

RESEARCH ARTICLE

The Link between Exposure to Watching Pornography and Mental Distress among Dilla University Students, Southern Ethiopia, 2023 A Mixed Method Study

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Abstract

Background: The consumption of pornography has become widespread globally, largely driven by the proliferation of the internet and affordable digital devices. While often viewed as a harmless leisure activity, studies suggest a complex link between pornography use and mental distress. This study assesses the association between problematic pornography consumption and mental distress among students at Dilla University in Ethiopia.

Objective: This study aimed to examine the relationship between problematic pornography use and mental distress among regular undergraduate students at Dilla University in the Gedeo Zone, South Ethiopia Region, in 2023.

Methods: A cross-sectional study, complemented by qualitative inquiry, was conducted with 1,269 undergraduate students from Dilla University. A multistage random sampling technique was used for quantitative study, while purposive sampling selected participants for the qualitative portion. Various variables were assessed, including problematic pornography use, mental distress, internet addiction, substance use, social support, and experiences of victimization. Quantitative data were coded and analyzed using EpiData 3.1 and SPSS version 26, employing bivariate and multivariate logistic regression analyses to identify factors associated with problematic pornography use, with statistical significance set at $p < 0.05$. Qualitative data were analyzed thematically using NVivo software (version 11).

Results: The findings revealed that 14.9% (95% CI: 12.9% to 17.9%) of participants engaged in problematic pornography watching, while over half (60.4%, 95% CI: 57.5% to 63.1%) reported experiencing mental distress. Factors associated with problematic pornography use included male gender (AOR: 1.61, 95% CI: 1.65-2.74), absence of romantic relationships, poor social support, and experiencing mental distress, with odds ratios (AORs) ranging from approximately 2.00 to 2.20. Additionally, internet addiction, poor peer relationships, and positive attitudes toward problematic pornography use were linked to higher risks (AORs: 2.00, 1.40, and 2.10, respectively). Current alcohol use was also significantly associated with problematic pornography use. Qualitative findings indicated that students who frequently watched pornography expressed mixed feelings, including guilt and shame for some, while others reported relaxation.

Conclusion: The results of this study underscore the need to address modifiable factors for prevention and intervention programs targeting problematic pornography use among university students.

Keywords: Dilla University, Ethiopia, Mental Distress, Mixed Methods, Pornography Use, University Students

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1 Introduction

The expansion of media networks in recent decades has led to a significant increase in pornography consumption [1]. Today, the affordability of pornography, along with the privacy provided by personal computers, has made it widely accessible. Consumption is prevalent across various demographics [2]. A national survey in the U.S. indicated that within the 18-39 age range, 46,% of men and 16,% of women engaged with pornography weekly [3]. Furthermore, a study in China reported even higher engagement rates, with 94.5,% of men and 62,% of women having viewed erotic videos online over a 12-month period [4]. Research suggests that pornography consumption disproportionately affects certain demographics [5, 6], with young people—characterized by their heavy internet and social media usage and heightened sexual curiosity—being a primary group of interest [??].

The impact of pornography on personal and social lives, particularly in the context of couples' sexual health, remains a subject of considerable debate [8, 9]. While some studies indicate potential benefits, such as increased sexual knowledge, the acquisition of new techniques, and enhanced understanding of different genders [10], others have identified negative correlations between pornography consumption and sexual well-being [11]. The effects of pornography use on sexuality may vary significantly between non-problematic pornography users (non-PPUs) and problematic pornography users (PPUs). The latter often struggle to control their consumption and reduce usage frequency [12].

Although problematic pornography use is not officially recognized as an independent diagnostic entity within the ICD-11 or DSM-5, it is acknowledged in the ICD-11 as a potential component of Compulsive Sexual Behavior Disorder (CSBD) [13]. The effects of pornography consumption on sexual experiences are likely mediated by sociocultural beliefs, which can produce both beneficial and detrimental impacts on sexual health [14]. Research has shown that individuals with strong religious affiliations may experience heightened challenges, including decreased sexual satisfaction and moral-based sexual distress

[15]. However, there exists a significant gap in understanding these dynamics within non-Western contexts, especially in African countries, where the majority of studies have been conducted in Western societies.

As youth—particularly students—increasingly navigate the internet and social networks, they are exposed to a multitude of global sexual scripts, leading to potential intergenerational conflict [16]. This exposure, coupled with a lack of comprehensive sexual education in school and university curricula and insufficient sexual resources, has contributed to the rise of unofficial internet sites promoting pornography viewing [17]. The global surge in pornography consumption has led to multifaceted consequences across diverse populations. According to global website traffic data from Statista, approximately 2.4 million individuals access pornography websites every minute. Illustrating this trend further, a 2016 study reported nearly 92 billion videos viewed on Pornhub alone. This volume suggests that, based on these figures, the average global citizen has viewed over 14 videos, raising concerns about potential addictive consumption patterns [18]. The implications of this widespread exposure are significant; consumption of pornography—particularly content featuring violence and explicit sexual acts—is correlated with increased high-risk behaviors and diminished capacities for healthy interpersonal relationships. Notably, adolescents engaging in high levels of pornography consumption demonstrate stronger sexual beliefs, earlier sexual initiation, and increased engagement in casual sexual activities, as well as heightened sexual aggression, affecting both perpetrators and victims [19]. A qualitative study found that students consumed pornography to gain information and experience related to sexuality [20].

In Ethiopia, the rapid growth of internet access and smartphone usage has significantly transformed the digital landscape, impacting adults and teenagers, including students at all levels of education. This digital revolution is thought to have contributed to increased rates of pornography consumption. A 2013 report indicated that Ethiopia had over 23 million mobile phone

subscribers and more than 4 million internet subscribers. Moreover, Google search data from 2012 and 2013 showed that the country was among the leading searchers of sexual content [20]. It is crucial to note that the digital landscape of Ethiopia has changed significantly since those data were collected.

Pornography is influenced by a complex interplay of individual, interpersonal, and social factors. At the individual level, variables such as age, gender, religious beliefs [21], marital status, online engagement [22], education [23, 24], and mental health conditions like depression and anxiety [25] play significant roles. Interpersonal factors such as family conflicts [26], sexual dissatisfaction [25], and diminished marital quality [25] are also associated with pornography consumption. Socially, factors including social desirability bias [21], cultural and ethnic backgrounds [21, 24], and feelings of loneliness [27, 28] contribute to usage patterns.

