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SELF MEDICATION PRACTICE AND PERCEPTION AMONG THE GOVERNMENT EMPLOYEES IN SOKOTO, NIGERIA

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Keywords: *Self-medication, practice and perception, Sokoto*

Abstract

Background: Although responsible self-medication can provide cheaper alternative for treating common illness that may not need medical consultation, itcan promote irrational use of drugs, which can increase microbial resistance, abuse, addiction and lead to serious health hazards.

Objective: To determine the perception and practice of self-medication; assess the determinants and predictors of self-medication practices among the respondents.

Methodology: A cross sectional study design was used and 480 respondents participated in the study. Multistage sampling technique was used to select the respondents and data collected using interviewer-administered questionnaires. Data was analyzed with IBM SPSS version 20.0. Binary logistic regression analysis was performed. Statistical significance level was set at alpha error of 5%.

Results: Mean age was 30.6±9.8 years. Majority (64%) of respondents have taken drugs within the last three months and 103 of them reported self-prescription giving self-medication prevalence of 34%.Pharmacy shops and patent medicine stores combined provided source for 94% of respondents.Antimalarial were most commonly self-medicated followed by analgesics then antibiotics. Though more than half of the respondents expressed high-risk perception, large proportion had poor knowledge of self-medication. Although none of the factors predicted the practice, respondents whoreside in high density areaswere four times more likely to engage in self-medication compared to those who live in low density areas (aOR=0.281, p <0.002).

Conclusion: A large proportion of the respondents indulge in self-medication while pharmacy shops and patent medicine stores were the main source. Neither of the respondents' socio-demographic and other related characteristics influences their practice, however those whoreside in the high density area are more likely to engage in self-medication. There is need to raise public awareness of risks associated with self-medication practice.

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Introduction

Self-medication is described as the use of drugs without the advice of a physician to treat self-diagnosed disorders or symptoms or the intermittent or continuous use of prescribed drugs for chronic or recurrent disease or symptoms.[1,2]According to National drug policy in Nigeria only duly qualified and licensed medical practitioners shall have the authority to prescribe the drugs using the international non-proprietary or generic names in tertiary and secondary health care institutions including private sector and at primary health care level, government shall designate appropriate health care personnel to prescribe drugs.[3]

Government of Nigeria have designated community extension workers and community health workers to treat some common ailments using the national standing order and prescribe only drugs on essential drug list. Since self-medication involves the use of drugs ithas the potential to do good as well as cause impairment to users.[4]Studies on practice of self-medication revealed that it isuniversally prevalent occurring in both developed and developing countries. However, the practice varies from region to region, between and within the countries. With respect to developed countries, a study examining the prevalence and determinants of over the counter drugs use among German adults aged 18-79 years,revealed that 17.6% of men and 10.8% of women used self-medicated drugs in addition to prescribed drugs.[5]

In developing countries, self-medication is an everyday practice as it provides a low-priced alternative for people who cannot afford the high cost of clinical services and also many drugs are dispensed over the counter without valid prescription.[6]

Although over the counter drugs are considered risk free and helpful in treatment of commonly occurring health conditions, their irresponsible use can lead to side effects and adverse reactions.[7]Inappropriate dosing with chloroquine for malaria treatment facilitated and accelerated the developmentof resistance by*plasmodium falciparum is one example among many.*[8,9]Consumption of non-prescribed antibiotics is common practice and such use has been reported as a potential factor in the incidence of certain antibiotics resistant bacterial infections.[10]Self-medication practices among the people is multifactorial, most important being age, sex, economic levels and educational status.

A study in Nigeria by Adenike Steven et al revealed that easy and unrestricted access to drugs, valid prescription from a doctor not required to buy any drug over the counter, poor government control and regulation of drug use, availability of ready markets due to numerous patent medicine and pharmacy shops springing up every day, inadequate medical personnel resulting in prolonged consultation waiting time, misleading advices from friends and relatives, radio and Television advertisement that provide public with false impression of the action and effectiveness of the advertised products are some of the reasons facilitating and promoting self-medication.[11] Civil servants are predominantly educated and have access to all forms of media, are expected to be well informed about adverse effects from indiscriminate and irresponsible use of non-prescribed drugs and be agents of behaviour change and communication in the society. It is on this background that the study was conducted among the group to assess the prevalence and risk perception of self-medication practices.

