Self-Medication Practice and Associated Factors Among Teachers' Education Training College Students in Amhara Region, Ethiopia: A Cross-Sectional Study

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Research article

Abstract

Background Self-medication practice is the use of medications without health care professional request. It leads to irrational medication usage, wastage of resources, increased chance of microbial resistance and adverse drug reaction. Therefore, this study aimed at assessing the prevalence associated factors of self-medication practice among students teacher's education training college students in Amhara region, Ethiopia.

Methods A multicentre cross-sectional study was conducted on 344 teacher's education training college students in Amhara region, from January 1 to February 28, 2020. Systematic random sampling was used to select participants and data collected through structured questionnaire. Descriptive statistics, univariate and multivariate logistic regression analysis were done to determine various variables and factors associated with self-medication practice.

Results Out of 344 respondents, 68.0% were practiced self- medication. The most commonly cited indication for self-medication practice was headache 75 (32.05%) followed by abdominal discomfort 53 (22.6%). The respondents with age of greater than 26 years (AOR: 2.47, 95% CI: 1.18–3.94), third years of study (AOR: 3.14, 95% CI: 1.94–5.79), urban residence (AOR: 2.97, 95% CI: 1.06–3.64), near accessibility of pharmacy (AOR: 2.12, 95% CI: 1.43–4.46) and who had peer/family pressure (AOR: 2.34, 95% CI: 1.53–3.56) were significantly associated with self-medication practice.

Conclusion More than two-thirds of the study participants practiced self-medication. Being from the urban area, having access to private pharmacy and increase year of study are positively affects the self-medication practice.

Introduction

According to world health organization (WHO) definition, self-medication is the selection and use of medicines to treat self-recognized illnesses or symptoms (1). Inappropriate self-medication practice results in wastage of resources, increase the chance of drugs resistance and cause serious health problems such as adverse drug reactions, treatment failure, misuse of medications and drug dependence (2). Despite to this it may be reduce health cost and save the time spent waiting to see doctors for minor health problems (3, 4).

Currently, self-medication is becoming the worldwide public health problem. The prevalence of self-medication has sharply increased throughout the world. The study report showed that up to 80% of drugs in developing countries were purchased without prescription (5, 6). The study conducted in Iran showed that 76% of individuals had the history of self-medication practice (3, 6). Studies showed that most of university and college of students were practice self-medication for example in Serbia (7), Nagara (8) and South India (9) 79.9%, 92.4% and 78.6% of students, respectively, practiced self-medications. Despite the increased practice of self-medication among students all over the world, majority of them are unaware of the harmfulness of self-medications (3, 5, 8) .

Many studies reported that the factors associated with self-medication practice such as being youth age (10), low level of education, previous experience of self-medication, lack of time to visit physicians, low income (11, 12), urban residence, greater availability of medicinal product, media exposure, urgency of the problem, their health problems were considered as too trivial, non-availability of transport, ability to self-manage the symptoms, and increase of pharmaceuticals advertisement (4, 6). Accordingly, individuals were practice self-medications for different purpose. The studies report showed that headache, fever, cough (13), gastrointestinal diseases, respiratory tract infections, maternal/menstrual, eye diseases, skin diseases, injury and sexually transmitted diseases were the common indication of self-medication practice (8, 10, 14). To the best of our knowledge and search, there no study conducted in Ethiopia to explore prevalence and associated factors towards self-medication practice among students in teachers' education training college (TETC). Therefore, this study designed to assess the prevalence and factors associated with self-medication practice among TETC students in Amhara region, Ethiopia.

Methods And Materials

Study design and area

A multicenter cross-sectional study was conducted in TETC of Amhara region from January 1 to February 28, 2020. Amhara region is the second biggest administrative region in Ethiopia. This region has ten universities and seven teachers' education training colleges. Currently, 12,206 students are taking their training in Amhara region TETC. This study was approved by the ethical committee of the school of pharmacy, the University of Gondar with an approval number of SoP-318/2012. Informed verbal, as well as written consent was obtained from study participants prior to the data collection, and the purpose of the study was explained to the respondents in advance. The information collected from respondents was kept confidential.