While the digital revolution has fostered globalization, it has also facilitated widespread pornography consumption, leading to detrimental consequences for both adolescents and adults. This consumption distorts sexual attitudes and perceptions of social reality, contributing to increased stress and the development of negative perspectives on human sexuality. For adolescents, pornography exposure reshapes sexual expectations and behaviors. Research has linked pornography consumption to adverse mental health outcomes, including depression, anxiety, loneliness, diminished life satisfaction, and reduced self-esteem [29, 30].

The rapid digitalization of society has undeniably reshaped cultural norms and traditions. In Ethiopia, this digital shift allows young people—particularly those with social media access—to be exposed to global media messages. Consequently, the impact of pornography consumption on adolescent behavior has become a growing area of research interest. While there is increasing concern that pornography use is altering behavioral patterns among Ethiopian youth, particularly university students, there remains a significant research gap, with limited

studies [31] addressing the prevalence and effects of pornography consumption in Ethiopian higher education. Therefore, this study aims to assess the link between exposure to pornography and mental distress among Dilla University students.

2 Methods and materials

2.1 Study Area and Period

This study was conducted at Dilla University, an applied science institution located in Dilla town, Gedeo Zone, in the South Ethiopia Region. Dilla Town is situated approximately 360 kilometers south of Addis Ababa, the capital city of Ethiopia. Recognized as one of Ethiopia's second-generation universities, Dilla University is classified as an applied science university in the latest assessment of Ethiopian higher education institutions. The university comprises four campuses, seven colleges, and two specialized institutes, enrolling around 30,000 students across various academic programs. Data collection for this study took place over a two-month period, from October 1 to November 30, 2023.

2.2 Study Design

A mixed-methods (Convergent Parallel) design was employed, combining both quantitative and qualitative approaches. This design facilitated a comprehensive understanding of the relationship between pornography consumption and mental distress among the study participants.

2.3 Population

The target population consisted of all undergraduate regular students enrolled at Dilla University. The study sample included those students who were available during the data collection period and met the inclusion criteria.

2.4 Eligibility Criteria

For the quantitative component of this study, participants were required to be regular undergraduate students at Dilla University. They also needed to be mentally capable of independently completing a self-administered questionnaire and

willing to participate. For the qualitative in-depth interview component, a subset of participants was purposively selected from the initial survey based on their self-reported engagement in pornography use. This selection allowed for an exploration of their experiences related to mental distress.

2.5 Sample size determination

Quantitative part

To determine the necessary sample size for this study on the prevalence of problematic pornography consumption and mental distress among university students in Ethiopia, we employed a single population proportion formula. Initially, using a prevalence estimate of 9.7% derived from a study conducted in Kenya [39], we calculated a sample size of 135. However, considering the potential differences between the Kenyan and Ethiopian populations, as well as the lack of specific data on mental distress related to problematic pornography consumption in Ethiopia, we opted for a more conservative estimate. By assuming a prevalence of 50%, we calculated a sample size of 384. To account for potential non-response (10%) and a design effect of 3, the final sample size was adjusted to 1,269.

Qualitative part

The sample size for the qualitative component of this study was determined through the concept of theoretical saturation. This approach entails collecting data until no new information emerges, indicating that redundancy has been reached. In this study, 16 participants were purposively selected for in-depth interviews. This sample size was deemed sufficient to explore the complex relationship between exposure to pornography and mental distress among Dilla University students. Participants were chosen based on their diverse experiences, including varying levels of exposure to pornography and reported mental health issues.

2.6 Sampling technique

Quantitative part:

To ensure a representative sample across the university's four campuses, the sample size was allocated proportionally to each campus. In the first stage, colleges, faculties, or institutes were selected using simple random sampling. The second stage involved choosing departments or schools within the selected colleges, also using simple random sampling. Finally, students were chosen from each department using systematic random sampling, considering the size of the student population in each department to ensure proportional representation.

Qualitative part:

A purposive sampling strategy was employed to recruit 16 participants for in-depth interviews. Participants were selected based on their reported pornography use in the initial survey.

2.7 Schematic presentation of sampling procedure of study participant at Dilla University, South Ethiopia Region, Gedeo zone, Ethiopia, 2023

Figure 1 shows the schematic presentation of sampling procedure of study participant at Dilla University.

2.8 Study variables

The dependent variable was problematic pornography consumption, while the independent variables included various sociodemographic factors such as age, sex, marital status, year of study, semester grade point average, place of residence, faculty or college, and average monthly income from parents. Lifestyle-related factors included regular physical exercise, sleep satisfaction, study schedule consistency, peer relationship status (poor/good), social media usage levels (low/medium/high), and sources of pornography viewed. Additionally, clinical and psychosocial factors encompassed mental distress, social support, internet usage patterns, experiences of victimization, attitudes toward pornography, and substance use.

