



# Addiction/Drug Use and Usage of Condoms Among Homosexual Males: A Cross-sectional Study

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## Abstract

**Background:** Despite the legal acceptance of homosexuality in India, it remains a social taboo, resulting in various challenges being faced by homosexual males. These challenges mainly include issues such as addiction/drug use and inconsistent and/or incorrect condom usage which increase the risk of acquiring sexually transmitted infections (STIs) and HIV among them. This study was thus conducted with the objective of studying the patterns of addiction/drug use and condom usage among homosexual males.

**Methods:** The study was conducted at outreach sites of a non-governmental organization (NGO). A total of 240 participants, consisting of homosexual and bisexual males aged 18-24 years who were residing in the metropolitan city of Mumbai for at least 1 year, were enrolled. Data about addiction/drug use and patterns of condom usage was collected, compiled, entered into Microsoft Excel, and subsequently analyzed using SPSS.

**Findings:** Out of the total participants, 171 (71.2%) reported engaging in addiction/drug use. Among those participants, 105 (61.4%) engaged in alcohol consumption prior to sexual contact to enhance pleasure or delay climax. Cigarette smoking was the most common type of addiction. Statistically significant association was found between habitual addiction/drug use ( $P=0.0023$ ), use of ecstasy/aphrodisiac drugs ( $P=0.00654$ ) and, inconsistent and/or incorrect condom use among the participants. However, planned addiction/drug use only before sexual contact did not show a significant association ( $P=0.066$ ).

**Conclusion:** Habitual addiction/drug use among homosexual males increases the likelihood of engaging in inconsistent and/or incorrect condom use, thereby elevating the risk of acquiring STIs and HIV. To mitigate this risk, interventions targeting addiction/drug use prevention should be initiated during adolescence to address this issue at an earlier stage of life.

**Keywords:** Addiction, Homosexuality, Homosexual, High risk, Sexual

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## Introduction

The term “homosexual” is derived from the Greek word “homos,” meaning “same.” It refers to individuals who engage in sexual activity with or experience sexual attraction to people of the same sex.<sup>1</sup> Estimating the precise percentage of the homosexual population is often challenging due to many individuals leading secretive lives. Despite the legal acceptance of homosexuality and the extension of legal protections to the homosexual population in India, broad societal disapproval persists. Consequently, homosexuals face numerous challenges, including social exclusion due to insensitive attitudes, discrimination, limited education, lower living standards, delinquency and other legal issues, depression, anxiety, suicidal thoughts, eating disorders, fleeing from stressful lives, emotional exhaustion, selling blood for financial

gain, harassment, genital injuries, violence, inadequate access to services, treatment and care, nutritional problems, substance abuse, engaging in high-risk sexual behavior, and involvement in male prostitution. The impact of these challenges varies based on factors such as age, education, socioeconomic status, religion, and geographic location. Among these challenges, high-risk sexual behavior and substance abuse have the most significant impact on the health of homosexual individuals.

Drug addiction can be defined as a state of periodic or chronic intoxication caused by the repeated use of habit-forming drugs, which is detrimental to both individuals and society.<sup>2</sup> Numerous studies have indicated that both adults and adolescents within the LGBTQ (lesbian, gay, bisexual, transgender, and queer) community



face a higher risk of substance use compared to their heterosexual counterparts.<sup>3-8</sup> The Centers for Disease Control and Prevention (CDC), Atlanta has identified substance abuse as a significant risk factor for HIV, with its prevalence being particularly high among men who have sex with men (MSM).<sup>9</sup>

Approximately 12 million new cases of sexually transmitted infections (STIs) are reported worldwide each year, with two-thirds of these cases occurring in adolescents and young adults.<sup>10</sup> In India, STIs have become a significant public health concern and rank among the top 10 diseases for which adults seek primary care physician visits.<sup>11</sup> It comes as no surprise that India has the third-largest number of individuals living with HIV/AIDS globally, following South Africa and Nigeria.<sup>12</sup> While the general trend shows a decline in the incidence of HIV infection, it still remains high among high-risk populations, including homosexual men. In India, the prevalence of HIV infection among MSM was found to be approximately 2.7%, compared to the national average of 0.22% (0.17%-0.29%).<sup>13</sup>

