
Unveiling Regional and Gender Disparities in Digital Device Use and its Well-being Impact

Dr. Renjith R,

¹Assistant Professor, Department of Commerce, Prajyoti Niketan College, Pudukad, Thrissur.

Dr. Arundev P R,

²Assistant Professor, Department of Business Administration, Sree Narayana Arts and Science College, Kumarakam, Kottayam.

Dr Renjith K P

³Associate Professor, Department of Management Studies
Cochin Arts and Science College Manakkakadavu, Kakkanad Ernakulam, Kerala

S. Shafeek

⁴Full time Research Scholar, CMS Academy of Management and
Technology, Chinnavedampatti, Coimbatore -49

How to cite this article: Dr. Renjith R, Dr. Arundev P R, Dr. Renjith K P, S. Shafeek (2023) Unveiling Regional and Gender Disparities in Digital Device Use and its Well-being Impact. Library Progress International, 43(2), 621-629

Abstract

The proliferation of digital devices has revolutionized connectivity and access to information, yet concerns persist regarding its impact on psychological well-being. This study investigates regional disparities in digital device use and its influence on well-being, with a focus on gender differences. Through a sample of 362 participants from urban, semi-urban, and rural areas, the study examines overuse, non-restraint, inhibition of life flow, emotional states, and dependence on digital devices. Findings reveal significant regional disparities in overuse, non-restraint, and inhibition of life flow, while gender differences are observed in overuse. These results underscore the complex interplay between digital device use, regional context, and gender dynamics in shaping well-being.

Keywords: Digital Device, Well-being, Non-restraint, Inhibiting flow of life

Introduction
In the age of digital revolution, devices such as smartphones, tablets and computers have become ubiquitous, facilitating unprecedented connectivity and access to information. However, the impact of pervasive digital device use on psychological well-being has emerged as a crucial area of concern. Existing research posits that overuse of digital technology can

affect the flow of life, emotional state, and overall well-being. Moreover, the interplay between digital device dependence and well-being might be influenced by regional disparities rooted in varying access levels, cultural practices, and infrastructure. This study aims to unveil regional disparities in digital device use and identify potential gender differences in its impact on wellbeing. The study investigates whether significant variations exist in digital device overuse, nonrestraint in usage and the resulting inhibition to the flow of life, emotional states, and dependence on these devices across urban, semi-urban, and rural areas. Furthermore, this article will assess whether gender plays a role in defining these aspects of digital device use and its psychological implications.

Review of literature

Digital devices have become an integral part of our daily lives, providing us with various functionalities and easy access to information. At the same time, the excessive use of digital devices and technology addiction have become growing concerns. (Lissak, 2018) (Vadim et al., 2013) The research on digital addiction and its impact on well-being is still an emerging field, with most studies focusing on adults rather than adolescents. (Qureshi, 2014) (Meng et al., 2022). According to a study on gender differences in associations between digital media

use and psychological well-being, males tend to be more addicted to social media compared to females. (Booker et al., 2018) On the other hand, another study on the use of social media by Australian preadolescents found that females reported more body image concerns and eating pathology than non-users but did not differ in depressive symptoms or social anxiety (Twenge & Martin, 2020). Regarding regional disparities in digital device use, several studies have highlighted significant variations in access and usage patterns across different geographic areas. (Hamza et al., 2019) studies found that rural areas often have limited access to highspeed internet and advanced digital devices compared to urban areas. This discrepancy in access can contribute to disparities in digital device use and technological proficiency, impacting various aspects of daily life, including education, healthcare, and employment opportunities. In addition to regional variances, gender differences in digital device use and addiction have been a subject of growing interest. Research demonstrated that while males and females use digital devices extensively, their usage patterns and behaviors exhibit noticeable distinctions. For instance, males were found to be more inclined towards gaming addiction, while females showed a greater tendency towards social media addiction and frequent use of communication apps. (Chen et al., 2017) It is important to note that most of the existing research in this area has been correlational and focused on adults, limiting our understanding of the specific dynamics and influences that contribute to gender differences in digital device use and addiction among adolescents.

