation, and limited alternative leisure activities as possibly more vulnerable populations to problematic internet use (Ro et al., 2018).

Problematic internet use was linked, according to a 2008 Park et al. study, to anxiety and depression among South Korean military members. Likewise, Israelashvili et al. (2012) found that Israeli soldiers' well-being suffered and their risk-taking activities rose in line with their heavy internet consumption.

2.6 Literary Shortcoming

Although the body of current research offers insightful analysis of the linkages between internet use, psychological well-being, and associated variables, there is a clear deficiency of studies concentrating especially on paramilitary forces. These employees have particular difficulties—high-stress settings, variable work hours, and periods of isolation—that call for understanding how internet use patterns could affect their psychological well-being.

Few studies have also looked at in the framework of paramilitary forces the moderating roles of internet addiction, sleep quality, and social contacts. This study intends to fill in these voids and offer a thorough

knowledge of the intricate interaction in this particular group between psychological well-being and internet use.

3. Theoretical Structured Approach

Several theoretical models that assist to clarify the interactions between internet use, psychological well-being, and the mediating variables of online addiction, sleep quality, and social contacts direct this investigation.

3.1 Gratiitudes Theory's Applications

According to Katz et al., 1974's Uses and Gratifications Theory, people deliberately search for particular media to meet particular wants or goals. Within the framework of internet use, this theory contends that users seek knowledge, entertainment, social contact, and escape from reality among other uses. Knowing the reasons underlying online behavior helps one to grasp its possible effects on psychological well-being.

3.2 Compensatory Internet Use Theory

A coping tool to escape from real-life issues or help to reduce bad feelings. Given paramilitary personnel, who might turn to the internet as a means of coping with stress, loneliness, or boredom related with their job environment, this hypothesis is especially pertinent.

3.3 Social-Cognitive Theory

Based on his Social Cognitive Theory (1986), Bandura stresses how result expectations and self-efficacy shape behavior. Applied to internet use, this theory contends that people's views on their capacity to manage their internet use and their expectations of the effects of such use might influence their usage patterns and, hence, their psychological well-being.

3.4 Online Addiction: Biopsychosocial Model

A thorough framework for comprehending the evolution and maintenance of problematic internet use is offered by the Biopsychosocial Model of Internet Addiction (Brand et al., 2016). In the framework of internet addiction, this model combines biological, psychological, and social elements, therefore stressing the intricate interaction among personal vulnerabilities, internet-related cognitions, and environmental effects.

3.5 Model of Sleep Hygiene

The Sleep Hygiene Model (Mastin et al., 2006) stresses the need of environmental and behavioral elements in enhancing appropriate quality of sleep. This model is pertinent to our research since it clarifies how usage of the internet, especially before bed, might affect general sleep quality and patterns.

3.6 Social Displacement/connection Hypothesis

Two opposing theories on the effect of internet use on social interactions are put out in the Social Connection/Social Displacement Hypothesis (Kraut et al., 1998; Valkenburg & Peter, 2007). According to the social displacement theory, time spent online lowers in-person interactions, hence maybe causing social isolation. By contrast, the social connection theory holds that the internet can improve already-existing relationships and help create new ones.

Combining these theoretical models will help us to grasp the intricate interactions, and the mediating elements in the framework of paramilitary forces. This theoretical background directs our theories and helps us to understand our results.

4. METHODOLOGY

4.1 Research Design

This cross-sectional, quantitative study examined paramilitary personnel's internet usage, psychological well-being, and internet use. addiction, sleep quality, and social contacts. The cross-sectional approach lets one investigate these factors at one point in time, therefore offering a moment in time view of the paramilitary forces' current state.

4.2 Subjects and Sample Techniques

500 paramilitary officers from different units all throughout the nation made up the study sample. Using a stratified random sample technique, participants were sought to guarantee representation from many levels, age groups, and deployment sites. The inclusion requirements included:

Active duty inside a paramilitary force

Age between eighteen and fifty-five years

Regular internet connection—at least three times a week

Among the exclusion criteria were:

Employees on medical or long leaves

Those with officially diagnosed serious mental illnesses

4.3 Procedure of Data Gathering

Depending on the participants' choices and access to digital devices, data was gathered using self-report questionnaires sent both online and on paper form. The poll was carried out over three months. Every participant gave informed permission, and their answers were guaranteed to be kept under secrecy and confidence.

