

Population-based study on smoking, alcohol consumption, and substance use among women of reproductive age in Mbeya City, Tanzania

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Abstract

Background: Knowledge of smoking, alcohol, and substance use during pregnancy among women of reproductive age is critical in reproductive health and managing unintended pregnancies.

Methods: A population-based and descriptive cross-sectional study was conducted for six months, from July to December 2020. Data were collected on sociodemographic characteristics and alcohol, smoking, and other substance use patterns. Descriptive statistics and χ^2 tests were used to assess the significance levels of associated variables.

Results: The study involved 376 respondents with ages ranging from 15 to 45 years, with a mean age of 30.4 years. The majority of the respondents, 336 (89.36%) were aware of substance use and its effects during pregnancy. Knowledge about the effects of alcohol, smoking, and other substances was significantly associated with the level of education ($\chi^2 = 37.06$, $p < 0.0001$). Among all respondents, 161 (42.82%) reported everyday consumption of substances during pregnancy; the majority consumed alcohol, 120 (74.53%). Findings show an association between younger age and substance use ($\chi^2 = 34.03$, $p < 0.0001$).

Conclusion: The existing perceptions and behaviors of people regarding substance consumption necessitate urgent health education to promote healthy pregnancy and avoid mental health issues that could jeopardize women's safety and well-being.

Keywords: Smoking, Alcohol, Substance Abuse, Reproductive Age Women, Tanzania

Introduction

Smoking, alcohol consumption, and other substance use during pregnancy are major concerns when talking about maternal and prenatal health care (Economidoy et al., 2012). It can cause a slew of health and social issues for both the mother and the child, including miscarriage, low birth weight, premature labor, placental abruption, physical abnormalities, neurological damage, fetal death, and even maternal death (CDC, 2015; Cornelius & Day, 2000; Edwards et al., 2000; Forray, 2016). Smoking, alcohol, substance use, and substance abuse and their impacts on everyday life are known worldwide (Mburu et al., 2020). Using alcohol while pregnant might result in various complications, including fetal alcohol syndrome and other harms such as spontaneous abortion, stillbirth, low birth weight, prematurity, and congenital disabilities (WHO, 2014).

Illegal or legal use of substances during pregnancy is not safe until the prescription is provided by competent healthcare providers (Dathe & Schaefer, 2019). The World Health Organization Program has set guidelines that present strategies to reduce the harmful use of alcohol. These sets provide the governments and societies guidelines in controlling substance use and recites that health professionals must play a big role in treating, managing, and assuming the teaching role to provide comprehensive education on the effect of harmful use of alcohol (WHO, 2014). Pregnancy should be a thrilling and empowering experience for a woman's life. Unfortunately, addiction and mental health problems associated with substance abuse can compromise a woman's safety and well-being (Stone, 2015).

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Unintended pregnancies account for 41% of all pregnancies worldwide, implying that many women take substances before becoming aware of their pregnancy (Sedgh et al., 2014). Substance use increases the risk of unintended pregnancy (Brown & Eisenberg, 1995). Because the signs and symptoms of substance abuse during pregnancy are often subtle, self-reports of substance use may be misleading or infrequently elicited, physicians may fail to screen for use routinely, and substance-abusing pregnant women may seek little or no prenatal care, substance abuse during pregnancy is difficult to detect (Wilson et al., 2008). Substance abuse is more prevalent among reproductive-age women than in the general population. The average pregnant woman will take four or five drugs during her pregnancy, with 82% taking prescribed drugs and 65% using non-prescription drugs, including illicit drugs.

In another study, more than 90% of pregnant women use non-prescription medications throughout their pregnancy (Kamuhabwa & Jalal, 2011). The majority of women between the ages of 15 and 45 who seek treatment are already pregnant at admission, which can cause health problems for both the mother and the child (Kifle et al., 2017). Similarly, in Tanzania, smoking, alcohol consumption, and substance use are associated with emerging non-communicable diseases (Kagaruki et al., 2015; Mashili et al., 2018).