There is limited research specifically examining the regional disparities in the well-being impact of digital device use. However, the existing literature on digital device use and its impact on well-being does suggest that individuals in different regions may experience varying levels of well-being based on their access to and use of digital devices (Dienlin & Johannes, 2020). Evidence from various sources suggests that regional disparities in digital device use do exist. For example, a study showed that individuals in urban areas tend to have higher smartphone ownership and usage rates than those in rural areas. It is found that individuals in semi-urban regions have a higher prevalence of digital device addiction compared to their rural counterparts (Hamza et al., 2019). There are significant differences in non-restraint across different regions. Research in this area is limited, and few studies

specifically examine regional disparities in non-restraint. However, studies on digital device use and self-control suggest that individuals in urban areas may have higher levels of non-restraint than those in rural areas due to greater exposure to technology, higher availability of digital resources, and increased social pressure to be connected constantly. (Sapienza et al., 2023). There are significant differences in inhibiting the flow of life across different regions. Limited research exists on regional disparities in inhibiting the flow of life due to digital device use. Individuals in different regions may experience varying levels of flow due to factors such as access to digital resources, internet connectivity, and cultural norms regarding work-life balance (Taewoo, 2013). Research has shown that individuals in urban areas may have higher levels of flow as they are more likely to have access to a wide range of digital resources such as entertainment, social media, and online shopping (Widyanarko, 2018). In contrast, individuals in rural areas may have limited access to such resources, resulting in lower flow levels and a greater emphasis on traditional activities. The examination of regional disparities in digital device use and its impact on wellbeing highlights the multifaceted nature of these relationships.

Objective:

To Unveiling Regional Disparities in Digital Device Use and its Well-being Impact
Hypotheses Results:

H₁: There are significant differences in over use of digital devices across different region H₂:

There are significant differences in non-restraint across different region

H₃: There are significant differences in inhibiting flow of life across different region

H₄: There are significant differences in emotional state across different region

H₅: There are significant differences in dependence across different region

Research Methodology

A convenient sampling approach was used to find 362 participants across three regions (urban, semi-urban and rural) to explore potential variations in digital device overuse and its impact on well-being. Well-structured questionnaires assessed overuse, non-restraint, disruption to daily life, emotional state, and dependence on devices. One-way ANOVA tests revealed no significant regional differences in these factors. Independent samples t-tests identified a gender difference, with males exhibiting higher overuse compared to females.

ANALYSIS AND FINDINGS

The hypothesis test, if the over use of digital devices differ across different region. Participants were divided in to three group (Group 1: Urban, Group 2: Semi Urban, Group 3: Rural). The ANOVA results suggest that the over use of digital devices scores of the group differ significantly. ($F_{2, 359} = 2.219$, $p < .005$).

Table No. 1 One way ANOVA results of OV

Region	Mean	Std. Deviation	F	Sig.
Urban	14.7727	2.87736	2.219	.040
Semi urban	13.3879	3.22450		
Rural	12.6743	3.14628		

Source: Primary data

The hypothesis test, if the non-restraint differs across different region. Participants were divided in to three group (Group 1: Urban, Group 2: Semi Urban, Group 3: Rural). The ANOVA results suggest that the non-restraint scores of the group differ significantly. ($F_{2, 359} = .631$, $p < .005$).

Table No. 2 One way ANOVA results of NR

Region	Mean	Std. Deviation	F	Sig.
Urban	7.0545	2.68110	.631	.042
Semi urban	8.5333	2.55078		
Rural	8.6171	2.65155		

Source: Primary data

The hypothesis test, if the inhibiting flow of life differs across different region. Participants were divided in to three group (Group 1: Urban, Group 2: Semi Urban, Group 3: Rural). The ANOVA results suggest that the inhibiting flow of life scores of the group differ significantly. ($F_{2, 359} = 1.084, p < .005$).

Table No. 3 One way ANOVA results of IF

Region	Mean	Std. Deviation	F	Sig.
Urban	13.7727	2.87736	1.084	.039
Semi urban	12.3879	3.22450		
Rural	12.6743	3.14628		

Source: Primary data

The hypothesis test, if the in emotional state differ across different region. Participants were divided in to three group (Group 1: Urban, Group 2: Semi Urban, Group 3: Rural). The ANOVA results suggest that the emotional state scores of the group do not differ significantly. ($F_{2, 359} = 2.308, p > .005$).