In 2003, Singer and Clair proposed the Syndemics Theory, which states that contextual and social factors contribute to the clustering and synergistic interaction of diseases, resulting in worse health outcomes within a population. The CDC, Atlanta defines a syndemic as the synergistic interaction between 2 or more epidemics, leading to an increased burden of disease in a population.<sup>14</sup> This theory may help explain the higher prevalence of HIV infection among MSM, as substance use, engaging in multiple sexual partners, high-risk sexual activities, and inconsistent and/or incorrect condom use all act synergistically, contributing to the spread of the epidemic. The effectiveness of condoms in preventing the transmission of sexually transmitted infections (STIs), including HIV, primarily depends on their consistent and correct use.<sup>15</sup> Condoms are a critical tool in HIV prevention, demonstrating high effectiveness in preventing the transmission of HIV and STIs when used consistently and correctly.<sup>16</sup>

There is a general consensus that substance abuse increases the risk of engaging in unprotected sexual activity, leading to higher transmission rates of STIs, including HIV. However, the scientific literature presents conflicting findings on this topic. Bellis and his colleagues in a study found an association between cannabis use and more instances of condomless anal sex.<sup>17</sup> Similar findings were demonstrated by Bustamante et al,<sup>18</sup> while Ogbuagu et al concluded that MSM who engage in unhealthy drinking in addition to cannabis use were even more likely to participate in condomless sex.<sup>19</sup> Elifson et al discovered that individuals who reported binge use of ecstasy had lower rates of condom use compared to those who had never done so.<sup>20</sup> On the contrary, a meta-analysis by Leigh BC and a study by Weinhardt and Carey

found inconsistent results regarding the association between alcohol use and risky sexual behavior, leading to the conclusion that there is no definitive support for the hypothesis that alcohol consumption directly influences sexual risk behavior.<sup>21,22</sup>

In the context of India, while numerous studies have been conducted among the heterosexual population, data on MSM is primarily collected in clinical settings where individuals are more likely to report socially desirable behaviors, potentially leading to an underestimation of the actual statistics. Moreover, studies specifically evaluating the relationship between addiction/drug use and condom usage among homosexual males are limited, as this population is often inaccessible due to their mobile nature. Therefore, there remains a significant knowledge gap regarding this issue.

Providing high-quality and effective health care to individuals necessitates a comprehensive understanding of their lives and circumstances, including behaviors that directly impact their health. The youth plays a pivotal role in any nation, as they constitute more than 50% of the total population. Therefore, promoting their healthy and sustainable development not only benefits their well-being but also enhances the productivity of the entire country. With these considerations in mind, this study was conducted to gain insights into the current situation regarding addiction/drug use and condom usage among homosexual males aged 18-24 years. The study aimed to achieve the following objectives:

1. To study the addiction/drug use and condom usage among the participants.
2. To find out the association between addiction/drug use and condom usage.

## Materials and Methods

This field-based epidemiological descriptive cross-sectional study was conducted at the outreach sites of a non-governmental organization (NGO) in the metropolitan city of Mumbai. It focused on homosexual males (including bisexual males) aged 18-24 years who were residing in city of Mumbai for a minimum duration of 1 year. Transgender individuals were not included in the study.

### Sample size calculation

In a previous similar study, the prevalence of consistent and correct condom use was found to be 33%.<sup>23</sup> Using the formula  $4pq/l^2$  (as it is a field-based study) with a 95% confidence interval (CI), the sample size was estimated to be 240.<sup>24</sup>

### Questionnaire development, administrative, and institutional ethics committee approval

A semi-structured questionnaire, referred to as interview schedule, was prepared for data collection. The

questionnaire consisted of questions regarding addiction/drug use and a scale for assessing consistent and correct condom use. This scale was developed using the Condom Use Fact Sheet from CDC, Atlanta.<sup>25</sup> All the questions in the questionnaire and the scale were validated by subject experts who have expertise in this field. With their approval, participants scoring less than 8 on the scale were considered to be using condoms inconsistently and/or incorrectly. The necessary administrative permissions were obtained from the Head of the Institute, and approval from the Institutional Ethics Committee (IEC) to conduct the study was also obtained.

### Sampling technique

A non-profit NGO dedicated to improving the well-being of the homosexual population and providing them with preventive, promotive, diagnostic and curative services within Mumbai was selected. Written permission was obtained from the Director of the NGO to conduct the study. Data collection was carried out with the assistance of the program manager (who himself is a member of the homosexual community) at the 10 outreach sites (referred to as hotspots) maintained by the NGO.<sup>26</sup> A total of 24 participants were enrolled from each study site using the snowball sampling technique to achieve the desired sample size of 240. During the data collection process, the participants were provided with an explanation of the study in the language they understood. After obtaining written informed consent from each participant, individual interviews were conducted by the interviewer to ensure privacy.