Materials and method

The study was conducted in Sokoto metropolis, which comprised of five local government areas out of the 23 in the state. Sokoto is the state capital and also the administrative and commercial Centre of the state. Within the metropolis are the three secretariats(Shehu Kangiwa, UsmanFaruk and Federal secretariats) where all the Ministries, Departments and Agencies (MDA) are located.The study population comprised of all the civil servants in these MDAs.Eligiblerespondents were government employeesworking within Sokoto metropolis and voluntarily consented to participate however, employees with only informal education were excluded from the study.

Adescriptive cross sectional study design was used and a sample size determination formula for descriptive study for population greater than 10,000 was used ($n = Z\alpha^2 pq/d^2$) where n = minimum sample size desired for the study, Zα =

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Standard normal deviate at alpha error of 5% corresponding to 95% confidence level (1.96), p = prevalence of self-medication practices in the previous study (50%), q = complementary probability of p = (1-p) = 1- 0.5 = 0.50, and d = tolerable margin of error = 5% = 0.05

Substituting the values in the equation above, therefore, $n = (1.96)^2 \times 0.5 \times 0.5 / (0.05)^2 = 384.16$. In order to increase the sample size so that the power of the study was not affected for possible attritions due to poorly filled questionnaires or loss of whole or part of filled questionnaires, the minimum sample size desired for the study calculated above(384) was multiplied by a factor determined using this formula, [100/100-R %][6]where R% is the percentage loss due to attrition assumed to be 20%.Substituting the values, a sample size of four hundred and eighty was obtained. However 500 questionnaires were self-administered and only 480 were analyzed.

A multi-stage sampling technique was applied during the sampling processes to select the study respondents.
Stage 1: five ministries and parastatals each were selected using a simple random sampling technique (balloting technique)

Stage 2: Probability proportionate to size (PPS) was applied to allocate the respondents to the selected MDAs. Sampling interval was calculated for each MDAs having obtained the sampling frame (staff list) and required sample size for each MDAs.

Stage 3: A simple random sampling method was used to select the first respondents following the estimation of sampling interval.

Stage 4: A systematic sampling technique was used to select all the required number of respondents from each MDAfollowing selection of the first respondent.

Structured questionnaires that contained both close-ended and open-ended questions were used to collect the survey data on respondents' social-demographic and job related characteristics, knowledge and practice of self-medication and perception of risk associated with self-medication practices.The questionnaires were pre-tested on civil servants from MDAs that were not included in the main study.

As part of data quality assurance, all the filled and returned questionnaires were scrutinized for completeness and suitability for analysis. Data was analyzed with statistical package for social science (SPSS) Version 20.0 IBM Incorporation. The quantitative data were summarized using mean and standard deviation while categorical data using frequencies and percentage.

Scoring and Grading of responses on knowledge and perception of risks on self-medication
In the context of this study, a person is said to practice self-medication if s/he has done that within the last 3 months preceding this study. Each correct response of knowledge questions was scored 1 mark while zero (0) was awarded to wrong answers and or no-response. The knowledge was graded as either good or poor knowledge. Scores of less than 50% and equal to or greater than 50% was adjudged poor and good knowledge respectively. Respondents' perception of risk was categorized as either low or high. A score of less than 70% and that equal to or greater than 70% was adjudged as low and high perception of self-medication respectively.

At the end of scoring, the proportion of respondents with good and poor knowledge; low and high perception of risk were determined. Chi square test of association was carried out to determine the association between respondents' socio-demographic and job related characteristics and knowledge and perception of risk of self-medication practice. Regression analyses were also carried out to identify the contribution of respondents' socio-demographic and job related characteristics and their knowledge about self-medication onperception of risk of self-medication practice and also which among the characteristics is/are best predictors.

