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Patterns and social factors associated with non-prescription use of Tramadol: a cross-sectional study among youth in urban informal settlements in Ghana

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Abstract

Background Non-prescription use of Tramadol is increasingly becoming common among vulnerable populations. This study examines the factors associated with non-prescription use of Tramadol among youth in urban informal settlements in the Asokore Mampong Municipality, Ghana.

Methods Cross-sectional data from Tramadol users aged 15 to 35 years living in urban informal settlements were analyzed. Non-prescription use of Tramadol was assessed using the item "Have you ever used Tramadol for any reason without a prescription from a healthcare professional?". The responses were dichotomized as yes = 1, otherwise = 0. Multivariable logistic regression models evaluated the factors associated with non-prescription use of Tramadol.

Results Data on 200 Tramadol users were obtained. Family/friends (52.3%), were the main source of knowledge on Tramadol. Energy boost (43%) was the most cited reason for Tramadol use. Approximately 52% indicated a continuing non-prescription use of Tramadol for energy boost. Multivariable logistic regressions showed that those who lived alone (OR = 6.34: 95% CI = 2.03–19.82), migrants (OR = 3.97, 95% CI = 1.31–12.05) and the unemployed (OR = 3.57, 95% CI = 1.02–12.58) were significantly more likely to report non-prescription use of Tramadol.

Conclusions Non-prescription use of Tramadol is a threat to the youth in urban informal settlements in the Asokore Mampong Municipality. Interventions such as strict drug monitoring and regulation, drug use education, strict parental supervision, and sustainable jobs may contribute to controlling non-prescription use of Tramadol.

Keywords Non-prescription Tramadol use, Youth, Drug monitoring, Urban informal settlement, Vulnerable populations, Ghana

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Background

The upsurge in the non-prescription use of Tramadol in sub-Saharan Africa presents significant public health and safety concerns to governments and other stakeholders. It represents developing regions' version of the current global opioid crisis [1, 2]. Tramadol is a clinically recommended basic analgesic for treating moderate to acute pain [3]. Despite being a prescription-only drug, it remains one of the most important substances of abuse worldwide, with approximately 7.4 million people in sub-Saharan Africa abusing it in 2019 [4, 5]. For example, evidence of Tramadol's widespread abuse has been reported in Egypt, Libya, Mauritius, Ghana, Nigeria, Senegal, Benin, and Togo [6]. The 2018 World Drug Report further indicated that large quantities of substandard and unapproved Tramadol dosages had been clandestinely produced and shipped for non-medical consumption from Asian laboratories into various markets in the West, Central, and North African sub-regions [6].

In the Ghanaian context, the Food and Drugs Authority (FDA) and the Pharmacy Council in 2018, in a post-market surveillance exercise, reported seizures of unapproved Tramadol dosage strengths of 120 mg, 200 mg, 225 mg, and 250 mg in some over-the-counter shops and open markets in seven districts in the Ashanti Region [7]. Hassan observed that the painkiller's abuse has become a household name among the youth in the Kpandai District in the Northern Region of Ghana [8]. Several research findings have associated Tramadol's non-medical use with many factors, including its effectiveness in boosting energy, improving sexual performance, improving mood, increasing alertness, delaying fatigue, and relieving pain [9–12]. These factors and the ease of accessibility are the major determinants of the analgesic's widespread non-medical use in sub-Saharan Africa [2, 13].

Tramadol is not internationally scheduled because the World Health Organization Expert Committee on Drug Dependence is not convinced that it has a high abuse potential and dependence potential [14, 15]. However, several studies suggest contrary results [16–18]. For instance, Salm-Reifferscheidt noted that almost 70% of patients treated in an addiction facility in Egypt were addicted to Tramadol [2]. Other known adverse effects of analgesic abuse include central nervous system depression, nausea, vomiting, tachycardia, seizures, confusion, seizures, incoherent and inconsistent thoughts, coma, and even death [7, 14]. According to the Egyptian Forensic Medicine Sector of the Ministry of Justice, about 43 deaths were directly attributed to Tramadol misuse in 2017 [19]. In a controlled experiment conducted in the Middle East, Farag et al. [20] found that long-term abuse of Tramadol could significantly reduce sperm motility, normal forms, and vitality. Tramadol abuse also has social implications, including the risks of engaging in uncommitted sexual relationships [21], being convicted [22], loss of work, physical violence, petty theft, or engaging in illegal issues [23].