### Data analysis and documentation

After completing the data collection, the responses from all 240 participants were compiled, entered into Microsoft Excel, and analyzed using SPSS to obtain the results. Qualitative data, such as the presence of addiction, type of addiction, family knowledge about addiction, quitting addiction, addiction before sexual contact, etc., were presented as frequency distributions and percentages. The association between condom use (dependent variable) and addiction (independent variable) was assessed using the chi-square test. For tables with more than 2 rows and/or columns and small counts, data in the adjacent row and/or column were pooled, and the continuity correction was applied. The resulting *P* value was considered when preparing the final results (only  $P < 0.05$  was considered significant). Quantitative data, such as duration of addiction, was presented in the form of mean  $\pm$  SD. Binary logistic regression was performed to analyze the relationship between addiction (independent variable) and condom use (dependent variable).

### Results

Table 1 presents the findings related to addiction/drug

**Table 1.** Details of addiction/drug use by the participants

Details of addiction/drug use		N=240	Percent
Addiction/drug use present	Yes	171	71.2
	No	69	28.8
Type of substance/drug used <sup>a,b</sup>	Alcohol	74	43.3
	Smoking cigarette	92	53.8
	Chewing tobacco	54	31.6
	Injectable drugs	10	5.8
	Ganja (Cannabis)	43	25.1
	Aphrodisiac drugs	22	12.9
	Ecstasy	67	39.2
Family knowledge about addiction/drug use <sup>a</sup>	Yes	79	46.2
	No	92	53.8
Any addiction/drug use before sexual contact? <sup>a</sup>	Yes	105	61.4
	No	66	38.6
Type of addiction/drug use before sexual contact <sup>c</sup>	Alcohol	38	36.2
	Smoking cigarette	6	5.7
	Injectable drugs	4	3.8
	Ganja	22	21.0
	Ecstasy	35	33.3
Reason for addiction/drug use before sexual contact <sup>c</sup>	Increased pleasure	65	61.9
	Increased pleasure + late climax	34	32.4
History of ever trying to quit addiction/drug use <sup>a</sup>	Late climax	6	5.7
	Yes	02	1.1
	No	169	98.9

<sup>a</sup> Question was asked only to the 171 participants who had answered Yes to the question of Addiction/Drug use present

<sup>b</sup> Multiple Responses were given by a single participant.

<sup>c</sup> Question was asked only to the 105 participants whose answer was Yes to the question – Any Addiction/Drug use before sexual contact.

usage among the 240 participants. Out of these, 171 participants (71.2%) were found to have addiction/drug usage (as shown in Figure 1). Among the 171 participants having addiction, the most prevalent form of addiction was cigarette smoking which was reported by 92 (53.8%) of the participants. About 115 (67.3%) were engaging in only 1 form of addiction/ drug use, while 56 (32.7%) were involved in multiple forms. Families of 79 (46.2%) participants were aware about their addiction/drug use. Prior to sexual contact, 105 participants (61.4%) engaged in addiction/drug use, with alcohol consumption being the most common. Participants mentioned 2 reasons for engaging in addiction/drug use before sexual contact: increased pleasure and delayed climax, which helped to prolong sexual activity. Only 2 (1.1%) out of the 171 participants who were engaging in addiction/drug use had attempted to quit but were unable to sustain abstinence and ultimately resumed usage soon after quitting.

The mean duration of alcohol use was found to be  $3.50 \pm 1.39$  years. For cigarette smoking, it was  $3.49 \pm 1.67$

