

ORIGINAL ARTICLE

Internet Addiction among Undergraduate Students in Southern Nigeria: Implications for Policy and Practice

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ABSTRACT

Background: Internet addiction among undergraduate students is a growing concern globally, with potential implications for academic performance and overall well-being. However, limited research has been conducted on the prevalence of internet addiction among undergraduate students in Southern Nigeria. This study aimed to assess the prevalence and factors associated with internet addiction among undergraduate students at the University of Benin in Southern Nigeria.

Methods: A descriptive cross-sectional study was conducted among undergraduate students at the University of Benin selected by a multi-stage random sampling technique. Data were collected through a structured questionnaire adapted from the Internet Addiction Test by Young. Statistical analysis was performed using IBM SPSS version 22.0, with a significance level set at $p < 0.05$.

Results: Four hundred and ninety-nine respondents participated in this study with a mean age of 20.5 ± 2.7 years. Out of 499 respondents surveyed, 392 (78.6%) were addicted to the internet. Of these, 356 (90.8%) exhibited mild addiction, 35 (8.9%) had moderate addiction, and 1 (0.3%) had severe addiction. Male gender ($p=0.037$) was found to have a significant association with the prevalence of internet addiction.

Conclusion: This study highlights the alarming prevalence of internet addiction among undergraduate students at the University of Benin in Southern Nigeria. The findings underscore the need for targeted interventions to address internet addiction among undergraduate students in Nigeria.

Keywords: Internet addiction; Technology; Undergraduates; Southern Nigeria.

INTRODUCTION

The internet has revolutionized communication and information dissemination since its inception in the 1980s, shaping social interactions and daily activities worldwide.¹ With its many applications ranging from education to entertainment and commerce, the Internet has become an integral part of modern life, offering unparalleled convenience and accessibility.² However, besides its benefits, the internet also presents challenges, including the proliferation of harmful content such as gambling and pornography, particularly impacting vulnerable populations like adolescents.³ In recent years, smartphones have

emerged as the primary gateway to the internet, surpassing traditional devices like laptops and tablets in terms of popularity and usage.⁴ The ubiquity of smartphones has transformed them into essential tools for daily functioning, akin to wallets and keys for many individuals.⁵ This widespread adoption of smartphones further underscores the pervasive influence of the internet in contemporary society. Youths, particularly undergraduate students, comprise a significant segment of internet users globally, including Nigeria, where a substantial proportion of the population falls within this demographic.⁶ Research indicates a growing reliance on the Internet among students for academic purposes, with educational institutions increasingly providing high-speed Internet access to facilitate learning.⁷ However, alongside the benefits of internet usage for academic endeavors, concerns have emerged regarding the phenomenon of internet addiction.

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Internet addiction, characterized by excessive and compulsive engagement in online activities, has garnered significant attention in the literature due to its adverse effects on physical and social well-being.⁸ Symptoms of internet addiction encompass psychomotor agitation, anxiety, loss of control, and impaired decision-making, often resulting in negative academic outcomes.⁹ Particularly among young individuals, the detrimental consequences of excessive internet use extend to various aspects of life, including cognitive development, academic performance, and mental health.¹⁰

Epidemiological studies conducted globally have revealed varying prevalence rates of internet addiction among students, highlighting the widespread nature of this issue.¹¹ In Nigeria, studies have reported high prevalence rates of internet addiction among undergraduate students.¹² Despite the widespread occurrence of internet addiction, there is a notable absence of comprehensive interventions to tackle this problem, giving rise to concerns regarding its potential long-term effects on the well-being of youth in Nigeria. Several studies have also shed light on the interconnectedness between personality traits, mood states, and internet addiction and its implications for mental health and well-being.¹³⁻¹⁷ Personality traits have been identified as correlates of internet addiction^{13,14} Furthermore, mood states such as depression and anxiety have been associated with internet addiction, with individuals experiencing these symptoms often turning to the internet for escape or distraction, which can escalate into addictive behaviors over time.^{16,17} Conversely, excessive internet use itself has been linked to negative mood states, creating a cyclical relationship wherein internet addiction exacerbates negative emotions, perpetuating the addiction.¹⁴

Given the susceptibility of undergraduate students to internet addiction, understanding the prevalence and correlates of internet addiction among this demographic is important.¹⁸ This research seeks to investigate the prevalence of internet addiction among undergraduate students at the University of Benin in southern Nigeria, aiming to inform policymakers and stakeholders about the urgency of addressing this issue. By shedding light on the extent of internet addiction and its potential consequences, this study contributes to the existing body of knowledge on this topic and pave the way for future research and intervention efforts.