As data on the pattern and prevalence of drugs, including opioid abuse, are extant elsewhere, the same is largely lacking in sub-Saharan Africa [6]. For instance, according to the Substance and Mental Health Services Administration [24], an estimated 3.6% (9.9 million) of the United States population aged 12 years or older abused pharmaceutical opioids, mainly fentanyl, in 2018. In Australia, 11.7% (2.4 million) of the population abused a pharmaceutical drug at some point in their life [25], while deaths related to the abuse of synthetic opioids, including Tramadol, fentanyl, and pethidine, stood at 230 in 2018 [26].

Like other parts of sub-Saharan Africa, a few studies have been carried out on Tramadol abuse patterns and prevalence. For example, Danso and Anto's [27] study compared the socioenvironmental factors associated with Tramadol abuse among commercial vehicle drivers and their assistants in the Greater Accra Region of Ghana. The findings showed a high risk of Tramadol dependence (49.1%) among users. In the Jirapa Municipality in the Upper West Region of Ghana, Saapiire et al. [28] reported that formal sector employment was protective against Tramadol abuse. The qualitative study by Peprah et al. [9] among commercial vehicle operators in Kumasi, Ghana, revealed that respondents mainly abused Tramadol for sexual, physical, economic, and psychological reasons.

However, no research effort has been directed toward understanding the complexity of factors associated with non-prescription use of Tramadol in informal settlements, although studies report a high prevalence of substance use in these unique spaces [29–31]. This limits governments' and other stakeholders' efforts to respond effectively through empirically-driven drug use prevention and treatment programs and policies [4]. This is a major drawback to achieving Sustainable Development Goal 3 (good health and well-being) by 2030 and the global community's commitment to leave no one behind [32]. Therefore, this study examines the patterns and correlates of non-prescription use of Tramadol among youth in informal settlements in Asokore Mampong Municipality, Ghana.

Methods

Study setting and design

This study was conducted in the Asawase and Aboabo communities of the Asokore Mampong Municipality, Ghana. Figure 1 shows the study communities at the regional and national levels. The municipality is one of the 43 administrative divisions of the Ashanti Region. It covers a total surface area of 23.91 sq. km and has a population of 492,603 [33]. It is one of the most densely

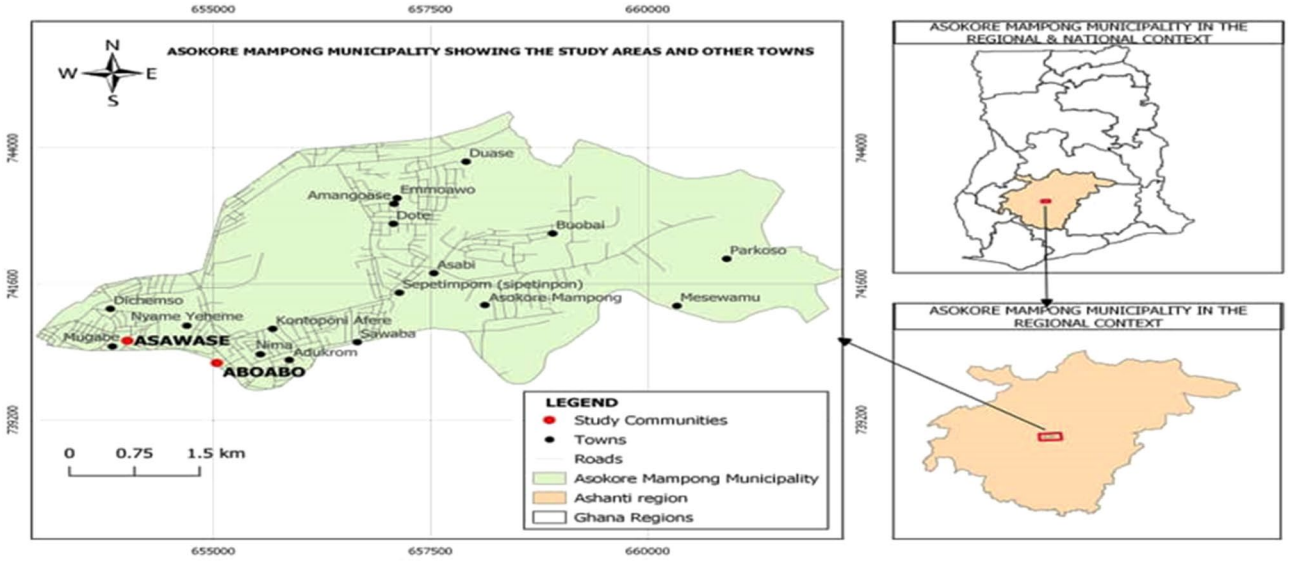

Fig. 1 Map showing the study communities in Asokore Mampong Municipality at the regional and national levels. *Source* Map room, Department of Geography and Rural Development-KNUST, (2021)