The majority of studies on smoking, alcohol drinking, and drug use in Tanzania focused on adolescents and other groups of people (Mbatia et al., 2009; Mnyika et al., 2011). At the same time, other similar studies on knowledge were conducted in different locations (Isaksen et al., 2015; Kamuhabwa & Jalal, 2011; Mnyika et al., 2011; Mpelo et al., 2018). These previous studies to analyze drug distributors and pregnant women's knowledge in Dar es Salaam indicated that 66.5% of women hesitated to take medications without consulting their physicians, 61.5% mentioned that it was important to consult a doctor, while 15% did not have any preference. In a similar study, it was reported that 31.5% were aware of the drugs that should not be taken during pregnancy (Kamuhabwa & Jalal, 2011).

In Northern Tanzania, in a registry-based study of 34,090 deliveries from 2000 to 2010, Isaksen et al. (2015) reported that 34.1% of pregnant women consumed alcohol during pregnancy, with a decline from 49.5% in 2000 to 21.5% in 2010. In Dodoma, a hospital-based study on alcohol use and risk factors among pregnant women was found to be prevalent in 15.1% of the 365 women who attended prenatal services (Mpelu et al., 2018). As a result, there hasn't been much coverage of similar investigations in Tanzania's Southern Highlands. This study aimed to look into the effects of smoking, drinking, and substance misuse on reproductive health among pregnant women in Mbeya, Tanzania. The findings of this study will be used to develop policies, initiatives, and campaigns to assist pregnant women involved in substance addiction.

Materials and methods

Study area

This study was conducted in Mbeya City, Southern Highlands of Tanzania. The city is surrounded by Mbeya District in all directions. According to the 2012 National Census, Mbeya City Council had a total population of 385,279 inhabitants, out of which 182,620 (47%) are male and 202,659 (53%) are female (URT, 2013). Mbeya City council has 19 government Health facilities, of which 2 are hospitals, 4 Health centers, and 13 Dispensaries that the Council directly owns. Four health facilities are owned by religious organizations, of which 2 are health centers and 2 are dispensaries (Schweikart et al., 2014). Women of reproductive age, 15-49 were 48.5% of all females in the region. Commerce and trade, agriculture and livestock husbandry, small-scale and large-scale industrial production, and service providers such as transport, hotel, medical services, and civil service are major economic activities. Accordingly, an estimated 33.3% of city residents rely on subsistence, while 21% work in the public sector and 43.4% work in the informal sector, such as small-scale production, petty trading, and crop selling. The rest (2.3%) are involved in other works.