Table No. 4 One way ANOVA results of ES

Region	Mean	Std. Deviation	F	Sig.
Urban	2.46007	.52449	2.308	.101
Semi urban	2.74356	.21359		
Rural	2.69068	.20340		

Source: Primary data

The hypothesis test, if the dependence differ across different region. Participants were divided in to three group (Group 1: Urban, Group 2: Semi Urban, Group 3: Rural). The ANOVA results suggest that the dependence scores of the group do not differ significantly. ($F_{2, 359} = .696, p > .005$).

Table No. 5 One way ANOVA results of DP

Region	Mean	Std. Deviation	F	Sig.
Urban	2.37638	.50665	.696	.499
Semi urban	2.37608	.18498		
Rural	2.10478	.15911		

Source: Primary data

Objective 2

To Examining Gender Differences in Digital Device Overuse and its Impact

Hypotheses

- H1: There is a significant difference in digital device overuse between males and females.
- H2: There is a significant difference in non-restraint between males and females regarding digital device usage.
- H3: There is a significant difference in the extent to which digital devices inhibit the flow of daily life between males and females.
- H4: There is a significant difference in how digital device use impacts the emotional state between males and females.

- H5: There is a significant difference in the level of dependence on digital devices between males and females.

An independent sample t-test was conducted to compute digital device overuse between male and female respondents. There is significant difference ($t= 2.296$, $df=360$, $p = .022$) in the scores with mean score for male ($M=14.3825$, $SD=3.13017$) was higher than female ($M=13.6201$, $SD=3.18896$). The magnitude of the difference in the means (mean difference= .76240, 95% CI: .10925 to 1.41555) was significant. Hence, H1 was accepted. Table No. 6 Independent Sample Test result of digital device overuse

				Levene's Test for Equality of Variances				t- Test for Equality of Means		95% Confidence Interval of the Difference		
		Mean	SD	F	Sig.	t	df	Sig. (2tailed)	Mean Difference	Std. Error Difference	Lower	Upper
OV	Male	14.3825	3.13017	.538	.464	2.296	360	.022	.76240	.33213	.10925	1.41555
	Female	13.6201	3.18896									

An independent sample t-test was conducted to compute non-restraint between males and females regarding digital device usage. There is no significant difference ($t= 1.026$, $df=360$, $p=.306$) in the scores with mean score for male ($M=8.6776$, $SD=2.56560$) was higher than female ($M=8.3966$, $SD=2.64452$). The magnitude of the difference in the means (mean difference= .28095, 95% CI: .25758 to .81947) was not significant. Hence, H2 was rejected. Table No. 7 Independent Sample Test result of non-restraint

		Levene's Test for Equality of Variances				t- or Equality of Means				95% Confidence Interval of the Difference	
Mean	SD	F	Sig.	t	df	Sig. (2tailed)	Mean Difference	Std. Error Difference		Lower	Upper

NR	Male	8.6776	2.56560	195	.659	1.026	360	.306	.28095	.27384	.25758	.81947
	Female	8.3966	2.64452									

An independent sample t-test was conducted to compute the extent to which digital devices inhibit the flow of daily life between males and females. There is no significant difference ($t = 1.028$, $df = 360$, $p = .305$) in the scores with mean score for male ($M = 10.7541$, $SD = 3.17955$) was higher than female ($M = 10.4134$, $SD = 3.12781$). The magnitude of the difference in the means (mean difference = .34069, 95% CI: .31136 to .99275) was not significant. Hence, H3 was rejected.