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Ethical approval was sought and obtained from Sokoto state Health research ethics committee while the permission to conduct the study was obtained from the Management of each participating MDAs. Additionally consent was obtained from an individual respondent before questionnaires were administered.

Results

Table 1 result shows that respondents' mean age was 37 years. Age group 25 to 39 years was almost half (49.5%) of the respondents followed by 40-59 years with 32.0% while the age group 18-24 years accounted for 18%. There were more male respondents (82.3%) than females, (17.7%) and Hausa/Fulani were the majority (86.4%) ethnic group followed by Yoruba that accounted for 10%. Majority (88.3%) had tertiary education followed by those with secondary education, (8.3%) while only 3.4% completed primary education. Nearly one third (29%) were health professionals, while almost half (49%) were public administrator followed by 11.3% who were teachers. Majority (59.3%) are of senior employment cadre while the remaining were junior staff cadre (40.7%). Of the total number, (31%) had been diagnosed of chronic disease in the past and large majority (89.4%) reported presence of pharmacy/chemist within a walking distance from their place of resident.

Table 2 results reveal that nearly two third(64%) have taken drugs within the last three months and great proportion(65.2%) were prescription from health personnel while 34.4%were not prescribed.Apart from doctors and nurses, pharmacist, chemist and drug vendors were also reported make prescription while more than one third (36%) of these were self prescriptions. Antimalarial, followed by analgesics and antibioticswere the category of drugs commonly used for self medication.Most common medical conditions that warrant the self medicationfever and body pains by 15% and 9% of the respondents respectively.

Table 3 shows that the most reasons put forwardby respondents for buying non-prescribed medicine was because of delays in the hospitalby 21% followed by comparable cheap charges to hospital by 15% and 13% felt the symptoms were not serious enough while 9% said because they still have previous prescription by health worker. Two third (66%) of the respondents were cured of their symptoms while 2.5% did not get improvement and had to visit hospital.

Table 4 reveals that Pharmacy shops and Patent medicine store combined provided source of drugs for a very large (93%) segment of the respondents.Mentioning the name of drug to vendors was the key forms of request made to obtain the drugs and 21% had to describe the symptoms of illnesswhile 5% showed old prescription package of the drug.

Table 5 result shows that majority (39%) affirmed that government should be blamed for the irresponsible self-medication practiceswhile 21.5%perceived the drug vendors and chemist being responsible followed by 20% that said health providers are to be blamed.Nearly half (46.3%) of the respondents believed that enforcing the law preventing the sales of drugs without prescription will preventirresponsible self-medication practices while 37%opined that improving public awareness of its negative effects and 14% felt more health care providers be employed.

The figure1 above showed that more than two thirds (69.6%) of the respondents demonstrated poor knowledge of self medicationwhile only 30%demonstrated good knowledge. Overall mean percentage knowledge scores of 62±28.1%.

Table 6 shows that more than two thirds (69.1%) of respondents knew that self medication is a form of self care and 80% knew self medication involves the use of medicinal product to treat self-recognized symptoms or disorder. Three quarter knew self medicationcan increase adverse drug effect, bacterial infection, and injury. Generally, respondents' demonstrated good knowledge of different pattern of self medication as greater than three quarter mentioned obtaining drugs directly from pharmacy/chemist and continuous use of medicine longer than

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recommended by doctors while more than two third identified obtaining medicine from relatives, friends or other source and use of old prescription to purchase medicine as patterns of practice

The figure 2 shows that almost half (49%) of the respondents expressed low level of risk perception while 51% expressed high risklevel.
Table 7 result shows that most (88%) of the respondentsperceived taking drugs without prescription as dangerous although more than one third believed over-the-counter drugs is risk free and 33% felt that non-prescription drugs are effective as prescription drugs. Two third perceived that irresponsible self-medication with antibiotics and anti-malaria may bring about drug resistance and 80% believed it can expose users to adverse health effects such as adverse drug interaction when antibiotic is involved by 66%, cause injury or increase susceptibility to other infection or disease to the user by 69%. More than half (59%) of respondents felt self-medication may mask correct diagnosis of the disease, while 75% felt it may delay the commencement of appropriate treatment and more than three quarters believed self-medication may promote drug misuse and lead to inappropriate dosing.