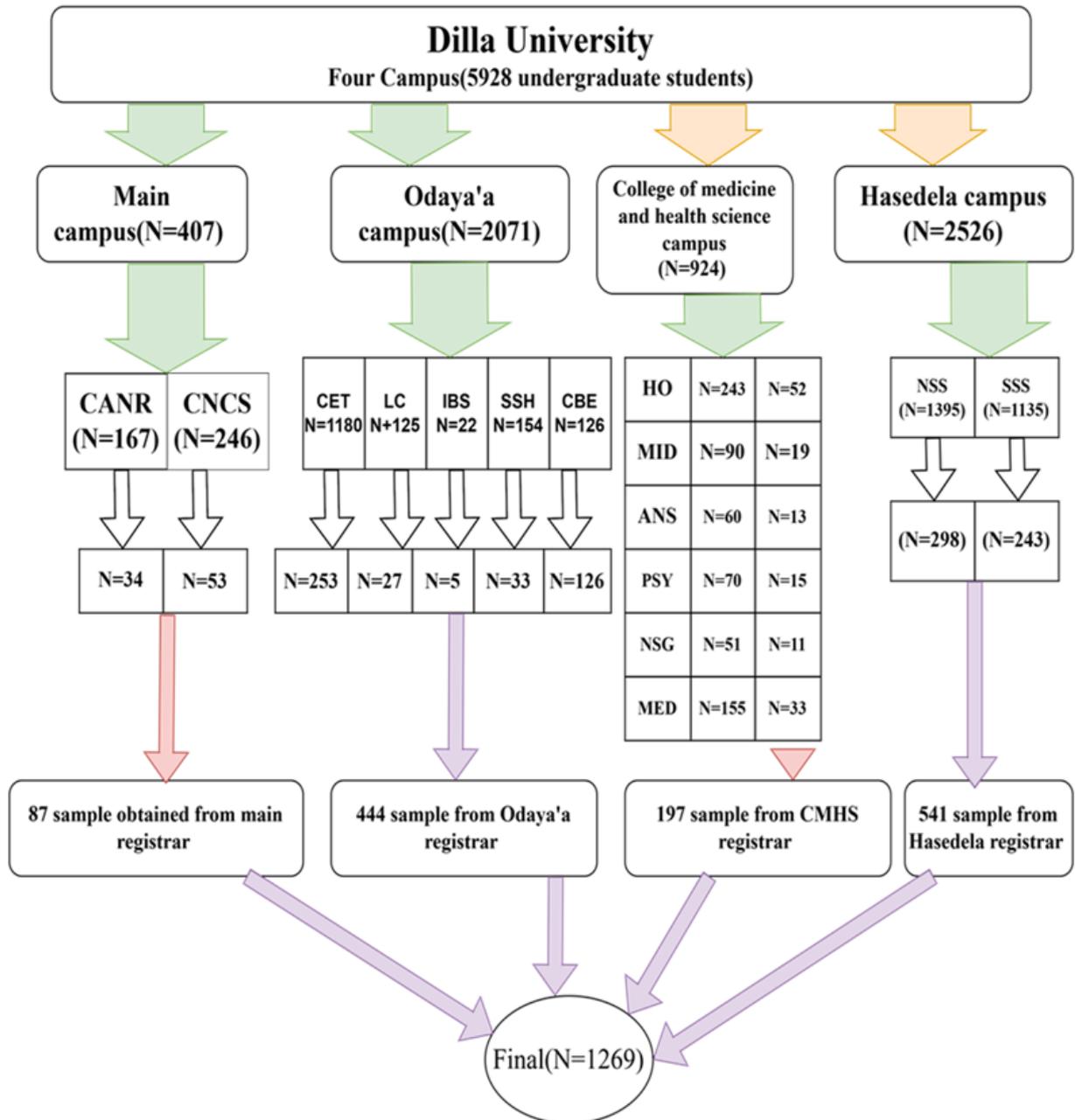


Figure 1 Sampling Procedure for the link between exposure to watch pornography and mental distress among Dilla University regular undergraduate students, Southern Ethiopia, 2023 (Source of data DU registrar and Alumni)

2.9 Data collection and measurement tools

The researchers employed a two-pronged approach to gather data. Qualitative information was collected using an in-depth interview guide featuring ten open-ended questions, designed to explore participants' motivations for pornogra-

phy use, the mental health effects of pornography, its impact on relationships, the perceived extent of pornography exposure among students, and potential solutions for addressing pornography consumption.

In-depth interviews were conducted in Amharic by five trained facilitators, using a topic guide

originally created in English and subsequently translated. These semi-structured interviews lasted a maximum of one hour each and continued until data saturation was reached, meaning no new themes emerged in participants' responses. To ensure anonymity, each participant was assigned a number for data processing. All interviews were audio-recorded and guided by a pre-planned list of open-ended questions.

For quantitative data collection, a self-administered, pre-tested questionnaire was utilized. This questionnaire covered sociodemographic information, lifestyle factors (including exercise, sleep, study habits, peer relationships, and social media use), internet usage patterns, past experiences of victimization, attitudes toward pornography, mental distress, social support, and substance use (such as tobacco, alcohol, khat, prescription medications, and other substances). The quantitative data collection was supervised by five mental health professionals (holders of MSc degrees in mental health) to ensure completeness and consistency. Finally, informed consent was obtained from each participant before conducting the interviews in their preferred locations.

Problematic Pornography Consumption: In this study, the Problematic Pornography Consumption Scale-6 (PPCS-6) was used to assess pornography use. This scale categorizes participants' consumption as either problematic or not. A score of 20 or higher on the PPCS-6 is considered indicative of problematic pornography use [40]. This cutoff score was chosen based on previous research demonstrating an 89% accuracy rate for the PPCS-6 in identifying problematic use [40].

Attitudes Toward Pornography Scale: The 20-item Attitudes Toward Pornography Scale (ATPS) was employed to assess students' attitudes toward pornography. Utilizing a 7-point Likert scale, participants indicated their agreement with statements, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Total scores are calculated by summing individual ratings across all items, reflecting an individual's overall attitude. Higher scores indicate a more positive

view of pornography, while lower scores suggest a negative perspective. The scale displayed a Cronbach's alpha of 0.74, with an overall dependability score of 0.84 [41].

Mental Distress: The K10 is a widely used assessment tool that screens for mental distress experienced in the past month [42]. Both the 10-item (K10) and 6-item (K6) versions have been validated in Ethiopia, with the K10 shown to be more accurate [43] and used in various studies [43, 44]. Each question is rated on a scale of 1 to 5, ranging from "never" to "always." The total K10 score can range from 10 to 50, with higher scores indicating greater distress. The K10 has demonstrated strong reliability, with an internal consistency score of 0.93 [42]. In this study, participants scoring 20 or above were considered to be experiencing mental distress, consistent with the cutoff used in other Ethiopian studies [45].

Internet Use Patterns: The short version of the Internet Addiction Test (s-IAT) consists of 12 items rated on a 5-point Likert scale, ranging from 1 (rarely) to 5 (always). The s-IAT has good psychometric properties, with a Cronbach's alpha of 0.87, representing key diagnostic criteria for internet addiction (IA). Total scores range from 12 to 60, indicating an individual's tendency toward or degree of internet addiction. A cutoff score of 36 was used to classify participants as suffering from IA [46].

Lifetime Substance Use: This is defined as self-reported usage of any psychoactive substance (including alcohol, khat, tobacco, marijuana, cocaine, and heroin) at least once in a person's lifetime [47]. Participants responded with "Yes" or "No" for each substance. A similar approach has been employed in studies conducted in Ethiopia [48].