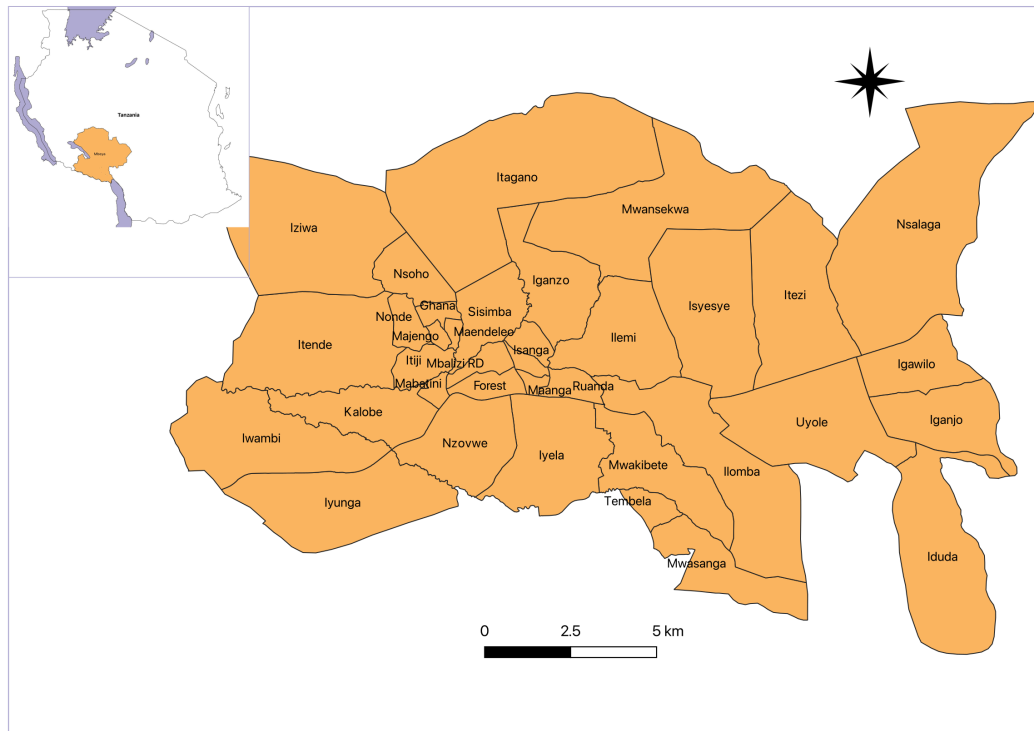


Figure 1: Map of the study area, Mbeya City, Southern highlands of Tanzania

Study design and data collection

A population-based descriptive cross-sectional study was conducted among women in Mbeya City for six months, from July to December 2020. The sample size was calculated using a specific formula, and an estimated 376 participants were required. Simple random selection was used to select ready and qualified participants. Information on questionnaire administrations was shown to study participants, including assurance of confidentiality and use of the information obtained for research purposes only.

Statistical analysis

Statistical data analysis was done using IBM SPSS Statistics 19.0 (IBM Corp., Armonk, NY, USA). Both descriptive and inferential statistics were used to describe and make inferences from the data where applicable. The descriptive statistics for categorical variables were expressed in the number and percentages. Chi-square test for categorical variables according to the expected counts. Chi-square and confidence intervals of the main outcome variables were cross-analyzed with independent variables, including the demographic characteristics of women and their behavior on smoking, alcohol consumption, and substance abuse. The χ^2 test was applied to determine associations between variables and was considered significant when the p-value was less than 0.05. The final results were presented in texts, figures, and tables.

Results

Demographic characteristics

Our study involved 376 reproductive age women respondents with ages ranging from 15 to 45 years. Most of the participants, 94 (75%) aged between 26 and 35 years. The mean age of respondents involved in the study was 30.4 years. The majority of the respondents, 217 (57.7%) were married. Only a few respondents, 18 (4.8%), reported not attending any formal education. Occupation status indicated that most of the study participants were entrepreneurs, 176 (46.82%), followed by 91 (24.20%) employed workers, with the least group being people without a specific job, 3 (0.8%) as well as 2 (0.5%) working as religious officials. Of all respondents, 371 (95%) reported participating in agricultural and animal-keeping activities. Nearly all respondents indicated having

many children ranging from one to eight, of which 361 (96%) children reported no disabilities. The social-demographic characteristics of the participants are summarised in Table 1.

Table 1: Demographic characteristics of study participants in Mbeya City, Tanzania

Variable	Factor	Frequency (%)	χ^2 (p-value)
Respondent Age	15 – 20	48 (13%)	32.4787 (< 0.0001)
	21 – 25	53 (14%)	
	26 – 30	94 (25%)	
	31 – 35	82 (22%)	
	36 – 40	46 (12%)	
	41 – 45	53 (14%)	
Marital status	Single	107 (28.4%)	263.2553 (< 0.0001)
	Married	217 (57.7%)	
	Divorced	16 (4.3%)	
	Co-habit	36 (9.6%)	
Level of education	No formal education	18 (4.8%)	123.1223 (< 0.0001)
	Primary education	70 (18.6%)	
	Secondary education	150 (39.9%)	
	College/University	81 (21.5%)	
	Others	57 (15.2%)	
Type of work	No work	3 (0.89%)	344.1277 (< 0.0001)
	Entrepreneur	176 (46.82%)	
	Business	67 (17.8%)	
	Religious	2 (0.5%)	
	Employed workers	91 (24.24%)	
	Peasant	37 (9.84%)	
Number of children in the family	1 – 2	130 (34.57%)	253.6011 (< 0.0001)
	3 – 5	150 (39.89%)	
	6 – 8	89 (23.67%)	
	9 – 12	4 (1.06%)	
	Others	3 (0.80%)	
Children with disabilities	No disability	361 (96%)	1705.0426 (< 0.0001)
	Cripple	5 (1.33%)	
	Mental retarded	8 (2.13%)	
	Blind	0 (0.0%)	
	Deaf	1 (0.27%)	
	Dump	1 (0.27%)	