Sample Size Determination And Procedure

The source population of the study was all students at Amhara region TETC, while a study population was those students who are studying at TETC during the data collection period. Regular undergraduate students who were available during the study period were included in the study, while students who were seriously ill and incapable of hearing and speaking during data collection were excluded. Single population proportion formula (n = [(Zα/2)2 × P (1-P)]/(D/2)) was applied with the assumption of 95% confidence interval, 5% margin of error, the prevalence (p) of self-medication practice (36.8%) (15) and 5% for possible non-response to determine a final sample size of 372. The number of students to be interviewed in each college was calculated based proportion with the total number of students found in each college. Then, a systematic random sampling method was used to recruit the final study subjects.

Data Collection Tools And Techniques

Data collection was performed by three final year pharmacy students through a self-administered questionnaire. The questionnaire was developed after careful literature review of the published studies (2, 8, 10, 12, 14). First, it prepared in English and translated into the local language (Amharic) then back to the English language in order to ensure consistency. The tool was further pre-tested on 18 students who were not included in the final analysis and relevant modifications were performed before the commencement of the actual data collection. Completeness and fulfilment of all questions were checked by the principal investigator and data collectors. The final questionnaire was constituted 17 items that was divided into three main sections. The first section was focusing on the socio-demographic characteristics related information including age, gender, department, years of study, monthly income, residence, and parents' education level. The second section aimed to assess the prevalence of self-medication practice, reasons for self-medication, medical conditions that promote self-medication, sources of supply and information for self-medication. The third section focused on the environmental characteristics of participants; include the distance of health institution, accessibility of pharmacy, presence of health professionals in the family, presence of medication at home, peer/family pressure.

Statistical analysis

The final collected data were checked for completeness, and responses were entered into and analysed using the Statistical Package for the Social Sciences (SPSS) software version 24.0 for Windows. Frequencies and percentages were used to express different variables, bi-variable followed by multivariable logistic regression analysis were used to determine factors associated with self-medication practice. Univariate analysis was done and variables with p-value less than 0.25 were further taken to the multivariate logistic regression analysis for proper adjustment with the possible confounders. In this study, adjusted odds ratio (AOR) at 95% confidence interval (95% CI) with p-value (p < 0.05) considered as statistically significant.

Results

Socio-demographic characteristics

Out of 372 respondents invited to participate, 344 of them responded to the questions giving a response rate of 92.5%. The mean age of respondents was 20.96 years with a standard deviation of ± 2.40 and the half 175 (50.9%) of respondents were female. Among respondents, 36.9% were in the third year of study. More than half of respondents (56.4%) had 200–500 ETB monthly income. The majority of the respondents (76.7%) came from rural areas. Regarding the study department, the most cited department was Art department (24.7%) followed by science (22.7%) and civics (21.8%). The majority of the participants (52.1%) were travelled more than one hour to reach health institutions, while 56.1% had access to pharmacies. The detail socio-demographic and self-medication related characteristics of respondents are summarized in Table 1.

Table 1
Socio-demographic characteristics and associated factors with self-medication (SM) practice among TETC students, Amhara region, Ethiopia 2020 (N = 344).

Variable	Frequency (%)	SM practice		AOR (95% CI)
		Yes(n)	No(n)	
Age group in years				
16−20	232 (67.4)	157	75	1
21−25	94 (27.3)	63	31	**1.55(1.19−2.88)***
≥ 26	18 (5.3)	14	4	**2.47(1.18−3.94)***
Sex				
Male	169 (49.1)	117	52	1
Female	175 (50.9)	117	58	1.11(0.67−2.83)
Year of study				
1st year	98 (28.5)	60	38	1
2nd year	119 (34.6)	81	38	**1.20(1.04−3.17***
3rd year	127 (36.9)	93	34	**3.14(1.94−5.79***
Residence				
Rural	80 (23.3)	61	19	1
Urban	264 (76.7)	193	91	**2.97(1.06−3.64)***
Parents' educational level				
Can't read and write	138 (40.1)	94	44	1
NF education	87 (25.3)	61	26	1.16(0.93−3.43)
Grade 1−8	85 (24.7)	56	27	1.41(0.46−3.75)
Grade 9−12	18 (5.2)	11	7	**1.47(1.46−3.21)***
≥ Diploma	16 (4.7)	10	8	**2.27(1.32−3.71)***
Department				