populated administrative areas in the region. With more than a half (58.3%) of its inhabitants below 24 years old, the municipality shows a very significant youthful population compared to the national average of 33% [33]. The selection of these communities is appropriate because they meet most of the criteria for defining informal settlements [34, 35]. These settlements are also perceived to be havens for illegal drug use and trade [29]. The study adopted a cross-sectional design to analyze the patterns and factors associated with non-prescription use of Tramadol among youth. We targeted Tramadol users [36]. Individuals were included if they were within the age bracket of 15 and 35 years [36] and had stayed in the study communities for at least a year. We did not include participants who did not consent to the study.

Sampling and data collection procedure

The snowball sampling technique was used to recruit non-prescription Tramadol users due to its suitability for selecting study participants who are difficult to access because they feel vulnerable, threatened, victimized, stigmatized, or socially excluded [37]. Overall, 200 Tramadol users, comprising 116 from Asawase and 84 from Aboabo, were contact-traced for data collection. The procedure started when an informant connected the researchers to some perceived leaders of Tramadol users in Asawase. They were briefed about the study's objectives and trust and rapport were established with them after a protracted conversation. The leaders then agreed to be the initial respondents for the study. Having completed their sessions, they suggested other potential respondents to participate in the study. This procedure was repeated until it generated a pool of 116 respondents from the Asawase community. The same strategy was repeated in Aboabo, which generated another pool of 84 respondents. A structured questionnaire was used during the survey. The interviewer-administered questionnaire was used to collect data, given that some respondents could not read or write. The Asante-Twi (the main dialect in the study communities) was used as the medium of communication during data collection. The study protocol was approved by the Humanities and Social Sciences Research Ethics Committee (HuSSREC) of the Kwame Nkrumah University of Science and Technology, Kumasi (Ref: HuSSREC/AP/55/VOL.1). The anonymity of the respondents was strictly observed by concealing their real identities. Participation was again voluntary, and respondents had the window to exit whenever they desired or felt threatened. On average, each interview lasted 35 min.

Variables and measures

The outcome variable for the study was the non-prescription use of Tramadol. This was defined as Tramadol use for any purpose without medical approval and was assessed using the item. "Have you ever used Tramadol for any reason without a prescription from a healthcare professional?" The responses were dichotomized where yes=1, otherwise=0. The exposure variables were the socio-demographic characteristics of the respondents including age (years) (1=15–24, 2=25–35), gender (1=female, 2=male), nativity status (1=indigene, 2=migrant), length of stay (1=≤4 years, 2=5–14 years, 3=≥15 years) and marital status (1=not partnered/single, 2=partnered), religious affiliation (1=Islam, 2=Christianity, 3=Traditional religion), living

arrangement (1=living with others, 2=living alone), and household size (1=person, 2=2–3 persons, 3=≥4persons). Other exposure variables included educational level (1=primary, 2=secondary school level, 3=tertiary educational level), employment status (1=employed, 2=unemployed) and income level (GH¢) (1=≥700 [US$ 45.1], 2=300–699 [US$19.3–45], 3=<300[US$ 19.3]).

Data analysis

Descriptive analysis was first performed to describe the data. We fitted logistic regression models for the non-prescription use of Tramadol measured on the dichotomous level. First, the unadjusted odds ratios (OR) and the confidence interval (CI) were calculated by regressing each outcome variable on each socio-demographic exposure variable. Finally, a multivariable logistic regression model was procured to include the significant exposure variables at the unadjusted phase. All statistical analyses were performed using IBM SPSS Statistics for Windows application software (version 21; Chicago, IL, USA) at p ˂ 0.05 (95% confidence interval) as the significance level (two-tailed).

Results

Sample characteristics

The characteristics of the respondents are displayed in Table 1. The analytic sample was 200, and most of them (90% were males, in the age range of 20–24 years (41%, and had completed secondary education (44.5%). Respondents who professed Islamic faith were 54.5%. More than one-half (51.5%) had never married, and 39.5% lived alone. Most of them lived in a single household (39.5%), and 51.7% were indigenes. Approximately 31% had lived in the study communities for 15–19 years, and most of them engaged in some form of occupation, including artisanal work (41%) and trading (33%). Regarding income, the majority (55.5%), earned below GH¢300 per month (woefully below the 2021 national minimum wage of GH¢ 12.53).