Knowledge about the effects of taking alcohol, smoking, and other substances during pregnancy

Out of the 376 women of reproductive age in Mbeya City who participated in the study, 336 (89.36%) were aware of substance use and its effects during pregnancy. Only 30 (7.98%) were not aware of the harmful effects of alcohol, smoking, and use of other substances during pregnancy, while 10 (2.67%) did not respond. Their main source of information about the effect of using drugs during pregnancy was reported as health workers, of which 130 (34.57%) reported being from nurses, and 21 (16.22%) of respondents reported source of information came from their doctors. It was reported that other sources of information were family members by 45 (11.97%) respondents, friends by 27

(7.18%), news 21 (5.59%), and 46 (12.23%) from other sources. 30 (7.98%) respondents choose not to respond directly to this question. Despite being aware, 161 (42.82%) of all respondents continued to consume alcohol, cigarettes, and other drugs during pregnancy while knowing their harmful effects on pregnancy. Knowledge about the effects of alcohol, smoking, and use of other substances during pregnancies showed to be significantly associated with educational level ($\chi^2 = 37.06$, $p < 0.0001$).

Frequency and patterns of substance use

Findings showed that 161 (42.82%) were everyday consumers of substances and reported consuming substances during pregnancy among all study participants. The majority of daily substances reported having been consumed are alcohol by 120 (74.53%) respondents, 33 (20.50%) smoked cigarettes, 5 (3.11%) participants reported anonymously use of marijuana, and 3 (1.86%) reported anonymously use of heroin. Findings show that 17 (51.51%) smokers are heavy daily smokers by consuming four or more cigarettes daily, 15 (20.83%) alcohol consumers who take four or more bottles daily are heavy drinkers, and 3 (60%) of those who use marijuana are lightly addicted. The frequency and amount of using different substances during pregnancy are indicated in Figure 2. It was reported that individuals are indirectly affected by smoking by members of their own families, whereas most of the indirect effect of drugs is from people who are not relatives 121 (32.18%), followed by 97 (25.8%) from friends, 53 (14.1%) from husbands, 44 (11.7%) from parents, 36 (9.57%) from brothers, 5 (1.33%) from sisters and 20 (5.32%) from children (Figure 2). However, the high frequency of substance use did not show statistical significance associated with incidences related to children’s disabilities ($\chi^2 = 204.05$, $p < 0.7$).