SM = Self-medication, NF = None formal, HI = Health institution, HP = Health professional, ≥ Diploma = parents' education diploma or above diploma; *significant at p-value < 0.05, Natural science** (Biology, Physics, Chemistry) Art*** (Art generalist, Music generalist, special needs, health and physical education), Social science **** (Civics and ethics generalist, Geography, History)

Variable	Frequency (%)	SM practice		AOR (95% CI)
		Yes(n)	No(n)	
Amharic language	16 (4.7)	9	7	1
English language	44 (12.8)	26	18	1.14(0.65−2.42)
Mathematics	46 (13.4	20	26	1.97(0.56−2.79)
Natural science**	78 (22.7)	36	42	1.21(0.47−2.24)
ART***	85 (24.7)	43	42	1.29(0.34−2.75)
Social science ****	75 (21.8)	52	23	1.85(0.67−2.92)
Monthly income				
< 200 birr	111 (32.3)	62	49	1
200−500 birr	134 (56.4)	74	60	1.22(0.47−2.45)
> 500 birr	39 (11.3)	21	18	1.65(0.66−3.45)
The distance of HI				
< 30 min	39 (11.3)	18	21	1
30 min − 1 hour	126 (36.6)	72	54	**1.12(1.01−2.43)***
> 1hour	179 (52.1)	110	69	**2.67(1.44−3.34)***
Access to pharmacy				
No	193 (56.1)	77	74	1
Yes	151 (43.9)	125	68	**2.12(1.43−4.46)***
HP in their family				
Yes	72 (20.9)	27	45	1
No	272 (79.1)	187	85	**1.45(1.21−3.14)***
Peer/family pressure				
Yes	212 (61.6)	134	78	**2.34(1.53−3.56)***

SM = Self-medication, NF = None formal, HI = Health institution, HP = Health professional, ≥ Diploma = parents' education diploma or above diploma; *significant at p-value < 0.05, Natural science** (Biology, Physics, Chemistry) Art*** (Art generalist, Music generalist, special needs, health and physical education), Social science **** (Civics and ethics generalist, Geography, History)

Variable	Frequency (%)	SM practice		AOR (95% CI)
		Yes(n)	No(n)	
No	132 (38.4)	60	72	1

SM = Self-medication, NF = None formal, HI = Health institution, HP = Health professional, ≥ Diploma = parents' education diploma or above diploma; *significant at p-value < 0.05, Natural science** (Biology, Physics, Chemistry) Art*** (Art generalist, Music generalist, special needs, health and physical education), Social science **** (Civics and ethics generalist, Geography, History)

Prevalence, Source Of Drug And Indication Of Self-medication Practice

Of the total respondents, 234 (68.0%) were practice self-medication with half (50.0%) of them were male students. Among students who practice self-medication, (33.3%) were practice more than four times and 30.8% faced adverse drug events. More than half of students 57.7% didn't read the instruction. From the total self-medication user, 73.1% were got medication from pharmacy and 30.8% from friends (Table 2).