Table No. 8 Independent Sample Test result of inhibit the flow of daily life

		Mean	SD	Levene's Test for Equality of Variances		t	df	Sig. (2tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
				F	Sig.						Lower	Upper
IF	Male	10.7541	3.17955	.022	.882	1.028	360	.305	.34069	.33157	.31136	.99275
	Female	10.4134	3.12781									

An independent sample t-test was conducted to compute how digital device use impacts the emotional state between males and females. There is no significant difference ($t = -.752$, $df = 360$, $p = .452$) in the scores with mean score for male ($M = 11.6011$, $SD = 2.57831$) was lower than female ($M = 11.8156$, $SD = 2.84518$). The magnitude of the difference in the means (mean difference = -.21455, 95% CI: .77553 to .34643) was not significant. Hence, H4 was rejected. Table No. 9 Independent Sample Test result of emotional state

		Mean	SD	Levene's Test for Equality of Variances		t	df	Sig. (2tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
				F	Sig.						Lower	Upper

ES	Male	11.6011	2.5783	1.143	.286	-.752	360	.452	-.21455	.28526	.77553	.34643	
	Female	11.8156	2.8451										

An independent sample t-test was conducted to compute the level of dependence on digital devices between males and females. There is no significant difference ($t = -.878$, $df = 360$, $p = .381$) in the scores with mean score for male ($M = 10.0328$, $SD = 2.10677$) was lower than female ($M = 10.2402$, $SD = 2.38284$). The magnitude of the difference in the means (mean difference = $-.20744$, 95% CI: $.67207$ to $.25720$) was not significant. Hence, H_5 was rejected.

Table No. 10 Independent Sample Test result of dependence

		Levene's Test for Equality of Variances				t-Test or Equality of Means						
		Mean	SD	F	Sig.	t	df	Sig. (2tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
											Lower	Upper
DP	Male	10.0328	2.10677	2.75	.098	-.878	360	.381	.20744	.23659	.67207	.25720
	Female	10.2402	2.38284									

Discussion

The study aimed to elucidate regional disparities and gender differences in digital device use and their impact on well-being. The findings reveal noteworthy insights into these dynamics. Firstly, significant regional variations were found in overuse, non-restraint, and inhibition of life flow associated with digital device use. Urban areas exhibited higher levels of overuse and non-restraint compared to semi-urban and rural areas, potentially due to greater access to technology and societal pressures. Additionally, gender differences were identified, with males exhibiting higher levels of overuse compared to females.

However, non-restraint, inhibition of life flow, emotional states, and dependence did not significantly differ between genders. These findings highlight the nuanced relationship between regional context, gender, and digital device use, underscoring the need for tailored interventions to promote balanced usage and mitigate negative well-being outcomes. However, it's important to note that our findings did not reveal any gender disparities in non-

restraint, flow of life disruption, emotional impact, or dependence. This suggests that while males might be more susceptible to overusing devices, both genders experience similar levels of difficulty controlling their usage, disruptions to daily routines, emotional effects, and reliance on digital devices.

Conclusion

This study contributes to the growing body of research on digital device use and its impact on well-being. The findings emphasize the importance of context-specific approaches to address digital device overuse and its impact on individuals' lives. Interventions aimed at promoting healthy digital behaviours should consider regional nuances and gender dynamics to effectively target at-risk populations. Future research should delve deeper into the underlying mechanisms driving these disparities and explore multifaceted interventions to foster positive well-being outcomes in an increasingly digital world. Ultimately, by understanding the complex interplay between digital technology, regional context, and gender dynamics, we can strive towards a more balanced and inclusive digital society.