Current Substance Use: This refers to the use of any substance (alcohol, khat, tobacco, marijuana, cocaine, and heroin) at least once within the last 30 days. Participants also responded with "Yes" or "No" for each substance. This method has been utilized in other Ethiopian studies [49, 50].

Social Support: Social support was measured

using the Oslo Social Support Scale (OSSS-3) [51]. The total OSSS-3 score ranges from 3 to 14, with scores of 3 to 8 indicating poor support, scores of 9 to 11 indicating intermediate support, and scores between 12 and 14 indicating strong social support. The scale has acceptable internal consistency ($\alpha = 0.640$) and has been used in various Ethiopian settings [52-56].

Victimization Experience: The victimization assessment tool consists of five items. Item 1 assesses current abuse or injury, Item 2 inquiries about a history of abuse, Item 3 evaluates suicide risk, Item 4 assesses the risk of assault or homicide, and Item 5 identifies the presence or depletion of resources. Each item offers two response options: “Yes” or “No” [57].

2.10 Data analysis

The investigators implemented a rigorous data analysis process. After data collection, all data were coded and entered into Epi-Data for cleaning. Statistical analysis was performed using SPSS version 26. For the quantitative data, chi-square tests were planned to identify group differences in problematic pornography use. Additionally, bivariate and multivariate logistic regression analyses were employed to assess the strength of associations between independent variables and the outcome variable. Odds ratios and their 95% confidence intervals were calculated to determine the significance of the associations. All potential explanatory variables were included simultaneously in the final regression models, with a significance threshold set at $p < 0.05$.

For the qualitative data, a different approach was used. Recorded interviews were transcribed and translated by a professional. Following transcription, researchers aimed to identify recurring themes and ideas within the data. A thematic analysis approach was employed, where data were coded and grouped into themes without imposing predetermined categories. Memo writing was utilized throughout the coding process to capture emerging ideas and topics. This involved a three-stage inductive coding approach: initial coding based on the data itself, grouping codes into themes, and finally developing final

codes from the data and identified themes.

2.11 Data quality control

The quantitative questionnaire was originally developed in English, while the interview guide was translated into Amharic and then back into English by independent language experts to ensure consistency. Supervisors received two days of intensive training on the study’s purpose, tools, and overall data collection procedures to maintain high standards during the data collection phase. A pre-test was conducted with 5% of the sample size among students at Hawassa University prior to the actual data collection.

2.12 Ethical Considerations

The study was approved by the Institutional Review Board (IRB) of the College of Health Sciences and Medicine at Dilla University. An ethical approval letter was issued to all relevant parties, and permission was obtained from Dilla University as well as from the selected departments and schools. Signed written consent was secured from each study participant prior to the commencement of data collection. To maintain the anonymity and confidentiality of participant information, stringent data collection procedures were implemented.

3 Results

Qualitative Results

The qualitative component of this study explored the experiences of young adults with regard to pornography use. Sixteen participants, with an average age of 22.1 years, were interviewed. The age range of participants was relatively narrow, with a standard deviation of 0.88 years. Among the participants, ten were male and six were female. Several key themes emerged from the qualitative analysis:

1. **Motivators for Pornography Use:** This theme examined the psychological drives behind students’ engagement in problematic pornography.
2. **Mental Effects of Pornography:** Participants reported on the impacts of pornog-

raphy on their mood and other mental health dimensions.

3. Relationship Effects of Pornography: The study explored how students perceive pornography's influence on both romantic and non-romantic relationships.
4. Perceived Extent of Pornography Exposure: Participants discussed the prevalence of pornography among their peers. Finally, participants suggested potential solutions to address pornography use, including interventions, support systems, and educational initiatives aimed at mitigating problematic use and its negative mental health consequences. The findings are presented as follows:

3.1 Mental effects of pornography

Participants reported mixed mental health effects from watching pornography. Some felt guilt and shame as noted by the following quotes: "(...) Yeah, there are times I feel a pang of guilt, especially when I've spent the whole night watching porn videos. It worries me that it might be affecting my mood or making it difficult to concentrate on my studies." (IDI-5, Odaya'a campus, 23-year-old male student)

"(...) For sure, it can be unhealthy. The online content can be so unrealistic and distorted that it alters what normal sex should be like. And sometimes, after watching for a while, I feel a kind of discomfort." (IDI-7, Health Science campus, 22-year-old male student). Others, however, reported mixed feelings, as illustrated by the following quotes;

"(...) It brings mixed feelings for me. Sometimes I watch it and feel fine, but other times—especially if the content is harmful to a sexual partner—I feel a bit ashamed. Honestly, the mental health effects are a mystery to me; it probably depends on the individual." (IDI-5, Odaya'a Campus, 23-year-old male)

"(...) It can be a good way to unwind after a long day, but I do find myself wondering if I'm relying on it a bit too heavily at times." (IDI-10, Hasedela Campus, 23-year-old female)

3.2 Motivators for pornography

Participants were mentioned various reasons for watching pornography. Here are some quotes; "(...) Honestly, I'm fascinated by human diversity and the beauty of different body types. Pornography provides a window into that world, allowing me to explore my curiosity safely and privately. It's like traveling the globe through visual encounters, appreciating the unique physical characteristics that people possess." (IDI-8, Main Campus, 23-year-old male student)

"(...) The visually stimulating nature of pornography is a major draw for me. The variety of available content is another benefit. It's like having access to a vast library of films and videos, each offering a different perspective or theme. It keeps things interesting and allows me to discover new things I might not have encountered otherwise." (IDI-6, Hasedela Campus, 22-year-old male student)

"(...) One of the aspects I find appealing about pornography is its potential as a tool for sexual exploration. It offers a way to learn about different sexual acts and practices, illustrating how they are depicted in various ways. This can spark new ideas and encourage me to incorporate elements I might enjoy into my own sexual experiences." (IDI-4, Main Campus, 20-year-old male student)