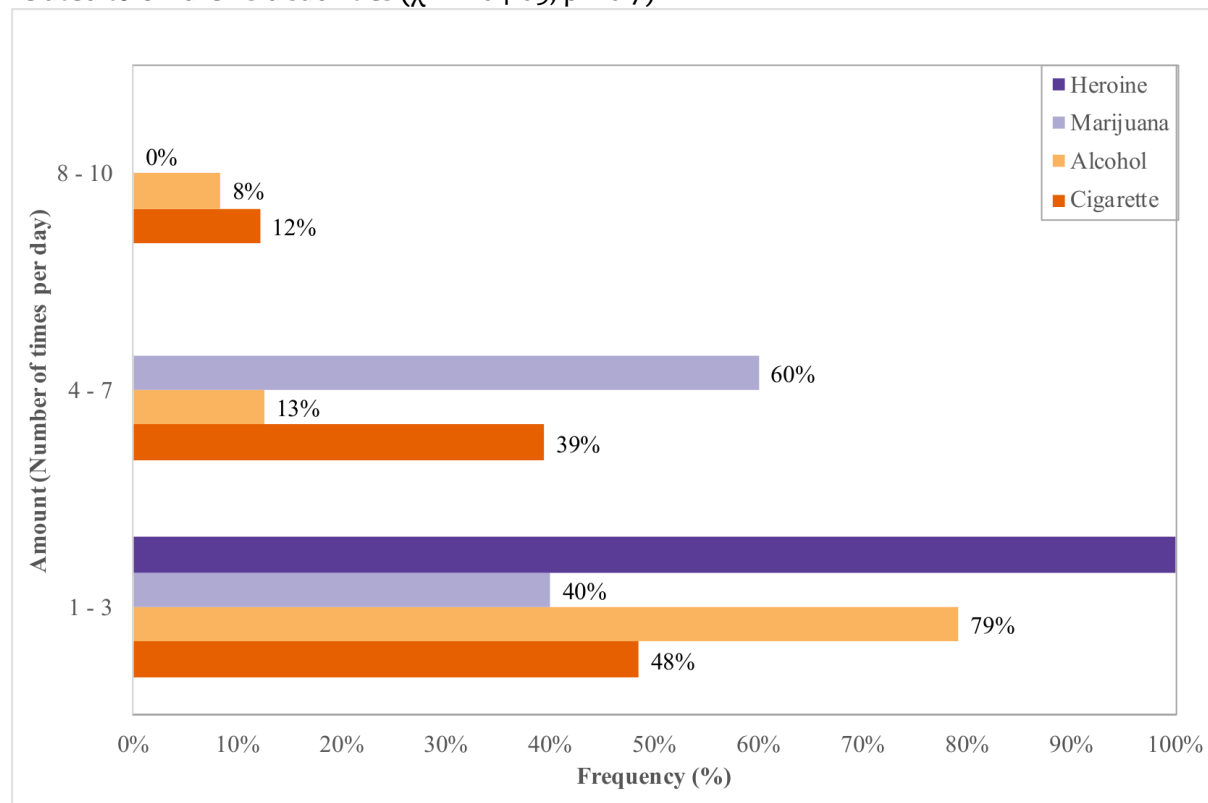


Figure 2: Frequency and amount of substance use among study participants in Mbeya City, Tanzania

Age profile, occupation, and substance use

The majority of study participants aged between 15 to 30 have shown to be higher consumers of substances during pregnancy, 118 (73.29%). Among 161 respondents who reported continuing to continue using substances while pregnant and daily consumers, 45 (27.95%) were aged between 15 to 20 years as the highest group, whereas the least group was the aged between 41 to 45 with 7

(4.35%) respondents. Findings showed that there was a direct link between occupation and substance abuse. Many people who own their jobs (entrepreneurs) seem to be the highest consumers of drugs and other substances during pregnancy, as reported by 69 (43%) participants, followed by office workers, and the least group is a group of people without official jobs. Hence it looks like as income increases, activities to engage in substance use also increase, but it may all depend on the nature of one's job as we can see, religiously did not engage themselves with substance use, as indicated in Figure 3. Findings from this study show an association between younger age and substance use ($\chi^2 = 34.03, p < 0.0001$).