MATERIALS AND METHODS

This study was part of a larger research aimed at assessing the knowledge, attitudes, prevalence, and determinants of internet addiction among undergraduate students in Southern

Nigeria. Employing a cross-sectional descriptive study design, this research was conducted at the University of Benin (UNIBEN), situated in Benin City, Edo State. Edo State, one of Nigeria's 36 states, is located in the southern region and comprises 18 Local Government Areas (LGAs) distributed across three senatorial districts. UNIBEN, established in 1970, is renowned for its academic excellence and expansive student body. With a rich history spanning over five decades, UNIBEN admits a diverse student population exceeding 40,000 individuals in various undergraduate and postgraduate programmes. UNIBEN has 13 faculties and one college, each offering a wide array of academic disciplines.¹⁹

A minimum sample size of 492 was calculated using the appropriate formulae for a single population study²⁰ considering a prevalence rate of 26% obtained from a previous study on internet addiction among nursing students.²¹ Respondents were selected through a multistage sampling technique comprising three stages. Firstly, five out of the 14 faculties/College were selected using a simple random sampling technique. Secondly, ten departments (two per faculty/college) were selected from the chosen faculties using another round of simple random sampling. Lastly, respondents were selected from each department using a stratified sampling technique. The department formed the basis for each stratum. Proportional allocation was used to determine the number of respondents to be selected at each level. Systematic sampling was then applied to select respondents based on calculated sampling intervals and every n^{th} person was selected and invited to participate in the study.

Subsequently, systematic sampling was implemented within each stratum. This involved calculating sampling intervals based on the total number of individuals within each department. Using the calculated intervals, every n^{th} individual was selected systematically, ensuring a fair representation of respondents from each department.

Ethical clearance was obtained from the Research Ethics Committee of the University of Benin Teaching Hospital, and permissions were sought from relevant authorities within the university. Written informed consent was obtained from all participants, ensuring confidentiality and the right to withdraw from the study at any time.

Data were collected using a pre-tested, self-administered structured questionnaire adapted from the Internet Addiction Test (IAT) developed by Kimberley Young to suit the study objectives.²² The IAT, originally developed to assess internet addiction in North American populations, provides a comprehensive framework for

understanding problematic internet use and has been adapted to assess internet addiction across diverse cultural contexts, including Nigeria.²³⁻²⁵ This tool comprised items assessing attributes and behaviours associated with obsessive internet use, including escapism, compulsivity, and dependency. Pretesting of the questionnaire was conducted among undergraduate students of Benson Idahosa University in Benin City to ensure clarity and comprehensibility. Corrections were made based on pretest feedback before the main study commenced. The questionnaires were distributed in lecture theatres, collected, screened for completeness, serially numbered, and entered into IBM SPSS version 22.0 for analysis.²⁶

Personality and Mood State Assessment:

Participants' perceptions of their personality traits and mood states were assessed. The questionnaire presented respondents with a list of predefined personality traits and mood states. Participants were instructed to select the trait or mood state that best described them from the options provided. The personality traits were categorized as "Reserved," "Outgoing," "Indifferent," "Shy," and "Very quiet," while the mood states were categorized as "Very happy," "Happy," "Indifferent," "Very sad," and "Sad."

Internet Addiction Assessment:

The prevalence of internet addiction among participants was determined using a standardized instrument consisting of 20 items. Respondents were asked to rate the frequency of their internet use behaviors on a scale ranging from 0 to 5, where 0 indicated "Does not apply" and 5 indicated "Always." The scores for all items were summed to derive a total score for each participant, with possible scores ranging from 0 to 100. Participants were then categorized into four groups based on their total scores: Normal user (0-19), Mild addiction (20-49), Moderate addiction (50-79), and Severe addiction (80-100).²²

Univariate analysis was performed for all variables to describe the characteristics of the study population. Bivariate analysis was conducted to explore associations between socio-demographic variables (such as age, marital status, religion, and occupation) and the prevalence of internet addiction. A p-value < 0.05 was considered statistically significant.