3.3 Relationship effect of pornography

Some participants noted that pornography consumption had minimal impact on friendships, while others expressed concerns about its potential to isolate individuals and affect relationship dynamics. The following quotes detail the relationship effects of pornography watching: "(...) Honestly, I don't think about it that much. Maybe if it's excessive, it could lead to unrealistic expectations or awkward conversations, but for most people, I don't see a big impact on friendships." (IDI-4, Health Science campus, 20-year-old male student)

"(...) Porn can mess with your head a bit. If you're watching it all the time, it might be harder to connect with someone on a deeper level—romantically or even with friends. You

might end up comparing real people to unrealistic portrayals." (IDI-2, Odaya'a campus, 22-year-old male student)

"(...) I've seen it happen with friends. They get obsessed with porn, and it isolates them. They become more withdrawn or even start objectifying people they know. It's just not healthy for relationships." (IDI-11, Odaya'a campus, 21-year-old male student)

"(...) It depends on the relationship, I guess. With some friends, it might be something we joke about or even watch together. But with a partner, it could be a turn-off if they're secretive about it or if it replaces intimacy between us." (IDI-11, Odaya'a campus, 21-year-old male student)

3.4 Perceived Extent of Pornography Exposure among University Students

Participants believed that pornography use was common among university students due to factors such as curiosity, easy online access, and social pressure. Some used it occasionally for stress relief or relaxation, while others felt pressured to keep up with peers who openly discussed their consumption. The following quotes provide insights into the perceived extent of pornography exposure among university students: "(...) Yeah, for sure. I'd say it's common. Everyone's curious, especially with easy access online. It's kind of a rite of passage in college, you know." (IDI-11, Odaya'a campus, 21-year-old male student)

"(...) I think it probably happens more than people might admit. I mean, I've used it, but not all the time. It's more like occasionally, when you're bored or stressed and just looking for something to unwind with." (IDI-4, Health Science campus, 20-year-old female student)

"(...) It's out there and easy to find. With smartphones and everything, it's just a tap away. I can see how it could be common, especially if you're not in a relationship." (IDI-10, Hasedela campus, 23-year-old male student)

"(...) Maybe not everyone, but it seems like a lot of guys talk about it. Sometimes it's just a conversation topic, or comparing what you've

seen. It can feel like a bit of pressure to keep up, you know?" (IDI-5, Odaya'a campus, 23-year-old male student)

3.5 Potential Solutions for Addressing Pornography Use

Participants proposed various strategies to address pornography use among university students, including educational campaigns, stricter internet regulations, and counseling services focused on pornography addiction. The following quotes detail the suggested solutions: "(...) I believe universities should offer more education and awareness campaigns about the negative impacts of pornography to help students understand the consequences." (IDI-13, Odaya'a Campus, 23-year-old male)

"(...) Perhaps implementing stricter internet regulations or filters on campus networks could limit access to pornographic content and reduce its prevalence among students." (IDI-14, Hasedela Campus, 21-year-old male)

"(...) Offering counseling services or support groups for students struggling with porn addiction could be a helpful solution to address this issue." (IDI-15, Health Science campus, 22-year-old female)

Quantitative Results

3.6 Sociodemographic characteristics of the participant

A total of 1,269 participants were included in the current study, resulting in a response rate of 94%. The average age of the participants was 21.7 years, with a standard deviation of 1.3 years. The majority of participants were male (870, 72.9%), from urban areas (696, 58.3%), and not in a romantic relationship (1,099, 92.1%). Most students were in their second year (719, 60.3%), with the largest portion coming from the College of Agriculture (231, 19.4%). Additionally, most students reported a medium grade point average (668, 56.0%) and received below 1,000 ETB monthly from their parents (734, 61.5%). A detailed overview of the sociodemographic characteristics of the participants is provided in Table 1.

Table 1 Description of socio-demographic characteristics of participants at Dilla University, South Ethiopia region, 2023

Variables		Mean	Standard dev.
Age (in year)		21.7	1.3
		Frequency	Percent
Gender	Male	870	72.9
	Female	323	27.1
	Relationship status		
	In romantic relationship	94	7.9
	Not in romantic relationship	1099	92.1
Year of Study	First-year	53	4.4
	Second-year	719	60.3
	Third-year	227	19
	Fourth-year	163	13.7
	Fifth-year	31	2.6
Faculty/College	Health and Medicine	185	15.5
	Engineering and Technology	203	17
	Agriculture	231	19.4
	Social Science and Humanities	225	18.9
	Business and Economics	189	15.8
	Natural and Computational Science	160	13.4
Semester Grade Point Average status	Low	86	7.2
	Medium	668	56
	Good performance	439	36.8
Residence	Rural	497	41.7
	Urban	696	58.3
Amount of money received from parents monthly	Low amount(<1000ETB)	734	61.5
	Medium amount(1000-3000ETB)	400	33.5
	High amount(>3000ETB)	59	4.9

3.7 Lifestyle-related factors

This study assessed student habits related to health, academic practices, and media consumption. Among the participants, 665 (55.7%) reported engaging in regular physical activity, while 802 (67.2%) indicated satisfaction with their sleep. The majority (888, 74.4%) reported maintaining a regular study schedule. Regarding social media use, 842 (70.6%) of the partici-

pants utilized a moderate number of platforms. Additionally, most participants (713, 59.8%) reported using smartphones as their primary device for watching pornography, followed by 332 (27.3%) who used movies or videos. A detailed overview of lifestyle-related factors is provided in Table 2.

Table 2 Description of Lifestyle-related factors of study participants at Dilla University, South Ethiopia region, 2023

Variables	Category	Frequency	Percent
Regular physical activity	Yes	665	55.7
	No	528	44.3
Sleep satisfaction	Yes	802	67.2
	No	391	32.8
Regular study schedule	Yes	888	74.4
	No	305	25.6
Social media use	Few platforms	149	12.5
	Medium platforms	842	70.6
	All type platforms	202	16.9
Source of pornography watch	Smartphone	713	59.8
	Movie or Video	332	27.8
	Television	27	2.3
	Magazine or Book	76	6.4
	School Resources	45	3.8

3.8 Substance-related factors

The current study assessed substance use among participants over the past three months as well as lifetime use. Of the participants, 300 (25.1%) reported current alcohol use, while 456 (38.2%)

reported lifetime alcohol use. Additionally, 18 (1.5%) reported current marijuana use, and 31 (2.6%) reported lifetime heroin use. A detailed overview of current and lifetime substance use is provided in Table 3.