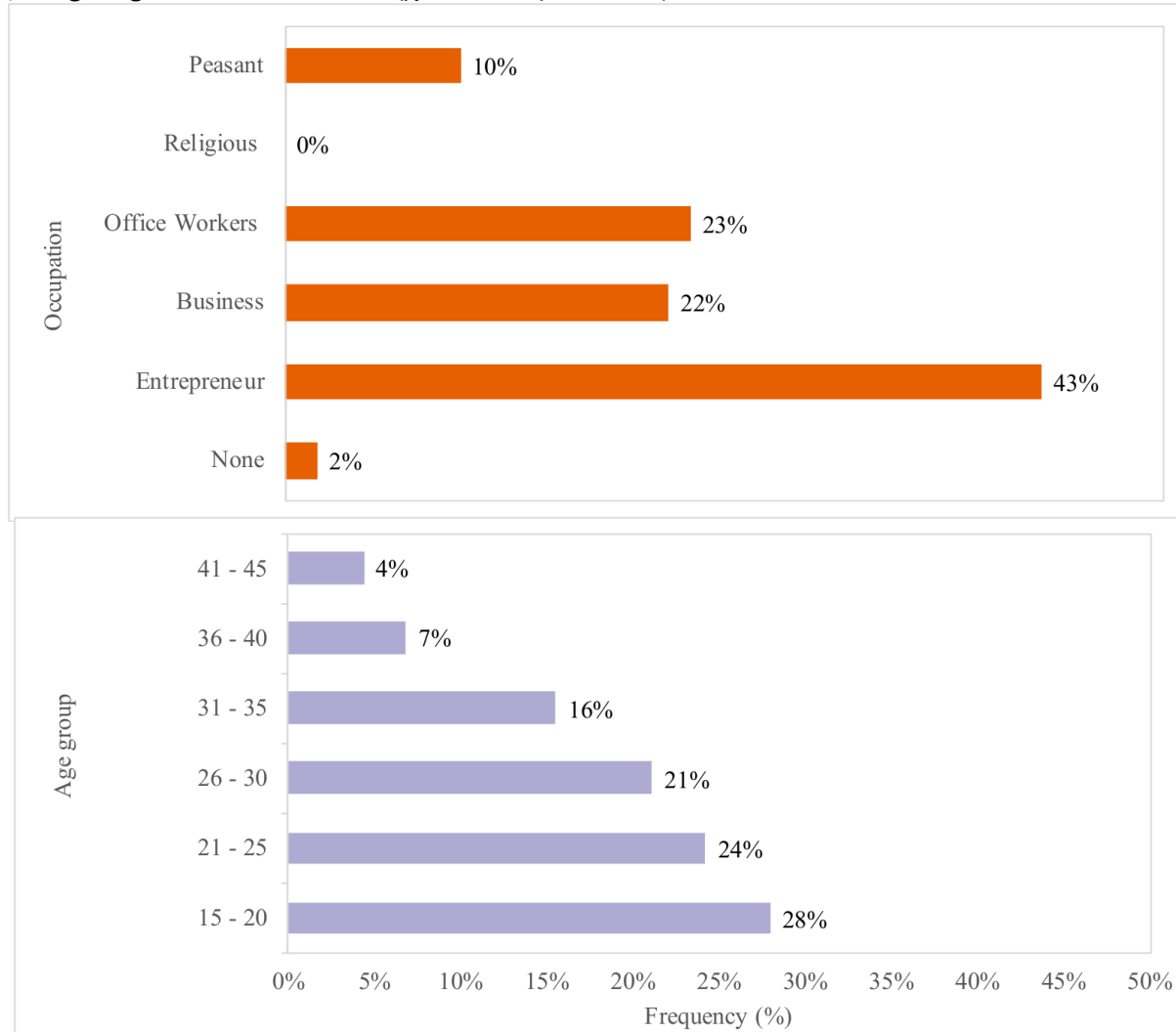


Figure 3: Age profile, occupation, and substance use among study participants in Mbeya City, Tanzania

Discussion

Understanding the implications, prevalence, patterns, and substance use profile among women of reproductive age is key to improving healthy pregnancy and avoiding mental health problems that can compromise women's safety and well-being. Alcohol and other substance addiction can impede a person's ability to perform as a parent, spouse, or partner, as well as instigate and provoke gender-based and domestic violence, all of which have a substantial impact on children's physical, mental, and emotional development (WHO, 2014). In our study, we found several causes by which women succumbed to substance use and substance abuse. Some are due to the stress of life, some are due to poor knowledge of the negative impacts of substances, and some could just smoke as a usual lifestyle as friends, parents, and other relatives do it.