Table 8 result of Chi-squared test of association showsthat a statisticallysignificance relationship existbetween self-medication practice and age group (=11.22, P =0.009); respondents ethnicity (, df = 3, p <0.04 and current grade lev el (, df= 1, p<0.04).The binary logistic regression analysis (table not shown) revealed that none of the respondents' s ocio-demographic and job related characteristics predicted self-medication practice. However respondents who resid e in the high density area were almost four time more likely to engage in self-medication compared to those who liv e in low density area (aOR=0.281, p <0.002).

Discussion

Drug self-medication is common in most low and middle income countries. The use of drugs without prescription occurs globally despite the fact that prescriptions are usually required for their purchase[12]. This study showed the prevalence of self-medicationto be 36.8%. However, various studies in Nigeria haveshown varied prevalence rates of self-medication ranging from 17.9% - 91.4% though the different study settings, methodology and socio-demographics may actually account for the wide variation in prevalence noticed.[13-18]

The commonly used drugs were analgesics and antibiotics which correlates very well with the commonly experienced symptoms (body pains and fever) that warranted self-medication in the first place.Studies have shown that the common symptoms those who self-medicate have include: fever, headache, body pains [6, 19-20]Individuals who need healthcare would usually request for help from qualified healthcare professionals who they know they will get the best from. However, for reasons such as: delays experienced during hospital visits, mild symptoms which make patients feel hospital visits is a mere waste of time and previous prescriptions for what is termed as similar symptoms which can be reused, respondents tend to indulge in self-medication.The indulgence in self-medication is made worse by theeconomic realities which has also made self-medication cheaper and more desirable.

Though a good proportion of the respondents (88.1%) knew that self-medication is dangerous and it could expose them to unwanted side effects, overall, only slightly above half of the respondents had high risk perception about drug self-medication. This is buttressed by the fact that a significant proportion of the respondents believed that over the counter drugs are risk free and are as effective as prescription drugs. This is quite disturbing considering the fact that most of the respondents are educated to the tertiary level and are aware of the undesirable side effects associated with the practice and hence ought to have higher risk perception. This may not be unconnected to the fact that self-medication is seen as a globally recognized form of self-care with majority of the respondents acknowledging that it has been shown to be an effective alternative to receive healthcare which has a cheaper cost and quicker to access. This was collaborated in some similar studies where self-medication is common for reasons ranging from being a quicker alternative, cheaper cost, left over drug from previous similar drugs.[2,6,19-21]

These findings bring to the fore the need for relevant agencies to regulate drugs sold over the counter so as to reduce the spectrum of drugs readily available to potential buyers and therefore the risk of undesirable side effects. About a

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third of the respondents also stressed the need to improve public awareness about the negative effects associated with self-medication. This is important because most individuals are only aware that negative effects occur but do not know the grave nature/ severity of the side effects.

Conclusion

In conclusion the study revealed that nearly two thirdsof the respondents have taken drugs within the last three months and many of them reported self-prescription giving self-medication prevalence as high as 34%.Pharmacy shops and patent medicine stores combined provided source for 94% of users.Antimalarial were most commonly self-medicated followed by analgesics then antibiotics. Though more than half of the respondents expressed high-risk perception, large proportion displayed poor knowledge of self-medication. Although none of the factors predicted the practice, respondents whoreside in high density areaswere four times more likely to engage in self-medication compared to those who live in low density areas (aOR=0.281, p <0.002).The reported self medicationpractice is very high and posed a serious concern for development of drug resistance as a result of improper dosing and adherence to duration of medication. This was one of the main sources through which resistance against chloroquine, thatwere also used to treat malaria developed. Organ toxicity and other drug related side effects are potential adverse effect among the users.