Patterns of non-prescription use of Tramadol

As shown in Fig. 2, 48.5% of the respondents indicated family and friends as the main source of knowledge on Tramadol, followed by radio/television (22%). Moreover, 43% perceived Tramadol as an energy booster, while some 15.5% of them thought Tramadol was meant to enhance sexual performance (Fig. 3). A significant proportion of the respondents (63.5%) reported easy access to prescription-only drugs (Fig. 4). Most respondents (52%) continued to use non-prescription Tramadol mainly to boost energy (Fig. 5).

Social factors associated with non-prescription tramadol use

The binary logistic regression models (Table 2) showed that several socio-demographic and economic factors, including nativity status, length of stay in the community, marital status, living arrangements, employment, and income, were significantly associated with non-prescription use of Tramadol (Model 1). However, after adjustment for possible confounders in the multivariable stage (Model 2), the living arrangement had the strongest association with the non-prescription use of Tramadol. Those who lived alone had 6.34 (95% CI=2.03–19.82) odds for non-prescription use of Tramadol compared with those who were partnered or lived with others. Migrants were almost 4 times (OR=3.97, 95% CI=1.31–12.05) more likely to report non-prescription use of Tramadol. Respondents who had lived in the study communities for 5–14 years were 85% (OR=0.15, 95% CI=0.03–0.82) less likely to subscribe to non-prescription use of Tramadol than those who had lived there for less than 5 years. The unemployed respondents were more than 3 times (OR=3.57, 95% CI=1.02–12.58) more likely to engage in non-prescription use of Tramadol than the employed respondents. However, no evidence of association was detected between respondents' marital status (OR=1.08, 95% CI=0.37–3.12) and non-prescription use of Tramadol after controlling for the other socio-demographic determinants.

Discussion

This study evaluated the social factors associated with non-prescription use of Tramadol among urban informal settlement dwellers aged 15–35 years from the Asokore Mampong Municipality, Ghana. Male respondents dominated our study. The limited female representation may be attributed to the high level of fear of the stigmatization attached to female drug users as deviants compared to their male counterparts in the Ghanaian socio-cultural setting. Our study identified that most respondents had poor perceptions about the use and purpose of Tramadol. Almost two-thirds of the total respondents thought Tramadol was meant for purposes other than for the treatment of moderate to severe pain under medical supervision. Approximately a third of the respondents had the right perception about the use of Tramadol for pain relief, although its use was without medical approval, which also constituted abuse. Ibrahim et al. [38] discovered a much higher misconception (90%) rate on the use and purpose of Tramadol in Nigeria. The outcome was quite surprising because, given the proportion of respondents who had some level of formal education (Table 1), the expectation was that they would be more enlightened to make the right judgment about the use and purpose of the painkiller.

Table 1 Sample characteristics

	Asawase		Aboabo		Total sample	
Variable	**(*n* = 116)**	**%**	**(*n* = 84)**	**%**	**(*n* = 200)**	**%**
Gender						
Male	102	88.0	78	92.9	180	90.0
Female	14	12.0	6	7.1	20	10.0
Age range (years)						
15–19	19	16.4	21	25.0	40	20.0
20–24	50	43.1	32	38.1	82	41.0
25–29	30	25.8	20	23.8	50	25.0
30–34	17	13.1	11	13.1	28	14.0
Religion						
Christianity	41	35.4	36	42.8	77	38.5
Islam	69	59.5	40	47.6	109	54.5
Traditional	4	3.4	7	8.3	11	5.5
Others	2	1.7	1	1.3	3	1.5
Living arrangement						
Alone	58	51.7	21	25.0	79	39.5
With one parent	23	19.8	18	21.4	41	20.5
With both parents	17	14.7	26	31.0	43	21.5
With partner	12	10.4	16	19.0	28	14.0
Other family member	4	3.4	2	2.4	6	3.0
Others	2	1.7	1	1.2	3	1.5
Marital status						
Never married	60	51.7	43	51.1	103	51.5
Married	17	14.7	20	23.8	37	18.5
Cohabiting	35	30.2	19	22.6	54	27.0
Divorced/Widowed/Separated	4	3.4	2	2.4	6	3.0
Household size						
One	56	48.3	23	27.4	79	39.5
Two	8	6.9	5	6.0	13	6.5
Three	18	15.5	22	26.2	40	20.0
Four	16	13.8	18	21.4	34	17.0
Five or more	18	15.5	16	19.0	34	17.0
Nativity status						
Indigene	50	43.1	55	65.5	105	51.7
Migrant	66	56.9	29	34.5	95	48.3
Length of community stay (years)						
1–4	24	20.4	15	17.9	36	19.5
5–9	22	19.2	21	25.0	43	21.5
10–14	16	13.8	11	13.1	27	13.5
15–19	35	30.2	27	32.1	62	31.0
20 or more	19	16.4	10	11.9	29	14.5
Educational Attainment						
None	14	12.0	10	11.9	24	12.0
Primary	40	34.5	40	27.4	63	31.5
SHS	51	44.0	51	45.2	89	44.5
Vocational/Training College	2	1.7	3	3.6	5	2.5
University	5	4.3	9	10.7	14	7.0
Other	3	2.6	-	-	2	1.0
Occupation						
Unemployed	29	25.0	14	16.7	43	21.5
Government worker	3	2.6	6	7.1	9	4.5
Artisan	45	38.8	37	44.1	82	41.0
Trader	39	33.6	27	32.1	66	33.0