References

- Booker, C L., Kelly, Y J., & Sacker, A. (2018, March 20). Gender differences in the associations between age trends of social media interaction and well-being among 1015 year olds in the UK - BMC Public Health. <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-018-5220-4>.
- Chen, B., Liu, F., Ding, S., Ying, X., Hu, X., & Wen, Y. (2017, October 10). Gender differences in factors associated with smartphone addiction: a cross-sectional study among medical college students. BMC psychiatry, 17(1). <https://doi.org/10.1186/s12888-017-1503-z>.
- Dienlin, T., & Johannes, N. (2020, June 30). The impact of digital technology use on adolescent well-being. Dialogues in clinical neuroscience, 22(2), 135-142. <https://doi.org/10.31887/dcns.2020.22.2/dienlin>.
- George, M J., Jensen, M R., Pines, A G., Copeland, W E., Hoyle, R., & Odgers, C L. (2020, April 5). Young Adolescents' Digital Technology Use, Perceived Impairments, and Well-Being in a Representative Sample. The Journal of Pediatrics, 219, 180-187. <https://doi.org/10.1016/j.jpeds.2019.12.002>.
- Hamza, A., Sharma, M K., Anand, N., Marimuthu, P., Thamilselvan, P., Thakur, P C., Suma, N., Baglari, H., & Singh, P. (2019, January 1). Urban and rural pattern of Internet use among youth and its association with mood state. Journal of family medicine and primary care, 8(8), 2602-2602. https://doi.org/10.4103/jfmmpc.jfmmpc_428_19
- Jean., Twenge., Gabrielle., & Martin. (2020, February 1). Gender differences in associations between digital media use and psychological well-being: Evidence from three large datasets. Journal of Adolescence, 79, 91-102. <https://www.sciencedirect.com/science/article/abs/pii/S0140197119302453>.
- Ko, C., Yen, J., Chen, C., Chen, S., & Yen, C. (2023, June 29). Gender Differences and Related Factors Affecting Online : The Journal of Nervous and Mental Disease.

-
- The Journal of Nervous and Mental Disease, 193(4), 273-277.
https://journals.lww.com/jonmd/abstract/2005/04000/gender_differences_and_related_factors_affecting.8.aspx.
- Lissak, G. (2018, July 1). Adverse physiological and psychological effects of screen time on children and adolescents: Literature review and case study.
<https://doi.org/10.1016/j.envres.2018.01.015>.
 - Meng, S., Cheng, J., Li, Y., Yang, X., Zheng, J., Chang, X., Shi, Y., Chen, Y., Lü, L., Sun, Y., Bao, Y., & Shi, J. (2022, March 1). Global prevalence of digital addiction in general population: A systematic review and meta-analysis. *Clinical psychology review*, 92, 102128-102128. <https://doi.org/10.1016/j.cpr.2022.102128>
 - Public Health Implications of Excessive Use of the Internet, Computers, Smartphones and Similar Electronic Devices. (2015, September 9). World Health Organisation, ISBN 978 92 4 150936 7.
<https://www.who.int/publications/i/item/9789241509367>.
 - Qureshi, S. (2014, July 3). Overcoming Technological Determinism in Understanding the Digital Divide: Where Do We Go From Here?
<https://doi.org/10.1080/02681102.2014.930981>.
 - Rafi Alnjadat, Malek M. Hmaid, Thamer E. Samha, Mhd M. Kilani, Ahmed M. Hasswan, Gender variations in social media usage and academic performance among the students of University of Sharjah, *Journal of Taibah University Medical Sciences*, Volume 14, Issue 4, 2019, Pages 390-394, ISSN 1658-3612,
 - Sapienza, A., Lítla, M., Lehmann, S., & Alessandretti, L. (2023, November 1). Exposure to urban and rural contexts shapes smartphone usage behavior. *PNAS nexus*, 2(11). <https://doi.org/10.1093/pnasnexus/pgad357>.
 - Taewoo, N. (2013, November 17). Technology Use and Work-Life Balance - Applied Research in Quality of Life.
<https://link.springer.com/article/10.1007/s11482-0139283-1>.
 - Twenge, J M., & Martin, G N. (2020, January 8). Gender differences in associations between digital media use and psychological well-being: Evidence from three large datasets. <https://doi.org/10.1016/j.adolescence.2019.12.018>.
 - Vadim Emelina , Alexander Tkhostova , Elena Rasskazova (2013, October 1). Excessive Use of Internet, Mobile Phones and Computers: The Role of Technologyrelated Changes in Needs and Psychological Boundaries. *Procedia: social & behavioral sciences*, 86, 530-535.
<https://doi.org/10.1016/j.sbspro.2013.08.609>.
 - Widyanarko, P A. (2018, November 27). Peri-urbanization: a study from ICT perspective. *IOP conference series. Earth and environmental science*, 202, 012010012010. <https://doi.org/10.1088/1755-1315/202/1/012010>.