Table 3 Description of substance-related factors of study participants at Dilla University, South Ethiopia region, 2023

Current substance use (in the last 3 months)				Lifetime substance use			
Variables	Category	Frequency	Percent	Variables	Category	Frequency	Percent
Alcohol	Yes	300	25.1	Alcohol	Yes	456	38.2
	No	893	74.9		No	737	61.8
Khat	Yes	16	1.3	Khat	Yes	40	3.4
	No	1177	98.7		No	1153	96.6
Tobacco	Yes	15	1.3	Tobacco	Yes	17	1.4
	No	1178	98.7		No	1176	98.6
Marijuana	Yes	18	1.5	Marijuana	Yes	10	0.8
	No	1177	98.5		No	1183	99.2
Heroin	Yes	31	2.6	Heroin	Yes	0	0
	No	1162	97.4		No	1193	100

3.9 The magnitude of problematic pornography watching and mental distress among study participants

The current study found that 14.9% (95% CI = 12.9% to 17.9%) of participants engaged in problematic pornography watching (Figure 2), and 60.4% (95% CI = 57.5% to 63.1%) reported experiencing mental distress.

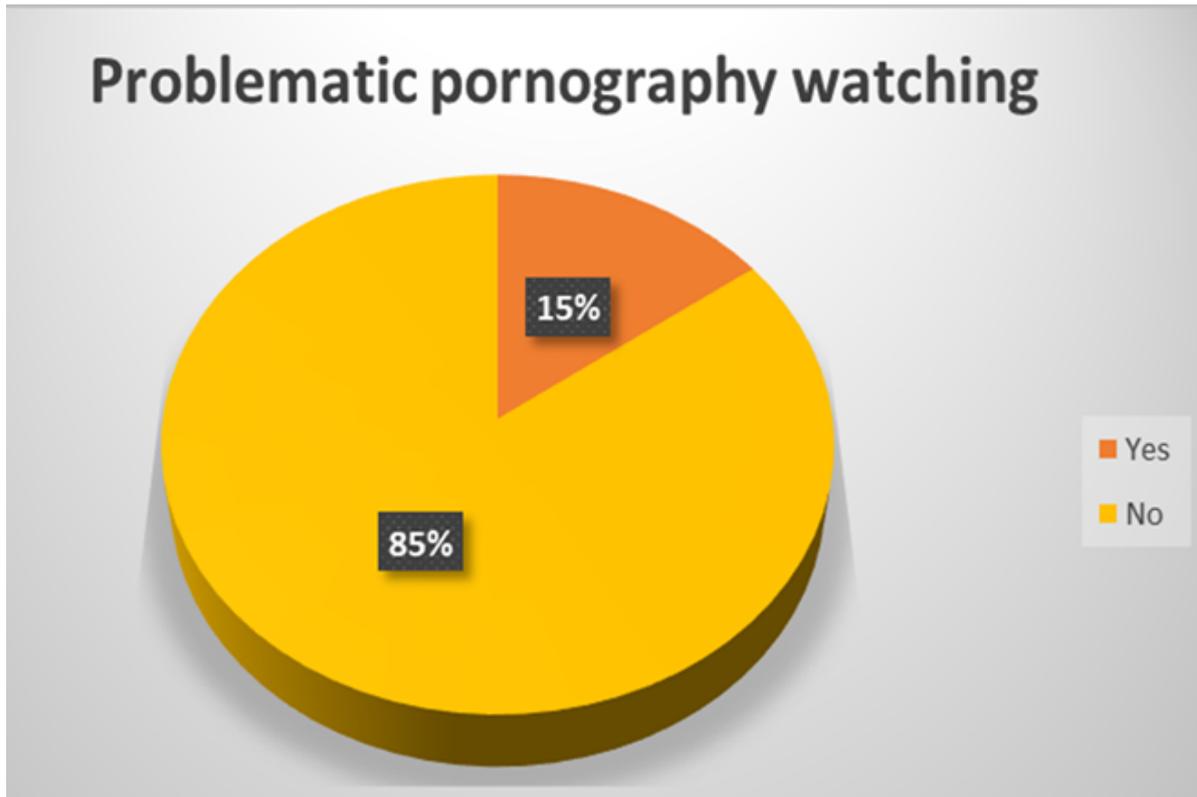


Figure 2 Magnitude of problematic pornography watching among study participants at Dilla University, South Ethiopia region, 2023