Table 1 (continued)

	Asawase		Aboabo		Total sample	
Variable	**(*n* = 116)**	**%**	**(*n* = 84)**	**%**	**(*n* = 200)**	**%**
Monthly Income (GH¢)						
Less than 100	32	27.6	21	25	53	26.5
100–299	28	24.1	30	35.7	58	29.0
300–499	19	16.4	12	14.3	31	15.5
500–699	10	8.6	11	13.1	21	10.5
700–899	8	6.9	3	3.6	11	5.5
900–1099	10	8.6	5	6.0	15	7.5

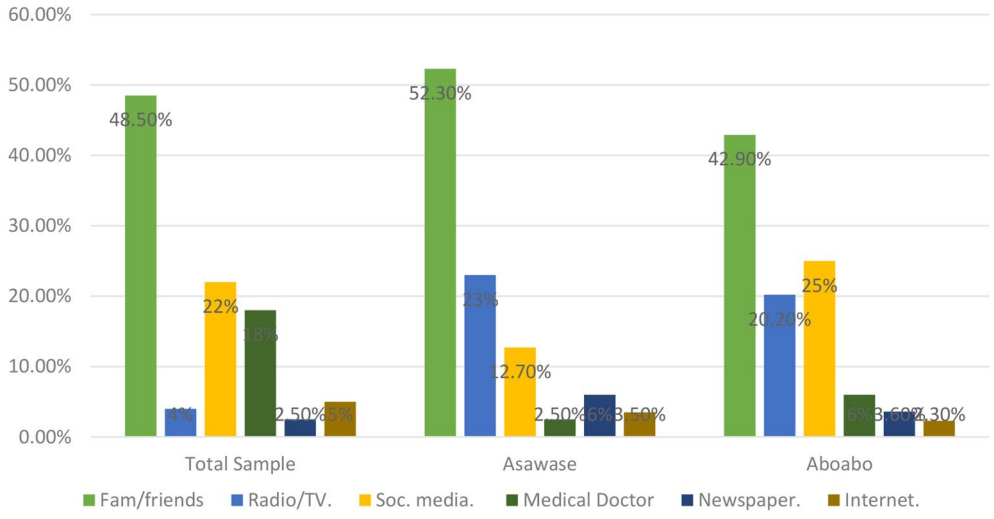

Fig. 2 Source of information about Tramadol

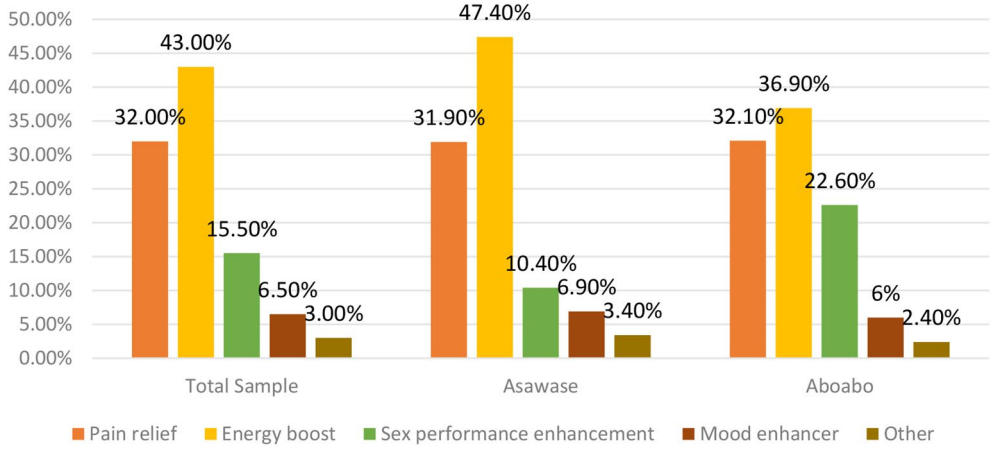

Fig. 3 Perceived uses of Tramadol by respondents

Family or friends also emerged as the primary source of information about Tramadol to respondents. Other studies in Ghana have observed similar outcomes [9, 10, 39]. Peprah et al. [9], for instance, noted that relatives usually advertised the perceived off-label benefits of Tramadol to respondents and recommended it for experimentation. Perhaps most respondents heeded the advice from their family/friends due to familial and collegial ties and trust. The poor perception revealed by the majority of the respondents about the use and purpose of Tramadol could partly be blamed on the misinformation their families or colleagues (who may not be health professionals) fed them.

Our findings further showed that most respondents used non-prescription Tramadol for an energy boost. The results from Elliason et al. [39] in the Amenfi West