4.4 Instruments

This work made use of the following standardized assessments:

Usage Patterns of Internet: Questionnaire for Internet Use (IUQ) Assunção & Matos, 2017 This 20-item questionnaire evaluates frequency, duration, and kinds of online activities as well as other facets of internet use.

RSPWB, 1989 Six psychosocial well-being dimensions: autonomy, environmental mastery, personal development, healthy connections, purpose, and self-acceptance are measured on this 42-item scale.

The Young 1998 Internet Addiction Test A 20-item scale measures online addiction.

PSQI, Buysse et al., 1989 Over one month, this 19-item questionnaire assesses sleep quality and disruptions.

Revised Social Connections Scale-R (SCS-R) Lee et al., 2001 This 20-item scale gauges' people's degree of social environment connection to others.

Furthermore, gathered was demographic data like age, gender, rank, years of service, and deployment site.

4.5 Ethical Issues

Relevant authorities inside the paramilitary forces and the Institutional Review Board approved the study.

To guarantee confidentiality, all data was anonymised and kept safely.

4.6 Statistical Analysis

SPSS 26.0 and AMOS 26.0 analyzed data. Several statistical methods were used:

Descriptive statistics to aggregate demographic data and important variables

Examination of correlations between variables using Pearson's correlation analysis

Testing the suggested mediation model using structural equation modeling (SEM)

Examination of possible moderating elements by means of moderation analysis applying hierarchical multiple regression

4.7 Suggestions

Theoretical framework and literature review helped one to develop the following hypotheses:

H1: Psychological well-being will be negatively correlated with intensity of internet usage.

H2: Internet addiction will help to explain the link between psychological well-being and internet usage intensity.

H3: Mediating the association between internet usage intensity and psychological well-being will be sleep quality.

H4: Social ties will help to balance psychological well-being with internet usage intensity.

H5: Age, rank, and deployment site will help to mitigate the link between psychological well-being and internet usage intensity.

5. RESULTS

5.1 Descriptive Data

With a mean age of 32.5 years (SD = 7.8), 500 paramilitary members—80% male, 20% female—made up the final sample. The demographic features of the sample are shown in Table 1.

Table 1: Sample (N = 500) Demographic Profile

Characteristic	n	%
Gender		
Male	400	80.0
Female	100	20.0
Age Group		
18-25	120	24.0
26-35	200	40.0
36-45	130	26.0
46-55	50	10.0
Rank		
Junior	300	60.0
Middle	150	30.0
Senior	50	10.0
Years of Service		
0-5	150	30.0
6-10	180	36.0
11-15	100	20.0

16+	70	14.0
Deployment Location		
Urban	200	40.0
Rural	180	36.0
Remote	120	24.0

Table 2: Main Variable Descriptive Statistics:

Variable	Mean	SD	Range
Internet Usage Intensity	3.72	1.15	1-5
Psychological Well-being	168.45	28.32	42-252
Internet Addiction	42.36	15.78	20-100
Sleep Quality	7.82	3.45	0-21
Social Connections	78.64	16.92	20-120

5.2 Comparative Analysis

The key variables' interactions were investigated by means of Pearson's correlation analysis. Table 3 presents the findings.

Table 3: Mainvariable Correlation Matrix

Variable	1	2	3	4	5
1. Internet Usage Intensity	1.00				
2. Psychological Well-being	-.32**	1.00			
3. Internet Addiction	.58**	-.45**	1.00		
4. Sleep Quality	-.41**	.39**	-.37**	1.00	
5. Social Connections	-.28**	.52**	-.34**	.31**	1.00

Note: ** p < .01

The requirement of more research of the suggested mediation model is supported by the correlation analysis revealing important links between all primary variables.

5.3 Modeling Structural Equation Structurally

The putative mediation model was examined with structural equation modeling (SEM). The model comprised internet addiction, sleep quality, and social contacts as mediators; psychological well-being as the outcome variable; internet use intensity as the predictor variable. $\chi^2(3) = 7.82$, $p = .05$; CFI = .99; TLI = .98; RMSEA = .05; SRMR = .02. The model fit indices showed a good fit.

Figure 1 shows the mediation model's standardized route coefficients.