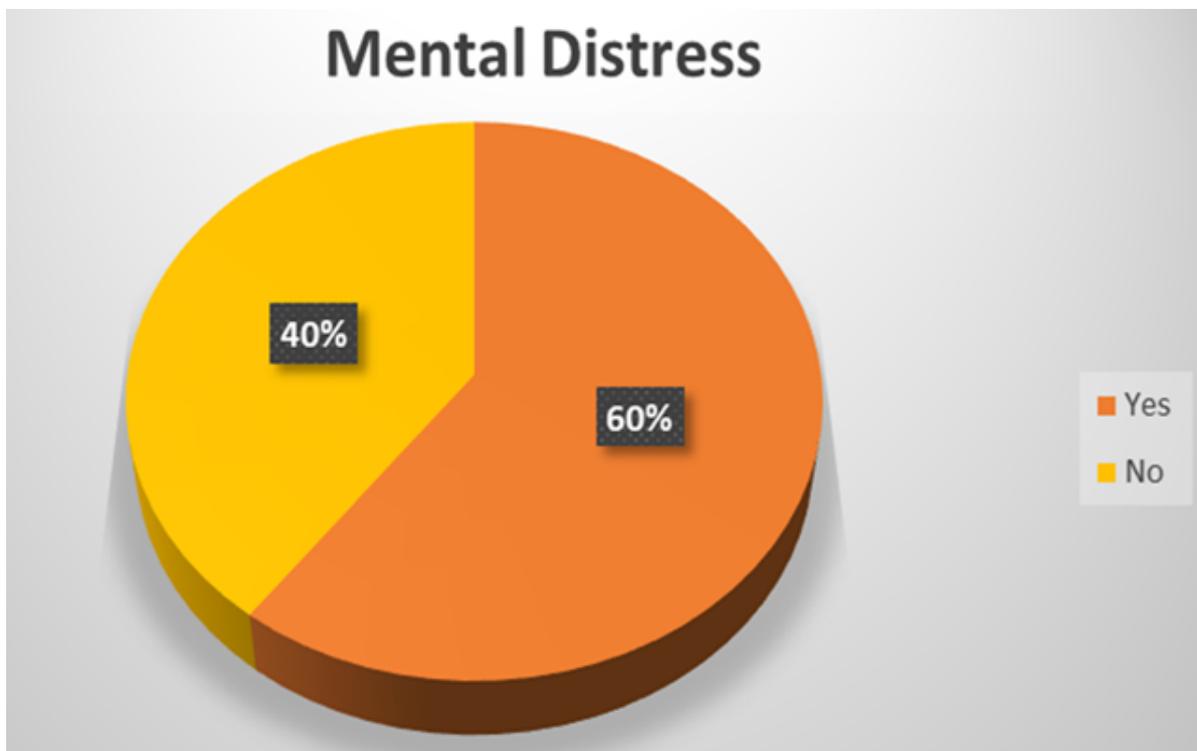


Figure 3 Magnitude of mental distress among study participants at Dilla University, South Ethiopia region, 2023

3.10 Factors associated with problematic pornography watching

This study identified several factors significantly associated with problematic pornography consumption. Males were more likely to engage in problematic viewing compared to females (AOR: 1.61, 95,% CI: 1.65-2.74). Participants reporting mental distress were also more likely to engage in problematic pornography use (AOR: 2.20, 95,% CI: 1.97-3.48). Furthermore, those not in romantic relationships and those with poor social support were more likely to report problematic usage compared to their counterparts (AOR: 2.00, 95,% CI: 1.98-2.94 and AOR: 2.20, 95,% CI: 1.84-3.47, respectively). Individuals

with poor social support were more likely to engage in problematic pornography use (AOR: 2.20, 95,% CI: 1.97-3.48) compared to those with better support (Table 4).

Additionally, internet addiction and poor peer relationships were significant factors (AOR: 2.00, 95,% CI: 1.65-2.92 and AOR: 1.40, 95,% CI: 1.18-2.23, respectively). The study found a statistically significant association between attitudes toward pornography use and the outcome variable. Participants with a positive attitude toward pornography were 2.10 times more likely to experience the outcome compared to their counterparts (AOR: 2.10, 95,% CI: 1.626-2.877, p-value: 0.000).

Table 4 Description of bivariate and multivariable binary logistic regression analysis showing an association between problematic pornography watching and associated factors among study participants at Dilla University, Gedeo Zone, South Ethiopia Region

Variable	Category	Problematic Pornography Watching		Crude Odd Ratio (95% CI)	Adjusted Odd Ratio (95% CI)	P-Value
		Yes	No			
Gender	Male	111	759	2.12[1.571 , 2.877]	1.61[1.649 , 2.740]*	0
	Female	67	256	1	1	
Romantic Relationship status	Yes	401	298	1	1	
	No	177	317	2.4[1.901 , 3.055]	2.0[1.975, 2.941]*	0
Social Support	Poor	86	195	2.5[1.727 , 3.684]	2.20[1.835,3.467]*	0
	Intermediate	85	444	1.09[0.760 , 1.577]	0.83[0.806, 1.487]	0.3
	Strong	57	326	1	1	
Monthly money from the parents	Low	119	515	0.1[0.070 , 0.150]0	0.87[0.074,0.141]	0
	Medium	55	345	0.08[0.055 , 0.130]	0.06[0.059,0.121]	0
	High	104	55	1	1	
Mental distress	Yes	68	194	2.6[1.861 , 3.677]	2.20[1.966 , 3.481]*	0
	No	110	821	1	1	
Internet Addiction	Yes	121	499	2.20[1.565 , 3.078]	2.0[1.653 , 2.915]*	0
	No	57	616	1	1	
Peer relationship status	Good	144	844	1	1	
	Poor	34	171	1.62[1.110 , 2.365]	1.4 [1.180, 2.226]*	0
Residence	Rural	77	420	1	1	
	Urban	101	595	0.93[0.671 , 1.277]	0.80 [0.707, 1.213]	0.3
Attitude towards pornography use	Positive	115	431	2.47(1.776, 3.445)	2.10(1.626, 2.877)*	0
	Negative	63	584		1	
Current alcohol use	Yes	200	100	2.46(1.874 , 3.242)	2.0 (1.959, 3.102)	0
	No	400	493	1	1	

Hosmer and Lemeshow test result was P=0.61, *indicate factors with significant association

In addition, among participants who reported receiving less than 1,000 ETB per month, the likelihood of problematic pornography watching decreased by 87,% (AOR: 0.87, 95,% CI: 0.074–0.14) compared to those receiving more than 3,000 ETB monthly. Finally, participants who reported current alcohol use were more likely to engage in problematic pornography watching compared to non-drinkers (AOR: 2.00, 95,% CI: 1.959-3.102).

4 Discussion

The current study found that 14.9,% of participants engaged in problematic pornography viewing, and 60,% reported experiencing mental distress. These results align with previous studies conducted among university students in various countries. For instance, a study in India reported that 12.5,% of undergraduate medical students engaged in problematic pornography use [29]. Similarly, studies in Poland (15.5,% [8] and Kenya (16.7,% [39] illustrated comparable rates among students at private and public universities.

Findings from the qualitative component also indicated frequent pornography use among students. One participant stated, “*Yeah, for sure. I’d say it’s pretty common. Everyone’s curious, especially with easy access online. It’s kind of a rite of passage in college, you know*” (IDI-11, Odaya’a campus, 21-year-old male student). These findings suggest a potential cross-cultural prevalence of problematic pornography use among university students.

However, a previous study in Addis Ababa, Ethiopia, reported a significantly higher rate (47,% of pornography consumption [20]. This discrepancy is likely due to methodological differences; the Addis Ababa study employed a simpler method to measure pornography use, whereas our study utilized a standardized tool. Additionally, a qualitative study noted that all participants used pornography as a means of sexual gratification [58].

This study identified several factors associated with problematic pornography viewing. Notably,

males were more likely to engage in problematic pornography viewing compared to females, consistent with another study conducted in Hawassa City, Ethiopia, which found that young men were more frequently exposed to sexually explicit content than young women [38].