Table 2
Prevalence and source of drug for self-medication practice among TETC students, Amhara region,
Ethiopia 2020 (N = 344)

Statement	Answer	Frequency	%
Do you have ever practice self-medication in your life time?	Yes	234	68.0
	No	110	32.0
If your answer is yes for above question, how many times practiced in your life time? (n = 234)	Once	33	14.1
	Twice	54	23.1
	Three times	69	29.5
	≥ 4 times	78	33.3
Duration of self-medication (n = 234)	For1 day	57	24.4
	For 2 days	52	22.2
	For 3 days	45	19.2
	Four days	33	14.1
	≥ 5 days	45	20.1
Do you always read the instruction? (n = 234)	Yes	99	42.3
	No	135	57.7
Do you have ever face any adverse drug reaction? (n = 234)	Yes	72	30.8
	No	162	69.2
Where did you get that medication? (n = 234)*	Pharmacy	171	73.1
	Friends	72	30.8
	Family	89	38.0
	Others (specify	27	11.5
*Respondents have more than one choice			

In this study, the most commonly cited indication of self-medication was headache (32.1%) followed by abdominal pain (22.6%) and common cold (19.7%). The indication of self-medication practice among respondents is summarized in **Fig. 1**.

Reasons For Self -medication Practice

The most common reasons for choosing of self-medication reported by the respondents were disease not serous (24.4%) followed by similarity of disease symptoms with previous illness 20.9% and easily accessibility of drugs (17.1%) (Table 3).

Table 3
Reasons for self-medication practice among TETC students, Amhara region, Ethiopia 2020 (n = 234)*.

Variable	Frequency	Percent
Disease not serous	57	24.4
Friends' suggestion	30	12.8
The similarity of illness with previous illness	49	20.9
Self-medication is cheaper	29	12.4
Long waiting time in health service	23	9.8
Long-distance from the health facility	22	9.4
Do not trust health professionals	10	4.3
Easily obtaining drugs	40	17.1
Being embarrassed to tell about the disease	19	8.1
The similarity of symptoms with past illness	41	17.5
Affordability of the cost of drugs	14	6.0
Others	8	3.4
*Respondents have a chance to select more than one		

Factors associated with self-medication practice among students

Variables that were significantly associated with self-medication practices in the bivariate analysis were further examined in multivariate logistic regression. The result showed that respondents age greater than 26 were 2.47 times more likely to practice self- medication (AOR: 2.47, 95% CI: 1.18−3.94) than age between 16−20 years. Based on years of study, third year students were 3.14 times more likely to practice self-medication (AOR: 3.14, 95% CI: 1.94−5.79) than first year students. The odds of self- medication practice were 2.97 times higher among urban residents as compared to rural residents (AOR: 2.97, 95% CI: 1.06−3.64). Accessibility of pharmacy was nearly two times (AOR: 2.12, 95% CI: 1.43−4.46) more likely exposes to experience self-medication practice compared to those who had no accessibility of pharmacy.

The odds of self-medication practice among respondents who had peer/family pressure was 2.34 times (AOR: 2.34, 95% Cl: 1.53–3.56) more likely to practice self-medication compared to those who hadn't peer pressure (Table 1).

Discussion

Currently, self-medication is a common practice in developed and developing countries (15). It might be lead to incorrect selection of medication, harmful drug interactions, incorrect dosage, risk of drugs dependence and abuse (16). According to this study, 68.0% of students were practiced self-medication. This finding is nearly to comparable with a study done at Addis Ababa 75.5% (17). However, it was lower than the finding from Nigeria 92.39% (8) and South India 84.6% (18). This might be due to the presence of advanced telemedicine service and awareness about medication. On the other hand, the finding is higher than those of the studies done in Jiangsu University 47.9% (19), West Bengal 43.24% (20), Mekelle University 43.24% (21) and Jimma University 45.9% (22). The reason for the wide variation in the prevalence of self-medication practice might be due to the variation of social determinants of health, beliefs, and the culture of population. In this study, 30.8% were faced adverse drug events. This study was in line with study done in North India (29.77%) (13). However, the finding was higher than study reported from South India (5.4%) (23).