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Table 1: Socio-demographic and job related characteristics

Variables	Frequency	Percentage
Age group (years)		
18-24	89	18.4
25-39	237	49.6
40-59	153	32.0
Sex		
Male	395	82.3
Female	85	17.7
Ethnicity		
Hausa/Fulani	388	86.4
Yoruba	45	10
Igbo	14	3.1
Others	2	0.4
Marital status		
Single	112	23.4
Married	359	74.9
Separated	8	1.7
Educational level		
Primary	6	3.4
Secondary	39	8.3
Tertiary	416	88.3
Type of job		
Administration	176	48.8
Health professional	102	28.7
Engineer	27	7.6
Legal practitioner	10	2.8
Teachers/lecturers	40	11.3
Current grade level		
6 and below	164	40.7
7 to 12	185	45.7
13 and above	55	13.6
Presence of chronic disease/recurrent illness		
Yes	142	30.7
No	321	69.3
Characteristics of residential area in the metropolis		

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High density	168	36.2
Moderate density	201	43.3
Low density	95	20.5
Presence of pharmacy/chemist Within walking Distance from residence		
Yes	406	89.4
No	48	10.6

Table 2: Prevalence of and category of nonprescription drug use among respondents

Variables	**Frequency**	**Percentage**
Have you taken any drug within the last 3 months		
Yes	303	64.1
No	170	35.9
If yes, was the drug prescribe by Doctor, nurse, or CHEW		
Yes	195	65.6
No	103	34.4
Apart from Doctor, nurse, CHEW who else prescribe for you		
Pharmacist	62	35.6
Chemist	31	17.8
Drug vendors	10	5.7
Other hospital staff	7	4.0
Self	64	36.8
What category of drug is it		
Antibiotics	56	24.3
Analgesics	57	24.8
Antimalarial	102	44.3
Antifungal	4	1.7
Sedatives	3	1.3
Cough suppressants	8	3.4
Commonly used drugs for self-medication		
Artemisinin combination therapy	63	12.7
Ampiclox	14	2.9
Amoxicillin	4	0.8
Metronidazole	15	3.0
Paracetamol	39	8.9
NSAIDS	9	1.2
Most common condition for self-medication		
Cough/catarrh	14	2.8
Body pain	43	8.6
Fever	77	15.4
Diarrhea	4	0.8

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Table 3: Reasons for buying non-prescribed medicine and outcome of prior self-medication

Variables	Frequency	Percentage
Reasons for buying non-prescribed drugs		
Can't go to hospital because of delay	44	20.8
It is cheaper than hospital charges	32	15.1
Symptoms are not serious	63	13.1
Have previous prescription with me	19	9.0
Left over from previous course	7	3.3
Availability of drugs without prescription	1	0.5
Not satisfied with service provider	1	0.5
Lack of drugs in the hospital	3	1.4
For emergency use before going to hospital	15	7.1
Previous experience with similar ailments	19	9.0
Lack of knowledge of health effect of similar medication	8	3.8
The outcome of prior self-medication		
Cured of the symptoms	138	66.3
Got some improvement	59	28.2
No improvement and had to visit the hospital	12	2.5

Table 4: Source and mode of request for the drugs

Variables	Frequency	Percentage
Source of medicine		
Pharmacy shop	144	62.3
Patent medicine store	72	31.2
Mobile drug vendors	4	1.7
Friend/relatives	11	4.8
Forms of request made to obtain the drug		
Mention the name of the drug	145	65.6
Describe the symptom of illness	46	20.8
Show old prescription package of the drug	12	5.4
I presented a piece of a paper	12	5.4
Describe the physical character of the drug	4	1.8
Presented the name of the drug in SMS message	2	0.9