RESULTS

A total of 499 undergraduate students participated in the study, with a mean age (SD) of 20.5±2.7 years. The majority of respondents 276 (55.3%) fell within the 20 – 24 years age group. A smaller subset 34 (6.8%) were aged 25 years or older. Regarding the distribution of participants by sex, 259 (51.9%) were male,

while 240 (48.1%) were female, with a male:female ratio of 1.08:1. (Table 1). Most participants 474 (95.0%) used smartphones to access the internet, while smaller proportions used computers 206 (41.9%) or tablets 116 (23.2%) for browsing.

The majority of respondents were single 492 (98.6%), hailed from monogamous families 459 (91.4%), and resided in hostels while attending school 385 (77.7%). The primary source of income for the majority, 454 (91%) of respondents was from parents and relatives.

A smaller proportion, 27 (5.4%) of respondents, reported being employed, while 18 (3.6%) indicated owning a business. (Table 2). As regards personality traits, 224 (44.9%) of students identified as having a reserved personality, 173 (34.7%) were outgoing, 46 (9.2%) reported being indifferent, and 19 (3.8%) reported being very quiet. Concerning predominant mood, 131 (26.3%) reported feeling very happy, 118 (23.6%) reported feeling happy, 74 (14.8%) reported feeling very sad, and 68 (13.6%) reported feeling sad. Regarding parenting style, 186 (37.1%) of respondents reported having parents who were patient and understanding, 156 (31.3%) had loving and kind parents, 119 (23.8%) had strict parents, and 39 (7.8%) reported their parents to be very strict. (Table 2).

Out of 499 respondents surveyed, only 107 (21.4%) of respondents were classified as normal internet users, while 392 (78.6%) were addicted to the internet. Of these, 356 (90.8%) exhibited mild addiction, 35 (8.9%) had moderate addiction, and 1 (0.3%) had severe addiction. (Figure 1).

Bivariate analysis revealed that with increasing age, the prevalence of addiction decreased, with 157 (83.1%) respondents aged 15-19 years having the highest proportion of addiction while respondents 23 (67.6%) aged 25 and above had the lowest proportion. The association between age and prevalence of internet addiction was, however, not statistically significant ($p = 0.075$). Gender showed a significant association ($p = 0.037$), with a higher proportion of males 213 (82.2%) being addicted compared to females 179 (74.6%). The prevalence of internet addiction was not significantly associated with the course of study ($p = 0.319$), and study level ($p = 0.525$), (Table 3). The prevalence of internet addiction was not significantly associated with the personality traits of the respondents ($p = 0.118$). (Table 4).

DISCUSSION

The study aimed to assess the prevalence of internet addiction among undergraduate students in Southern Nigeria. Findings indicate that a substantial proportion of students are

Table 1: Sociodemographic characteristics of respondents

Variable	Frequency (n = 499)	Percent
Age group (years)		
15 – 19	189	37.9
20 – 24	276	55.3
≥25	34	6.8
Mean ± SD	20.5 ± 2.7	
Sex		
Male	259	51.9
Female	240	48.1
Course of study		
Pharmacy	81	16.2
Law	68	13.6
Agricultural Economics	57	11.4
Economics and Statistics	56	11.2
Medicine	52	10.4
Fisheries	50	10.0
Political Science	48	9.6
Philosophy	41	8.2
Crop Science	30	6.0
Dentistry	16	3.2
Level		
100	128	25.7
200	113	22.6
300	103	20.6
400	89	17.8
500	49	9.8
600	17	3.4

addicted to the internet, with about eight in ten respondents classified as such. This high prevalence aligns with global trends, where internet addiction is increasingly recognized as a significant public health issue among young populations.²⁷ The availability and accessibility of digital devices, coupled with the integration of the internet into various aspects of daily life, contribute to the escalating rates of internet addiction worldwide.²⁸ Several factors contribute to the observed high prevalence of internet addiction among undergraduate students in Southern Nigeria. Firstly, the ubiquitous use of smartphones as the primary means of internet access facilitates constant connectivity and engagement with online activities.²⁹ Additionally, the internet offers a plethora of entertainment, social networking, and gaming opportunities, which may contribute to addictive behaviors.³⁰

Moreover, the COVID-19 pandemic further intensified reliance on the Internet for academic, social, and recreational purposes, potentially exacerbating internet addiction among students.³¹

The socio-demographic characteristics of undergraduate students in Southern Nigeria were shown to play a role in shaping their internet use behaviours and susceptibility to addiction. Although there was a trend showing a decrease

in the prevalence of internet addiction with increasing age, this association was not found to be statistically significant in our study.