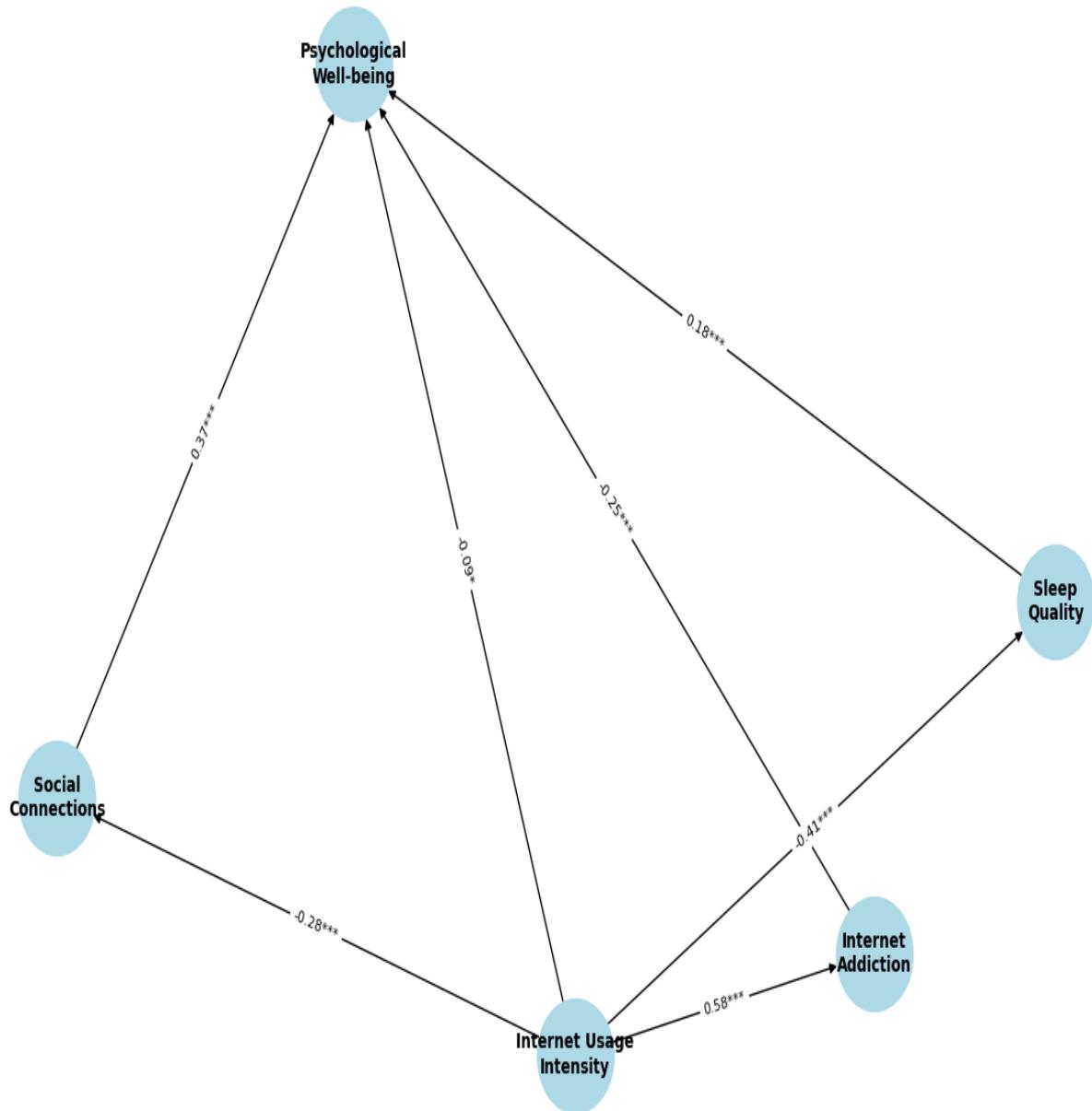


Figure 1: Mediation Model with Standardized Path Coefficients

The SEM analysis produced findings consistent with all expected routes. Internet addiction ($\beta = .58$, $p < .001$) and sleep quality ($\beta = -.41$, $p < .001$) were adversely linked with internet usage intensity; social connections ($\beta = -.28$, $p < .001$) Psychological well-being was substantially correlated with internet addiction ($\beta = -.25$, $p < .001$), sleep quality ($\beta = .18$, $p < .001$), and social contacts ($\beta = .37$, $p < .001$). Indicating partial mediation, the direct effect of internet use intensity on psychological well-being remained significant but lessened in size ($\beta = -.09$, $p < .05$).