The present study revealed that the commonest indication of self-medication practice was a headache (32.1%) followed by abdominal pain (22.6%). This finding was in line with the study done in Jimma Ethiopia (24). Unlike the finding of this study, the common indications for self-medication were urinary tract infection, sore throat, and diarrhoea in Nigeria (25). This may be due to the difference of prevalence of these diseases across study area. These disease also mild and self-limiting in nature and may be prevent patients from seeking physician consultation. In this study, the most commonly cited sources of drugs were pharmacy (73.1%) followed by their family (38.2%). This finding is similar to the study done in India (8). The main reason for practicing self-medication in this study was feeling the disease is not serious (24.4%). This finding was similar to studies done in Jimma town (22), Iran (26) and Asella Ethiopia 24.3% (2).

The multivariate analysis revealed that third year students were 3.14 times more likely to practice self-medication than 1st -year students. This finding is similar to the study done in Egypt (12). The odds of self-medication practice were 2.97 times higher among urban residents as compared to rural residents. This finding was in line with the study conducted in Egypt (12). The possible explanation could be that those who lived in urban may have some awareness about the treatment and hearing drug promotion which may be encourages them to use self-medication rather than consulting the health professionals and visiting the health institutions (22). It also showed that students whose parents had more than diploma certificate education level was 2.27 times more likely to practice self-medication than whose parents unable to read and write. The possible explanation could be that those who had a diploma may have some awareness about drugs and diseases which may be push their children to practice self-medication rather than seeking health care institution.

Respondents who had access to the pharmacy were nearly two times more likely to practice self-medication compared to those who hadn't. This result is consistent with those of students in China (27), India (28)' and Nigeria (29). This might be due to most of the private pharmacies sold medication without a prescription of health professionals. The odds of self-medication practice among respondents who had peer/family pressure was 2.34 times more likely to practice self-medication as compared to those who hadn't. The current result is consistent with those of studies carried out in China (27) and Uganda (30). The possible explanation may be that friends/families were common sources of information about medication in developing countries like Ethiopia.

Limitation

The study has some limitations that should be taken into account while interpreting the results. As the study is cross-sectional and depends on self-reported assessment, under-reporting is more likely to occur. This study is limited to self-medication practices only not include attitude and awareness of the participants.

Conclusion

The result of the study revealed that two-thirds of the study participants practiced self-medication. Being from an urban area, having access to private pharmacy, increase year of study, parents' education level and having peer/family pressure are significant factors for self-medication.

Abbreviations And Acronyms

AOR - Adjusted odds ratio

COR - Crud odds ratio

ETB - Ethiopian birr

OTC - Over the counter

SPSS - Statistical Package for Social Sciences

Declarations

Ethics approval and consent to participate

This study was approved by the ethical committee of the school of pharmacy, the University of Gondar with an approval number of SoP-318/2012. Informed verbal, as well as written consent was obtained from study participants prior to the data collection, and the purpose of the study was explained to the respondents in advance. The information collected from respondents was kept confidential.

Conflict of interest

The authors declare that they have no conflict of interests.

Publication consent

Not applicable

Funding

Not applicable

Availability of data and materials

The data sets supporting the finding of this study can be obtained from the corresponding author upon a formal request.

Author contribution

ABM contributed to design the study, write up of the final research, data interpretation, data analysis, final manuscript preparation and supervision of the study. MTT and MG participated in data analysis, data interpretation and. TAB contributed to writing up the final research, data interpretation and manuscript preparation. All authors read and approved the final manuscript.