Despite the lack of statistical significance, this finding is in line with previous research suggesting that younger individuals are more prone to internet addiction due to their early and extensive exposure to digital technologies.⁸ In addition, the transition to college life represents a period of increased autonomy and independence for many students, which may contribute to heightened internet use and addictive behaviours.³² Moreover, the transition to college life represents a critical period characterized by increased autonomy and independence among students. This newfound freedom may contribute to heightened internet use and potentially addictive behaviors.

Gender differences were also observed in the prevalence of internet addiction among undergraduate students in Southern Nigeria. Males displayed a higher prevalence of addiction compared to females, which aligns with global trends indicating a gender gap in internet addiction.³² This gender disparity may be attributed to differences in online behaviours and preferences, with males typically engaging in more gaming and online gambling activities, which are associated with addictive behaviours.³³

Table 2: Socio-economic characteristics and social behaviour of respondents

Variable	Frequency (n = 499)	Percent
Socio-economic characteristics		
Marital status		
Single	492	98.6
Married	5	1.0
Cohabiting	2	0.4
Family type		
Monogamous	459	91.4
Polygamous	31	6.2
Parents are separated	12	2.4
Place of residence		
Hostel	385	77.2
Home	114	22.8
Source of income		
Parents and relatives	454	91.0
Own a business	27	5.4
Employed	18	3.6
Social behaviour		
Personality		
Reserved	224	44.9
Outgoing	173	34.7
Indifferent	46	9.2
Shy	37	7.4
Very quiet	19	3.8
Predominant mood		
Very happy	131	26.4
Happy	118	23.6
Indifferent	108	21.6
Very sad	74	14.8
Sad	68	13.6
Parenting style		
Patient and understanding	185	37.1
Loving and kind	156	31.3
Strict	119	23.8
Very strict	39	7.8

Moreover, socio-cultural factors and societal expectations regarding gender roles may influence internet use patterns, with males often encouraged to pursue more technology-oriented interests and spend more time online compared to females.³⁴ However, further research is needed to explore the underlying mechanisms driving gender differences in internet addiction among undergraduate students in Southern Nigeria.

Marital status, typically seen as a reflection of social support and stability, showed no significant association with internet addiction in this study. While some previous research suggests that marital status may influence internet addiction risk, with single individuals potentially having higher susceptibility due to social isolation or lack of support systems, other studies have found no significant relationship

between marital status and internet addiction. For instance, a study in 2017 on the roles of depression and demographic factors in internet addiction, found no significant association between marital status and internet addiction among Nigerian university students, corroborating the current findings.³⁵

Similarly, this study found no significant association between personality traits and internet addiction. This contrasts with some previous research suggesting that certain personality traits, such as introversion or neuroticism, may predispose individuals to internet addiction. However, other studies have yielded inconsistent results, highlighting the need for further investigation into the complex relationship between personality factors and internet addiction.^{32,33}