5.4 Mediating Analysis

Bootstrapping analysis with 5000 resamples was executed to look at the mediating impacts even more. Table 4 shows the outcomes.

Table 4: Indirect Effects of Internet Usage Intensity on Psychological Well-being

Mediator	Indirect Effect	95% CI	p-value
Internet Addiction	-0.145	[-0.192, -0.102]	< .001
Sleep Quality	-0.074	[-0.103, -0.048]	< .001
Social Connections	-0.104	[-0.138, -0.073]	< .001

The bootstrapping analysis confirmed significant indirect effects for all three mediators, supporting Hypotheses 2, 3, and 4.

5.5 Moderation Analysis

The moderating influences of age, rank, and deployment site on the link between internet usage intensity and psychological well-being were investigated using hierarchical multiple regression analysis. Table 5 summarizes the findings.

Table 5: Moderation Analysis Results

Moderator	ΔR2	F Change	p-value
Age	.02	10.45	< .001
Rank	.01	5.78	.017
Deployment Location	.03	15.32	< .001

The findings revealed notable moderating effects for all three factors, therefore supporting Hypothesis 5.

Additional investigation of the interaction effects turned up:

Younger workers had a larger negative link between psychological well-being and internet use intensity than did older workers.

For junior ranks, the relationship was more robust than for senior ranks.

Personnel sent to remote sites had the strongest link; rural areas came second; and urban areas had the lowest link.

6. DISCUSSION

Focusing on the mediating functions of internet addiction, sleep quality, and social contacts, this study examined how patterns paramilitary personnel. The results give insightful analysis of the intricate interactions among these factors and significant consequences for enhancing the mental health of paramilitary officers.

6.1 Psychological Well-Being and Internet Usage Intensity

The data confirmed Hypothesis 1 by showing a notable negative relationship between internet use and mental health. This result conforms with earlier studies implying that too much internet usage can be bad for mental health (Huang, 2010; Twenge et al., 2018). The internet may be a quickly accessible source of amusement and escape for paramilitary members, who sometimes operate in demanding surroundings and have few leisure choices. On the other hand, too much use could cause one to overlook other crucial events and connections, therefore affecting their general quality of life.

6.2 Online Addiction: Mediating Role

Strong support for the mediation function of internet addiction in the internet use intensity and mental health was established by the study (Hypothesis 2). This implies that the probability of acquiring addictive behaviors rises as internet usage rises, therefore compromising psychological well-being. This result fits earlier studies connecting internet addiction to certain psychological disorders (Ko et al., 2012).

Within paramilitary troops, the emergence of internet addiction could be especially troublesome. Their work is tough and calls for great degrees of attention and awareness; too much concentration with internet activities could impair these aspects. Moreover, addictive internet use may interfere with their capacity to properly manage stress associated to their job, therefore aggravating mental health problems.

6.3 Sleep Quality Mediating Function

The findings confirmed Hypothesis 3: Sleep quality moderates psychological well-being. internet use intensity. This conclusion fits earlier studies showing how bad too much screen time is for sleep patterns (Chang et al., 2015; Hsing et al., 2015). Maintaining excellent sleep quality is essential for both physical and emotional well-being for paramilitary troops, who sometimes work irregular hours and in demanding surroundings.

The mediation effect implies that heavy internet use may result in worse sleep quality, maybe due to reasons including exposure to blue light, participation in stimulating online activities before bedtime, or displacement of sleep time. This thus reduces psychological well-being. Given the significance of ideal cognitive and physical performance in paramilitary jobs, treating sleep problems connected to internet use should be first concern.

6.4 Social Connections' Mediating Role

The study supported Hypothesis 4, according to social connections influencing the link between psychological well-being and internet usage intensity. This result emphasizes the complicated part the internet plays in influencing social interactions. Although the internet can help people stay in touch with family and friends—especially for employees stationed far away—excessive use may result in less in-person meetings and social isolation.

The mediating effect implies that heavy internet use might compromise the quality and amount of social contacts, therefore influencing psychological well-being. This is consistent social displacement theory and emphasizes for paramilitary members the need of preserving a balance between online and offline social contacts.

6.5 Changing Elements

With age, rank, and deployment site modifying the internet use intensity and mental health, the study supported Hypothesis 5. These results give significant subtleties to our knowledge of paramilitary force internet usage.