Acknowledgment

The authors would like to acknowledge the Dean of each teachers' education training college who gave permission for the data collection and we want to acknowledge the registrar, teachers, and students of the college for their voluntary participation.
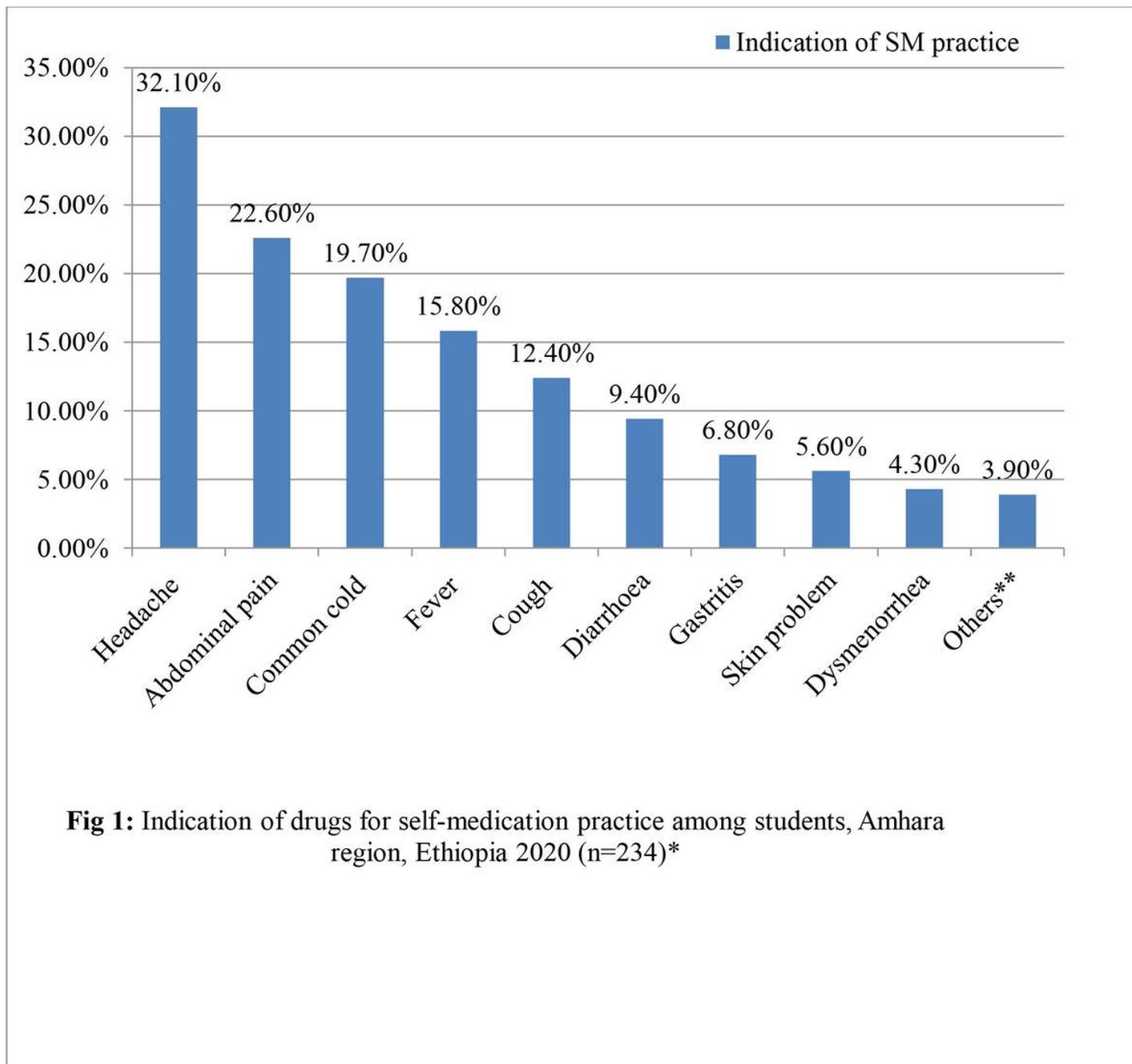
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Figures

Fig 1: Indication of drugs for self-medication practice among students, Amhara region, Ethiopia 2020 (n=234)*

*Posible more than one choice ** Nausea/vomiting, loss of appetite, contraceptive

Figure 1

*Posible more than one choice ** Nausea/vomiting, loss of appetite, contraceptive

Supplementary Files

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- STROBEchecklistcrosssectional.doc
- Datacollectiontool.docx