Participants experiencing mental distress were over twice as likely to engage in problematic pornography use compared to those without such distress. This finding aligns with broader research, as a systematic review identified a positive link between problematic pornography use and psychological stress. Moreover, individuals struggling with emotional regulation appear to be more susceptible to problematic pornography use [59].

The qualitative data revealed a contradictory issue regarding the effect of pornography on mental health. Two participants offered differing perspectives: one stated, “*For sure, it can be unhealthy. The online content can be so unrealistic and messed up that it skews what normal sex should be like. And yeah, sometimes after watching for a while, I do feel kind of icky*” (IDI-7, Health Science campus, a 22-year-old male student). In contrast, another participant said, “*It can be a good way to unwind after a long day, but I do catch myself wondering if I’m relying on it a bit too heavily sometimes*” (IDI-10, Hasedela campus, 23-year-old female student).

These findings align with a qualitative study by Palazzolo and Bettman, which examined the lived experiences of individuals with self-reported problematic pornography use and found it to be associated with significant personal suffering, negative impacts on mental health and relationship satisfaction, and a sense of dependency akin to substance addiction [60]. However, other research indicates that the relationship between problematic pornography use and mental health outcomes is complex and influenced by factors such as loneliness, anxiety, and self-esteem [61].

This study also revealed that students not in romantic relationships were twice as likely to report problematic pornography use compared to

those in relationships. This finding echoes a similar correlation observed in a study conducted among university students in Calgary, Canada [62]. However, the qualitative component of the current study presented a contradictory view regarding relationships. Some participants suggested that moderate pornography use does not significantly impact relationships. One participant noted, *“Honestly, I don’t think about it that much. Maybe if it’s excessive, it could lead to unrealistic expectations or awkward conversations, but for most people, I don’t see a big impact on friendships”* (IDI-4, Health Science campus, 20-year-old male student).

Conversely, other participants highlighted the potential negative consequences of excessive pornography use on relationships. One participant remarked, *“Porn can mess with your head a bit. If you’re watching it all the time, it might be harder to connect with someone on a deeper level, romantically or even with friends. You might compare real people to unrealistic portrayals”* (IDI-2, Odaya’a campus, 22-year-old male student). Another participant echoed similar concerns, stating, *“I’ve seen it happen with friends. They get obsessed with porn, and it isolates them. They might become more withdrawn or even start objectifying people they know. It’s just not healthy for relationships”* (IDI-11, Odaya’a campus, 21-year-old male student).

These findings align with a qualitative study that noted pornography use can have both positive and negative effects on romantic relationships. Many participants reported no impact, while others described benefits such as increased sexual satisfaction and diversity. However, some experienced negative consequences, including feelings of inadequacy and unrealistic expectations [63].

Additionally, participants with both internet addiction and a positive view of pornography were twice as likely to engage in problematic pornography use compared to their counterparts [64]. This is consistent with findings from a similar study conducted among undergraduate medical students. These results suggest a need for targeted interventions, particularly among university students, to address internet addiction,

unhealthy attitudes toward pornography, and problematic consumption.

Finally, this study identified connections between problematic pornography use and other concerning behaviors. Participants who reported current alcohol use and a lack of strong social support were twice as likely to engage in problematic pornography viewing compared to those with better support. This is consistent with previous studies indicating a correlation between poor family support, problematic alcohol use, and problematic pornography consumption [62, 65].

5 Conclusion

This study among Dilla University students in Ethiopia revealed a concerning prevalence of problematic pornography use (14.9,%) and mental distress (60.4,%). Several factors were associated with problematic pornography use, including male gender, lack of romantic relationships, poor social support, mental distress, internet addiction, a positive attitude toward pornography, and current alcohol use. These findings highlight the need for interventions that address modifiable factors and promote healthy sexual attitudes and behaviors among university students.

Study limitation

While this study provides valuable insights into the relationship between pornography consumption and mental distress among Dilla University students, it is important to acknowledge its limitations. First, cross-sectional design restricts the ability to establish causal relationships between variables. Second, the self-reported nature of the data may be subject to social desirability bias, leading participants to either under-report or over-report their pornography consumption and mental health symptoms. To mitigate this issue, future studies could consider employing more objective measures, such as physiological or behavioral indicators. Finally, the focus on a specific population of university students in Southern Ethiopia limits the generalizability of the findings to other demographic groups.

Recommendation

Given the findings of this study, particularly the high prevalence of problematic pornography use (14.9,%) and mental distress (60.4,%) among students, we propose the following recommendations.

First, it is essential to integrate mental health and sexual health services into existing student clinic offerings at universities. These integrated services would provide support for students struggling with pornography addiction, its negative mental health effects, and unhealthy relationship dynamics.

Second, universities should develop and routinely conduct awareness programs, facilitated through student clubs, focusing on internet addiction, problematic pornography consumption, and its mental health impacts.

Finally, this study underscores the need for further research to investigate the long-term consequences of problematic pornography use on academic performance, relationships, and mental health, as well as to evaluate the effectiveness of various educational and intervention programs.

List of Abbreviations

AOR	Adjusted Odds Ratio
ATPS	Attitudes toward Pornography Scale
BSc	Bachelor of Science
CHMS	College of Health and Medical Sciences
CI	Confidence Interval
COR	Crude Odd Ratio
CSBD	Compulsive Sexual Behavior Disorder
DU	Dilla University
DSM-5	Diagnostic and statistical manual 5 th edition
IDI	In-depth Interview
IP	Internet Pornography
ICD-11	International Classification of Diseases 11 th Edition
K10	10-Item Kessler Psychological Distress Scale
OSSS-3	Oslo Social Support Scale
PPCS-6	Problematic Pornography Consumption Scale-6
PPV	Problematic Pornography Viewing
PPU	Problematic Pornography use

RDO	Research Director Office
s-IAT	short form of the Internet Addiction Test
SPSS	Statistical Package for Social Sciences
SUD	Substance Use Disorder

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Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the Institutional Review Board (IRB) of Dilla University College of Medicine and Health Sciences prior to conducting the study. Participants were provided with informed consent after the study's purpose was explained to them. Personal identification was kept confidential throughout the study, and participants were assured they could withdraw at any time if they wished.

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