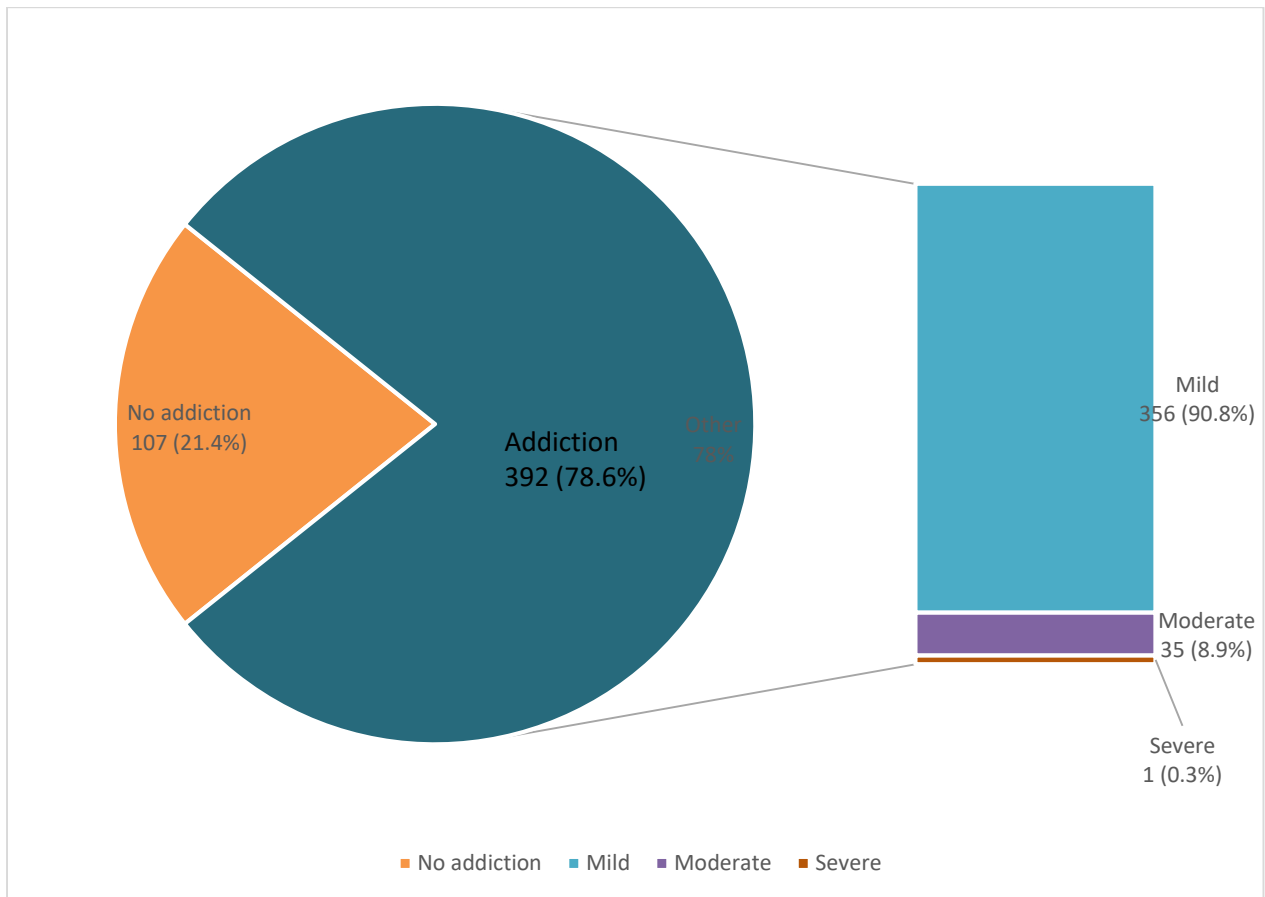


Figure 1: Prevalence of internet addiction among respondents

The predominant mood of respondents also did not significantly affect internet addiction in this study. While it might be intuitive to assume that individuals experiencing negative moods, such as sadness or depression, might be more prone to seeking solace or distraction online, the lack of significant association suggests a more nuanced relationship. Previous research has produced mixed findings regarding the impact of mood on internet addiction, underscoring the need for more comprehensive assessments that consider contextual factors and individual differences.^{10,32}

Similarly, the type of parenting style was not significantly associated with internet addiction in this study. While parenting practices undoubtedly play a crucial role in shaping children's behaviour and attitudes, the lack of significant findings in this study may indicate that other factors, such as peer influences or individual predispositions, exert stronger effects on internet addiction risk.

Nevertheless, further research exploring the intricate dynamics between parenting styles, family environment, and internet addiction is warranted to elucidate these relationships.^{33,36}

Parents and communities play an essential role in combating internet addiction among young people. Parents need to monitor their children's internet use, establish clear boundaries and rules regarding screen time, and foster open communication about online activities.³⁴ Community-based initiatives, such as awareness campaigns and support groups, can also help raise awareness about internet addiction and provide resources for affected individuals and their families.³³

The findings of this study have several implications for policymakers, educators, and healthcare professionals in Nigeria. Firstly, there is an urgent need for the development and implementation of evidence-based policies and interventions aimed at preventing and addressing internet addiction among young people. These initiatives should prioritize raising awareness about the risks of excessive internet use, promoting digital literacy skills, and providing support and resources for individuals struggling with addiction.³⁶ Moreover, educational institutions should integrate education on responsible internet use into school curricula and provide students with access to counseling services and support groups.