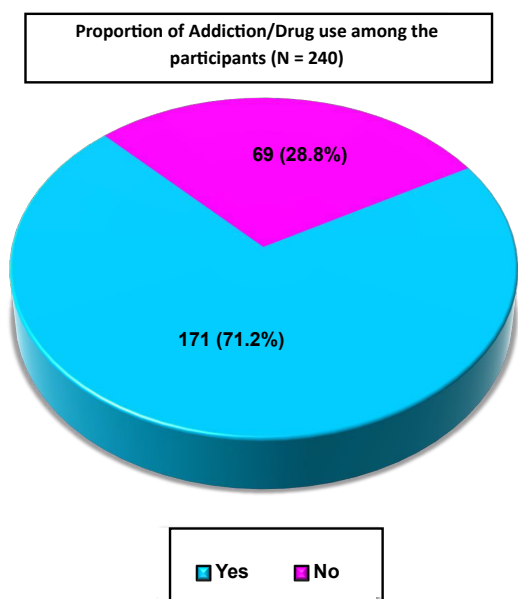


Figure 1. Proportion of addiction/drug use among participants

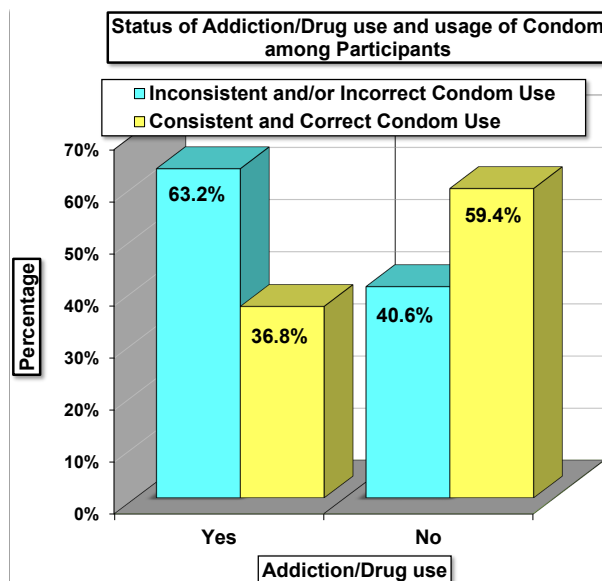


Figure 2. Addiction/Drug use and usage of condom

years, for chewing tobacco, it was  $4.11 \pm 1.61$  years, for using injectable drugs, it was  $4.10 \pm 1.29$  years, for ecstasy use, it was  $3.30 \pm 1.33$  years, for ganja (cannabis) use it was  $6.28 \pm 2.43$  years, and for aphrodisiac drugs usage, it was  $2.82 \pm 0.91$  years. The maximum duration of addiction/drug use among the participants was 8 years, while the minimum duration was 1 year.

Out of the 240 participants, 136 (56.7%) were using condoms inconsistently and/or incorrectly, scoring below 8 (mean score  $6.40 \pm 2.42$ ).

From Table 2, it is evident that participants who were not engaging in any kind of addiction/drug use demonstrated more consistent and correct condom use with a significant association ( $p=0.00228$ ; relative risk for participants engaging in addiction/drug use = 1.311; 95% CI: 1.098-1.565; for participants not engaging in addiction/drug use = 0.522; 95% CI: 0.348-0.785; risk difference = 0.789; Figure 2). A significant association ( $P=0.00654$ ) was also observed between inconsistent and/or incorrect condom use and the use of aphrodisiac drugs. However, no statistically significant association was found between condom use and family awareness of the participant's addiction/drug use ( $P=0.400$ ; relative risk for family knowing about participant's addiction/drug use = 0.857; 95% CI: 0.619-1.185; for family not knowing about participant's addiction/drug use = 1.148; 95% CI: 0.850-1.550; risk difference = 0.291). Similarly, there was no statistically significant association between addiction/drug use before sexual contact and condom use ( $P=0.066$ ; relative risk for addiction/drug use before sexual contact = 1.348; 95% CI 0.994-1.830; for no addiction/drug use before sexual contact = 0.799; 95% CI: 0.641-0.997; risk difference = 0.549). The binary logistic regression between addiction (independent variable) and condom use (dependent variable) was also not significant

( $P=0.176$ ).

## Discussion

As mentioned earlier, there have been limited studies conducted in India among homosexual men to explore the causal relationship between addiction and condom use during sexual contact. Therefore, this study was conducted to gather data on the current situation. Inconsistent and/or incorrect condom use among homosexual men puts them at risk of contracting STIs, including HIV, due to their risky behavior, which has negative implications for their own, as well as the health of their families.

Since most studies are conducted in clinical settings, there is a sense of "hesitation" among patients who participate in the study when it comes to reporting their addiction. This hesitation stems from the belief and fear that their behavior is socially inappropriate, resulting in a lack of reliable data and inappropriate statistical analysis, which fails to provide an accurate depiction of the actual situation.

The findings of this study shed light on the fact that significant proportion of young homosexual men engage in addiction/drug use at a young age, often starting during adolescence as the study participants were in the age group of 18-24 years, with the longest duration of addiction/drug use being 8 years. It is also evident that addiction/drug use is associated with inconsistent and/or incorrect condom use among them.