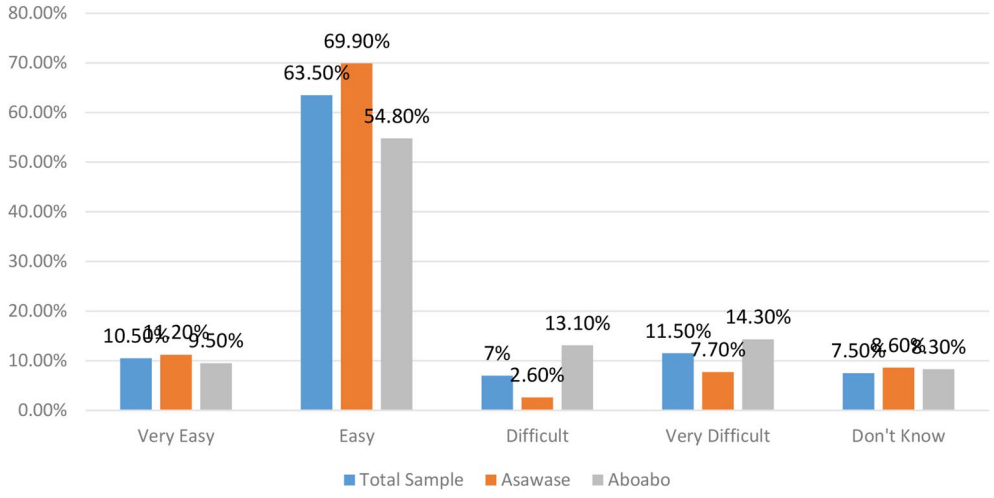

Fig. 4 Accessibility of Tramadol

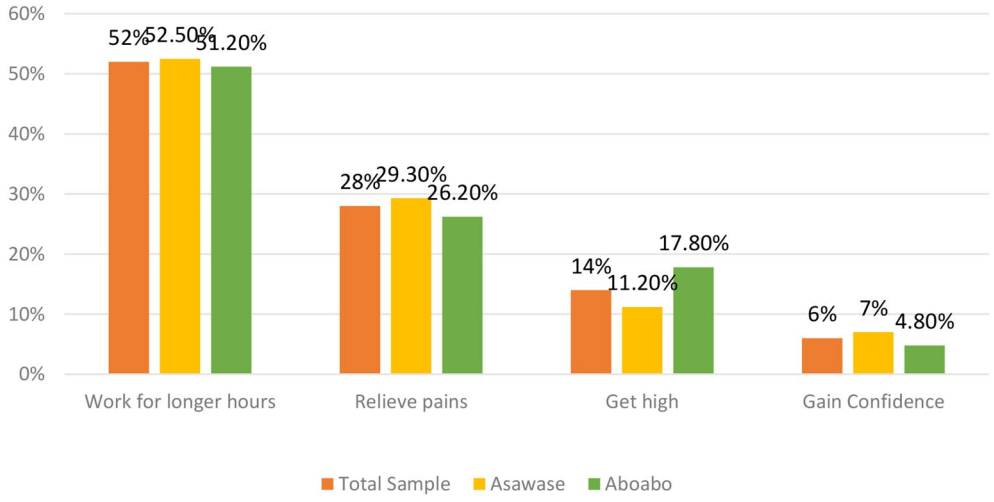

Fig. 5 Reasons for the current use of Tramadol by respondents

District of Ghana, Ibrahim et al. [38], and Madukwe and Klein [40] in Nigeria support our findings. This implies that aside from the real reason for the use of the drug as a pain reliever, most respondents riskily continued to use the painkiller for non-health-related reasons. This outcome is also confirmed by the large community sample study in the UK, where 44% of participants reported using Tramadol for reasons other than for pain relief [41]. Since the use of Tramadol has proven to increase physical performance and attention [42], it may be a means by which respondents revitalize lost energy and delayed fatigability against the menial and energy-sapping work they mainly engaged in. However, due to Tramadol's dependence risks [18], its continuous use represents a maladaptive coping mechanism for work-related stress.

Tramadol was easily accessible without medical prescription within the study communities. This observation is consistent with prior findings [2, 9, 13]. The ease with which the painkiller could be accessed may be linked to poor drug control and vigilance mechanisms by regulatory authorities [3, 6]. Most of the Tramadol brands on the African and Ghanaian open markets have been flagged as substandard and fake [3, 7, 19]. Most of the respondents likely patronized these fake doses due to their availability on the market.

The results from the multivariate regression analysis (after adjustment) showed that socio-demographic factors, including living arrangement, nativity status, length of stay in the study communities, and employment, were significantly associated with non-prescription use of Tramadol (Table 2). For instance, respondents who lived alone were 6.3 times more likely to subscribe to the non-prescription use of Tramadol than those who were partnered or lived with others. The outcome agrees with the study by Danso and Anto [27] among commercial drivers and their assistants in the Greater Accra Metropolis,