Findings from this study are similar to Yotebieng et al., 2016 which suggested there is a need for concerted efforts to understand that substance use and abuse are embedded within the

social-ecological system of health. It is urged to call for health programs for women in comprehensive and integrated, taking into account the circumstances in which substance use begins and continues during pregnancy (Roberts et al., 2016).

According to the World Health Organization (WHO, 2014), pregnancy provides an opportunity for women, their partners, and other family members to change their alcohol and other substance use patterns. To provide appropriate advice and support to women with substance use disorders during pregnancy and the postpartum period, health care providers must understand the complexity of the woman's social, mental, and physical problems. Our study findings showed that knowledge about the effects of alcohol, smoking, and use of other substances during pregnancies showed to be significantly associated with education level.

The majority of women knew from several sources, but this did not deter them from drug and alcohol consumption during pregnancy. Women of reproductive age are at high risk of harmful effects caused by the substance of addiction; also, the child is at higher risk of compromised life and of becoming a substance user later in life. By doing this research, we need to notify the society that prevalence of substance abuse is real and must be taken care of. According to our data, knowledge related to drugs and alcohol use during pregnancy was associated with the level of education.

Findings from our study indicated an association between younger age and substance use similar to other previous studies. A study by (Strashny, 2013) indicated that women of childbearing age are at a greater risk of addiction due to a similar age group and that pregnant teens are more prone to consume drugs than older women. Studies have presented that most substance abuse is caused by (apart from age); unplanned pregnancies, prescription drugs, difficulty quitting, risk miscalculation, fear of repercussions, and postpartum depression are all factors to consider (Biaggi et al., 2016). Our findings demonstrate that being between the ages of 15 and 20 is related to greater substance use, although other characteristics, particularly married status, can account for some of this association. However, the high frequency of substance use did not show statistical significance associated with incidences related to children's disabilities.

Our study findings suggest a need for culturally appropriate education for women of childbearing age together with healthcare providers. Throughout the reproductive life course, interventions related to substance use must be designed rather than focusing on the gestational period alone. Education materials must be culturally relevant, sensitive, and respectful to women. The development of infographics and communication tools advocated by the WHO could be one strategy to educate health providers and women. The government must design an appropriate program for screening all women of reproductive age for substance use. Treatment programs are costly, and it is important for women who have screened positive for substance use to be given ample support to access services.

Social support groups may be created to perform campaigns for combating the problem. And all women who accept to get support must be supported and loved. More research is needed to determine how social support groups integrate HIV/STI care, alcohol, and drug screening and education, violence, and mental health programs, and links to economic and material support for women outside of clinical settings as part of an enhanced health systems approach could improve maternal and child health in Tanzania.

Conclusion

This research shows that all women of reproductive age in Mbeya City are aware of the harmful effects of smoking, alcohol, and drugs during pregnancy. Knowing isn't enough; assistance and instruction on combating poverty are also required. The majority of those who abused alcohol and drugs said they struggled to make ends meet and were single parents. The current understanding and behaviors of Mbeya City residents about substance intake call for immediate health education to improve healthy pregnancy and avoid mental health issues that can jeopardize a woman's safety and well-being.

Recommendations

The findings of this study imply that there is a need for culturally relevant substance use education for women of reproductive age. Rather than focusing on the gestational time alone, educational support should be provided throughout the reproductive life. Education materials must be culturally relevant, sensitive, and respectful to women. Develop infographics and other communication pieces as part of your strategy. The government should develop adequate procedures for screening all women of reproductive age for critical substance use whenever possible. This incidence and pattern among women of reproductive age must be reported to the government to take action.

Ethics and consent: Ethical approval was granted by the University of Dar es Salaam, Mbeya College of Health and Allied Science Research Ethical Clearance Sub-Committee. Permission to conduct the study was taken from the Regional Administration. Before proceeding with the study, informed consent was sought and obtained from all participants.

Conflict of interest: No competing interests

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