The research hypothesis formulated for this study was that "addiction/drug use is associated with inconsistent and/or incorrect condom use among homosexual males." This hypothesis has been supported by the statistical tests conducted during the analysis of the results. The participants exhibited various addictive behaviors,

**Table 2.** Association between addiction/drug use and usage of condom

Details of addiction/drug use	Condom use		N = 240 (%)	P value <sup>a</sup>
	Inconsistent and/or Incorrect Condom use	Consistent and Correct Condom use		
<b>Addiction/drug use present</b>				
Yes	108 (63.2%)	63 (36.8%)	171 (100.0%)	$\chi^2 = 9.307$ , $df = 1$ , $P = 0.00228$ <sup>b</sup>
No	28 (40.6%)	41 (59.4%)	69 (100.0%)	
<b>Type of addiction/drug use</b>				
Smoking <sup>c</sup>	26 (47.3%)	29 (52.7%)	55 (100.0%)	$\chi^2 = 9.307$ , $df = 1$ , $P = 0.00228$ <sup>b</sup>
Tobacco chewing <sup>c</sup>	21 (70.0%)	9 (30.0%)	30 (100.0%)	
Alcohol <sup>c</sup>	21 (70.0%)	9 (30.0%)	30 (100.0%)	
Alcohol, smoking, ganja (Cannabis) <sup>c</sup>	20 (90.9%)	2 (9.1%)	22 (100.0%)	
Alcohol, tobacco chewing, ganja (Cannabis) <sup>c</sup>	7 (63.6%)	4 (36.4%)	11 (100.0%)	
Alcohol, smoking, tobacco, chewing <sup>c</sup>	5 (62.5%)	3 (37.5%)	8 (100.0%)	
Injectable drug, ganja (Cannabis) <sup>c</sup>	3 (42.9%)	4 (57.1%)	7 (100.0%)	
Smoking, tobacco chewing <sup>c</sup>	1 (25.0%)	3 (75.0%)	4 (100.0%)	
Alcohol, smoking, injectable drug, ganja (Cannabis) <sup>c</sup>	3 (100%)	0 (0.0%)	3 (100.0%)	
Tobacco chewing, paint thinner inhalation <sup>c</sup>	1 (100%)	0 (0.0%)	1 (100.0%)	
No addiction	28 (40.6%)	41 (59.4%)	69 (100.0%)	
<b>Ecstasy or aphrodisiac drugs use</b>				
Ecstasy	29 (50.0%)	29 (50.0%)	58 (100.0%)	$\chi^2 = 12.262$ , $df = 3$ , $P = 0.00654$
Aphrodisiac drugs	12 (92.3%)	1 (7.7%)	13 (100.0%)	
Ecstasy and aphrodisiac drugs	2 (22.2%)	7 (77.8%)	9 (100.0%)	
None	93 (58.1%)	67 (41.9%)	160 (100%)	
<b>Family knowledge about addiction/drug use<sup>d</sup></b>				
Yes	47 (59.5%)	32 (40.5%)	79 (100.0%)	$\chi^2 = 0.707$ , $df = 1$ , $P = 0.400$ <sup>b</sup>
No	61 (66.3%)	31 (33.7%)	92 (100.0%)	
<b>Addiction/Drug use before sexual contact<sup>e</sup></b>				
Yes	67 (63.8%)	38 (36.2%)	105 (100.0%)	$\chi^2 = 3.379$ , $df = 1$ , $P = 0.066$ <sup>b</sup>
No	69 (51.1%)	66 (48.9%)	135 (100.0%)	

<sup>a</sup> Chi-square test applied.

<sup>b</sup> Continuity correction applied.

<sup>c</sup> 11 cells (50.0%) have expected count less than 5. The chi-square Test was reapplied with continuity correction after row data was pooled.

<sup>d</sup> Only 171 participants having addiction/drug use were included for comparison, following which the chi-square test was applied.

<sup>e</sup> All participants (i.e., 240) were included for comparison, and chi-square test was applied.

including alcohol consumption, ganja (cannabis) abuse, cigarette smoking, tobacco chewing, use of ecstasy and aphrodisiac drugs, and intravenous drug use. A significant association was found between all types of substance use and inconsistent and/or incorrect condom usage. Additionally, the use of multiple substances was associated with even greater inconsistency and/or incorrect usage of condoms, indicating higher level of impairment of cognitive functions and decision-making that leads to more impulsive and self-destructive behavior.