Table 2 Socio-demographic risk factors for non-prescription use of Tramadol among youth in Asawase and aboabo: binary logistic regression results

Variables	Non-prescription use of Tramadol			
	Model 1: Unadjusted		Model 2: Adjusted	
	OR	(95%CI)	OR	(95%CI)
Age (in years) (ref: 15–24)	1.00		1.00	
25–35	1.29	(0.44–3.75)		
Gender (ref: Female)	1.00			
Male	1.09	(0.43–2.77)		
Nativity status (ref: indigene)	1.00		1.00	
Migrant	3.24	(1.14–9.21)**	3.97	(1.31–12.05)*
Length of stay (ref: ≤4 years)	1.00		1.00	
5–14 years	0.26	(0.06–0.82)**	0.15	(0.03–0.82)**
≥ 15 years	0.65	(0.13–0.79)*	0.46	(0.08–2.59)
Marital status (ref: Single)	1.00		1.00	
Partnered	0.74	(0.30–0.82)***	1.08	(0.37–3.12)
Religion (ref: Islam)	1.00			
Christianity	2.30	(0.80–6.62)		
Others	2.07	(0.25–17.04)		
Living arrangement (ref: Living with others)	1.00		1.00	
Living alone	4.49	(1.66–12.15)***	6.34	(2.03–19.82)***
Household size (ref: 1 person)	1.00			
2–3 persons	1.30	(0.44–3.86)		
≥ 4 persons	2.46	(0.80–7.53)		
Education (ref: Never/primary)	1.00			
High school	1.32	(0.49–3.51)		
Tertiary	0.91	(0.23–3.60)		
Employment status (ref: Employed)	1.00		1.00	
Unemployed	2.53	(1.97–6.58)**	3.57	(1.02–12.58)*
Income (ref: ≥ *GH₵*700)	1.00		1.00	
*GH₵*300–699	1.14	(1.38–3.42)*	0.67	(0.16–2.77)
< *GH₵*300	3.00	(1.30–4.31)***	1.23	(0.28–5.33)
-2Likelihood ratio			106.800	
Hosmer-Lemeshow χ^2			20.12(0.100)***	
Adjusted Pseudo R^2			0.26	

Notes OR – Crude odds ratio; CI – Confidence intervals (in presented in parentheses); 1.00 – Reference category

***$p < 0.001$; **$p < 0.005$; *$p < 0.05$

Ghana. Migrants were 4 times more likely to engage in non-prescription use of Tramadol. Migrants may lack parental or spousal *checks and balances*, which have been reported to guard against the initiation and misuse of substances [43] since they are likely to live alone.