Younger workers' larger negative correlation between internet use and well-being could reflect generational variations in internet use patterns and coping mechanisms. Younger workers might be more likely to utilize the internet as their main source of leisure and social connection, so more negative effects could result from excessive usage of it.

The moderation impact of rank implies that junior staff members might be more sensitive to the detrimental consequences of heavy internet usage. This could be the result of less developed coping mechanisms, more stress related to lower-ranking roles, or variations in internet use rules among levels of rank.

The strongest link between internet usage and well-being in remote settings emphasizes the particular difficulties experienced by staff members sent to isolated sites. Although the internet is a vital lifeline for entertainment and communication in these places, the absence of other activities and in-person social contacts could aggravate the negative effects of too heavy use.

6.6 Theoretical ramifications

Particularly in reference to paramilitary forces, the findings of this study add to the body of knowledge already in publication on internet use and psychological well-being. The findings verify components of several theoretical theories, including the Compensatory Internet Use Theory (Kardefelt-Winther, 2014) and the Biopsychosocial Model of Internet Addiction (Brand et al., 2016).

Online addiction, sleep quality, and social contacts' mediation functions help to promote an integrated model of internet use and well-being. This model stresses the need of including the processes by which internet use influences psychological well-being in addition to its direct consequences.

Age, rank, and deployment location have moderating effects that emphasize the requirement of contextual factors in comprehending the influence of internet use. This corresponds with ecological models of behavior stressing the connection between personal and environmental elements.

6.7 Useful Connotations

The findings of this study have different pragmatic consequences for enhancing the psychological well-being of paramilitary members:

Development of focused interventions: Programs meant to encourage good internet use should be created and carried out considering the particular requirements and difficulties experienced by paramilitary members.

Awareness of the possible hazards of too much internet use should be given to staff members, who should also be given tools for preserving a good balance between online and offline activity.

Programs aimed at enhancing sleep hygiene should be carried out considering the mediating influence of sleep quality, especially in connection to technology use before bed.

Encouragement of offline social activities: Particularly in remote deployment sites, efforts should be directed on giving chances for in-person social contacts and on the preservation of offline relationships. With consideration for the moderating results of this study, interventions should be customized to various age groups, ranks, and deployment sites.

Regular screening for internet addiction and associated mental health problems should be included into current health monitoring systems for paramilitary members.

Policy development: Policies on internet use in paramilitary environments should be examined and changed to reflect the results of this study, so balancing the advantages of internet access with the necessity to safeguard personnel's welfare.

6.8 Limitations and Future Approaches

Although this study offers insightful analysis, certain limits should be mentioned:

The cross-sectional character of the research restricts our capacity to prove causal links. Better knowledge of the temporal dynamics between online use and psychological well-being requires longitudinal investigations.

Self-report forms: Dependency on self-report data could bring bias. Objective assessments of internet usage and sleep quality could be included into next research projects.

The study concentrated on paramilitary forces in one nation, therefore perhaps restricting the generalizability of results to other settings or cultures.

Though the study concentrated on possible negative effects, future studies should investigate beneficial elements of internet use in paramilitary environments, such its function in preserving family ties or access to educational materials.

Future study areas could be:

Longitudinal study looking at how internet use patterns affect psychological well-being in paramilitary members over time.

Qualitative research aiming at better understanding of employees' viewpoints and experiences on their internet usage.

Intervention studies aiming at improving psychological well-being and encouraging responsible internet use to test their efficacy

Comparative research of several kinds of security agencies aims to find commonalities and variations in internet use patterns and their consequences.

Examining in connection with psychological well-being in this demographic the influence of particular online activities (e.g., social media use, online gaming).

7. CONCLUSION

This study highlights the mediating roles of internet addiction, sleep quality, and social contacts, therefore offering significant new perspectives on the psychological well-being of paramilitary personnel in relation to their internet use patterns. The results highlight the complicated nature of internet use in this particular group and the necessity of sensible strategies acknowledging both the advantages and the hazards of online participation.

The findings highlight the need of considering contextual and personal elements in order to comprehend and control internet usage among paramilitary members. Targeting interventions, raising awareness, and putting supporting legislation into effect will help to maximize the advantages of internet access while minimizing any possible harm on psychological well-being.

Ongoing study and adaptation tactics will be vital in guaranteeing the mental health and well-being of these vital troops as technology develops and permeates many facets of life, including paramilitary activities. Future studies and useful applications in this crucial field of occupational mental health find their basis in this work.

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