Several similar studies that have been done in the past have reported similar findings. Ramakrishnan et al observed that frequent alcohol use was a common factor associated with inconsistent condom use with all types of male partners.<sup>27</sup> Yi et al also reported that MSM who did not always use a condom were significantly more likely to be alcohol drinkers and illicit drug users.<sup>28</sup> Another

study by Mimiaga et al found that 28% of participants used alcohol until intoxication, and 25% reported using tobacco at least once weekly. Heavier alcohol use was associated with unprotected anal and vaginal sex at the univariate level.<sup>29</sup> Jin et al reported that participants who did not consume alcohol before sex were more likely to consistently use condoms.<sup>30</sup> In a study conducted by Ramanathan et al, four-fifths of the participants had consumed alcohol in the past month, and 11.1% had used other drugs.<sup>31</sup> These findings align closely with the results of this study, where approximately 71.2% of participants engaged in some form of addiction/drug use.

In this study, no association was found between addiction before sexual contact and condom use, despite a high proportion of participants engaging in addiction/drug use before sexual contact and using condoms inconsistently and/or incorrectly. This contrasts with the

findings of a study by Safika et al who found that men who used club drugs with their sexual partners before sex were less likely to use condoms.<sup>32</sup>

Homosexuality is still considered taboo on the social front as the Indian culture still considers heterosexuality to be legitimate, and only marriage between a woman and a man is held valid because of the belief that marriage is a means to procreate and beget a legitimate child. As a result, same-sex attraction is seen as abnormal, leading to stigmatization, ostracism, and isolation among homosexuals. These societal attitudes contribute to increased mental fatigue and stress among this population. To cope with this stress, many turn to substance use as a means of finding comfort, thereby initiating a destructive cycle of repeated substance abuse and addiction.

In addition to societal pressures, homosexuals also face the challenge of fulfilling their sexual desires discreetly, away from prying eyes. Consequently, encounters often happen spontaneously and hurriedly, in secluded and dark places, with unfamiliar partners, and often in an intoxicated state. These circumstances frequently lead to a failure to use condoms. Existing literature supports the notion that substance use diminishes inhibitions, impairs judgment, and compromises decision-making abilities, which contributes to the non-usage of condoms during sexual contact.<sup>33</sup> For instance, cigarette smoking triggers the release of dopamine, which can stimulate high-risk sexual behavior.<sup>34</sup> Alcohol consumption, as well as the use of substances like ecstasy or aphrodisiac drugs, can act as stimuli for engaging in unprotected sexual intercourse, as they are associated with increased arousal and heightened orgasm, leading to a lack of condom use.<sup>35</sup>

Given that the non-usage of condoms is linked to a higher risk of transmitting STIs, including HIV, this study demonstrates that addiction/drug use among homosexuals can be considered a significant risk factor. India is the most populous country in the world, thus preventing the spread of STIs is of significant importance. Therefore, this study can serve as a foundation for further in-depth research on this topic, contributing to the scientific literature and providing insights that can help policymakers address the increasing prevalence of addiction/drug use among homosexual males while promoting greater condom usage among them.

### Conclusion

There is a significant association between addiction/drug use and condom use, with the specific type of addiction/drug use influencing condom usage. Participants engaging in addiction/drug use face a higher risk of inconsistent and/or incorrect condom use, which has a detrimental impact on their health and overall well-being. The study revealed that addiction/drug use often begins during adolescence, which is consistent with the general population's experiences in today's world. Uncontrolled

exposure to negative influences portrayed in mass media contributes to this trend.

To prevent the escalating problem of addiction and its potentially catastrophic consequences, interventions targeting adolescents should be implemented. These interventions can utilize print media and social media platforms to raise awareness about the harmful effects of addiction and its impact on sexual health. Additionally, educating school-going children about the hazards of addiction and incorporating this topic into the formal school curriculum at an early stage can sensitize them to the issue and its complications. By instilling healthy habits during adolescence, individuals can lead better lives in adulthood.

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### Authors' Contribution

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**Methodology:** Yashowardhan V. Totala, Abhiram M. Kasbe.

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**Software:** Yashowardhan V. Totala, Abhiram M. Kasbe.

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**Supervision:** Abhiram M. Kasbe.

**Validation:** Abhiram M. Kasbe.

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