Respondents who lived in the study communities for 5–14 years had lower odds of non-prescription Tramadol use. These respondents may have adapted to cope better with the socio-economic challenges of their environment. This outcome is in tandem with the findings of prior studies by Danso and Anto [27]. Unemployed respondents also had higher odds of non-prescription use of Tramadol. This finding is similar to recent outcomes by Saapiire et al. [28] in Ghana and Azagba et al. [44] in the United States. Our finding could be explained by the *stress hypothesis*, which posits that emotional and psychological diseases, including joblessness, may expose people to drug use as a means of extenuating the stress source [45].

Implications of the study

Since information flow is crucial in influencing behavior, we recommend that urban informal settling youth are well-sensitized to authenticate information about drugs, including Tramadol, from health professionals before responding to them. The public health division of the Ghana Health Service and the FDA should frequently collaborate to organize public education on drug use within the study communities. The adverse consequences of drug abuse, specifically Tramadol, should be duly emphasized. Again, the Municipal Authority should employ the services of occupational psychologists and counselors to educate them on healthier ways of coping with job-related and other socio-environmental stressors.

As a matter of urgency, we suggest that drug control agencies such as the FDA and Narcotic Control Board, together with the police, should be well-resourced by the central government to effectively trace, monitor, and clamp down on illegal importation, trade, and use of Tramadol. Unannounced inspections should be carried out in popular hideouts called *bases or ghettos* in the study communities where the drug is usually traded and used. We further encourage the promotion of parental and spousal 'checks and balances' in the study communities to shield against non-prescription use of Tramadol.

The Municipal Authority can liaise with the Ministry of Gender, Children, and Social Protection to design and implement measures to promote family integration/cohesion. For instance, pragmatic strategies should be mapped to target migration control, threatening family integration.

We finally recommend that the Municipal Assembly, in conjunction with appropriate authorities, develop and implement tailor-made poverty reduction strategies to ease the socio-economic burden of inhabitants within the study communities. For instance, efforts should be made to create sustainable and gainful job opportunities in these study areas.

Limitations of the study

The study has some limitations. First, using cross-sectional data/design made it difficult to draw causal relationships between the dependent and independent variables. Future studies may benefit from using longitudinal data and improve our understanding of the predictors of the non-prescription use of Tramadol in informal settlements. Given the subject's sensitivity, social desirability bias and recall bias (due to the retrospective reporting) may be inevitable and undermine the findings' veracity. The study nonetheless adds to the limited knowledge of drug use, specifically the novel Tramadol abuse in vulnerable populations, including urban informal settlements in Ghana.

Conclusions

Our paper enhances the understanding of the correlates of non-prescription use of Tramadol among youth in urban informal settlements in Ghana. Findings suggest that family and friends are the prime information source of the painkiller. Energy boost was also seen to be a major reason behind respondents' continuous use of Tramadol. The prescription-only analgesic was found to be generally accessible even without a prescription. Those living alone, migrants, the unemployed, and those who had stayed in the study communities for less than 5 years had increased odds of non-prescription use of Tramadol. We recommend the introduction of stringent drug monitoring by regulatory practices in the communities. Furthermore, educational programs on the negative effects of using unprescribed drugs should be organized to improve the understanding and perception of respondents, especially on the use of Tramadol. Parental supervision and actionable strategies toward family integration and cohesion are also recommended. Finally, creating sustainable jobs for urban slum-dwelling young people may play out in our efforts to fight the opioid crisis.

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Author contributions

SOT: Conceptualization of study, study design, data collection, data analysis, manuscript drafting. FA: study design, data collection, data analysis, manuscript revision. WA-D: study design, data analysis, data interpretation and editing. OJO-S: study design, data collection, data analysis and manuscript revision. LPS: study design, data analysis, manuscript revision, editing. RG: study design, data analysis, supervision, and critical revision of manuscript.

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Data availability

The dataset used and/or analyzed during the study is available from the corresponding author upon reasonable request.

Declarations

Ethical approval and consent of participation

The study protocol was approved by the Humanities and Social Sciences Research Ethics Committee (HuSSREC) of the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, with the reference number HuSSREC/AP/55/VOL. 1. Permission was also granted by the Centre for Research, Innovation and Development (CRID) of the Manhyia District Hospital, Kumasi, with reference number MDH/PROC/02/19. Participants joined the study on their own volition. The anonymity of the respondents was safeguarded by concealing their real identities. Respondents who felt uneasy and uncomfortable engaging in the study upon all the assurances given by the researchers to protect their identities were allowed to opt-out and were subsequently replaced. All respondents gave informed consent prior to data collection. The processes, potential risks, and benefits of the research were duly made known to all of them. The consent form was subsequently signed by the respondents on their own volition.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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