Table 3: Socio-demographic characteristics of respondents and prevalence of internet addiction

Variable	Prevalence of internet addiction		Test Score	p-value
	Addicted (n = 392) Frequency (%)	Not Addicted (n = 107) Frequency (%)		
Age group (years)			$\chi^2 = 5.186$	0.075
15 – 19	157 (83.1)	32 (16.9)		
20 – 24	212 (76.8)	64 (23.2)		
≥25	23 (67.6)	11 (32.4)		
Sex			$\chi^2 = 4.335$	0.037*
Male	213 (82.2)	46 (17.8)		
Female	179 (74.6)	61 (25.4)		
Department			$\chi^2 = 10.403$	0.319
Philosophy	36 (87.8)	2 (12.2)		
Agricultural Economics	50 (87.7)	2 (12.3)		
Political Science	40 (83.3)	8 (16.7)		
Fisheries	40 (80.0)	10 (20.0)		
Economics and Statistics	44 (78.6)	12 (21.4)		
Pharmacy	62 (76.5)	19 (23.5)		
Crop Science	23 (76.7)	7 (23.3)		
Dentistry	12 (75.0)	4 (25.0)		
Law	49 (72.1)	19 (27.9)		
Medicine	36 (69.2)	16 (30.8)		
Level			$\chi^2 = 4.171$	0.525
100 level	104 (81.3)	24 (18.8)		
200 level	94 (83.2)	19 (16.8)		
300 level	78 (75.7)	25 (24.3)		
400 level	66 (74.2)	23 (25.8)		
500 level	38 (77.6)	11 (22.4)		
600 level	12 (70.6)	5 (29.4)		
Marital Status			Fisher's Exact = 5.456	0.065
Single	389 (79.1)	103 (20.9)		
Cohabiting	1 (50.0)	1 (50.0)		
Married	2 (20.0)	3 (60.0)		

*Statistically significant

While this study provides valuable insights into the prevalence and correlates of internet addiction among undergraduate students in Southern Nigeria, the cross-sectional nature of the study restricts the ability to establish causal relationships between variables. Longitudinal studies are recommended to investigate the temporal dynamics and long-term effects of internet addiction, among undergraduate students. Further research is needed to deepen our understanding of this phenomenon. Future studies could explore the underlying psychological, social, and environmental factors contributing to internet addiction, as well as the effectiveness of intervention strategies and treatment approaches. Longitudinal studies tracking internet use behaviours over time would also help identify patterns of addiction development and inform targeted prevention efforts.

Conclusion: This study revealed a high prevalence of internet addiction among undergraduate students in Southern Nigeria, This underscores the need for concerted efforts to address this growing public health concern. By implementing evidence-based policies, integrating education on responsible internet use into school curricula, and fostering parental and community involvement, stakeholders can work together to promote healthy digital habits and mitigate the negative impacts of excessive internet use on young people's well-being.

Acknowledgement: The authors wish to acknowledge all students who participated in this study

Conflict of Interests: The authors declare no competing interest

Source of funding: Self-funded

Table 4: Social behaviour of respondents and prevalence of internet addiction

Variable	Prevalence of internet addiction		Test Score	p-value
	Addicted (n = 392) Frequency (%)	Not Addicted (n = 107) Frequency (%)		
Personality			$\chi^2 = 7.359$	0.118
Very quiet	17 (89.5)	2 (10.5)		
Shy	31 (83.8)	6 (16.2)		
Reserved	180 (80.4)	44 (19.6)		
Outgoing	134 (77.5)	39 (22.5)		
Indifferent	30 (65.2)	16 (34.8)		
Predominant mood			$\chi^2 = 1.791$	0.774
Happy	96 (81.4)	22 (18.6)		
Indifferent	86 (79.6)	22 (20.4)		
Sad	53 (77.9)	15 (22.1)		
Very sad	59 (77.9)	15 (20.3)		
Very happy	98 (74.8)	33 (25.2)		
Parenting style			$\chi^2 = 3.926$	0.270
Very strict	35 (89.7)	4 (10.3)		
Patient and understanding	146 (78.9)	39 (21.1)		
Loving and kind	122 (78.2)	34 (21.8)		
Strict	89 (74.8)	30 (25.2)		

Authors' contributions: EOO-Conceptualization, Methodology, Formal analysis, Writing-Original Draft, Writing-Review and Editing; EKO- Conceptualization, Methodology, Formal analysis, Writing-Original Draft, Writing- Review and Editing; EO-Conceptualization, Study Design, Data Collection and Analysis, Manuscript Write-Up; VOO-Conceptualization, Study Design, Manuscript Write-Up, Writing-Review and Editing; All authors read and approved the final version of the manuscript.

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