Table5: Role and responsibilities for self-medication practice

Variables	Frequency	Percent
Who should be blamed for irresponsible self-medication		
Government	178	38.6
Drug vendors/chemist	99	21.5
Health care providers	90	19.5
Individuals	83	18.0
Others	4	0.9
Don't know	7	1.5
Ways to prevent self-medication practice		
Enforcing the law preventing sales of drugs without prescription	210	46.3
Improve public awareness of its negative effect	179	37.3
More health providers be employed	65	14.3

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Table 6: Knowledge of some aspects of self-medication among respondents

Variables	Frequency	Percentage
Self-medication is a form of self-care		
Yes	326	69.1
No	124	26.3
Don't know	22	4.7
Self-medication involves the use of medicinal product to treat self-recognized symptoms or disorder		
Yes	365	79.9
No	47	10.3
Don't know	45	19.8
Self-medication can increase adverse effect, bacterial infection, and injury		
Yes	351	75.3
No	44	9.4
Don't know	71	15.2
Patterns of self-medication practices include the use of:		
Drugs obtained directly from pharmacy/chemist	379	79.3
Leftover drugs from earlier Prescription	288	60.4
Obtain medicine from relatives, friends or other source	329	69.0
Use of old prescription to purchase medicine	296	69.0
Continuous use of medicine longer than recommended	264	75.3

Table7: Some aspect of perception of risk of self-medication practice

Variables	f	%
Taking drugs without valid prescription is dangerous		
Yes	407	88.1
No	28	6.1
Don’t know	27	5.8
Over-the-counter drugs is risk free		
Yes	157	34.8
No	227	50.3
Don’t know	67	14.9
Self-medication can expose users to adverse health effects		
Yes	360	80.4
No	18	4.0
Don’t know	70	15.6
Self-medication with antibiotics can promote adverse drug interaction		
Yes	295	66
No	41	9.2
Don’t know	111	24.8
Antibiotics and anti-malaria may bring about drug resistance		
Yes	299	66.9
No	34	7.6
Don’t know	114	25.5
Self-medication may mask correct diagnosis of the disease		
Yes	261	59.6
No	92	21

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Don't know	85	19.4
It may cause injury or increase susceptibility to infection or disease		
Yes	305	68.8
No	48	10.8
Don't know	90	20.4
Self-medication may lead to inappropriate dosing		
Yes	380	84.6
No	26	5.8
Don't know	43	9.6
Self-medication may promote drug misuse		
Yes	389	85.7
No	20	4.4
Don't know	45	9.9
Non-prescription drugs are just as effective as prescription drugs		
Yes	148	33.2
No	295	66.1
Don't know	3	0.7
Self-medication may delay the commencement of treatment.		
Yes	344	75.9
No	53	11.7
Don't know	56	12.4

f=frequency; % = percentage

Table 8: Bivariate analysis of respondents' practice of self-medication by theirsocio-demographic and job related factors

	Practice Self-medication		
Variables	**Yes, f(%)**	**No, f(%)**	**Test statistics & p value**
Age group (years)			
18-24	54 (27.7)	34 (32.7)	
25-39	102 (52.3)	55 (52.9)	Fischer exact =11.22
40-59	39 (20.0)	15 (14.4)	P = 0.009
Sex			
Male	157 (80.5)	89 (85.6)	χ^2=1.19, df=1, p=0.28
Female	38 (19.5)	15(14.4)	
Ethnicity			
Hausa/Fulani	159(85.9)	84(86.6)	
Yoruba	22(11.9)	7(7.2)	χ^2 =7.30, df= 3, p<0.04
Igbo	2(1.1)	6(6.2)	
Others	2(1.1)	0	
Educational level			
Primary	6(3.1)	3(2.9_	
Secondary	17(8.9)	4(3.9)	χ^2 =2.41, df=2,
Tertiary	169(88)	95(93.1)	p = 0.38
Type of job			
Administrator	46(33.1)	21(26.9)	
Accountant	30(21.6)	15(19.2)	
Health personnel	36(25.9)	24(30.8)	χ^2 =3.46, p=0.64
Engineers	5(3.6)	6(7.7)	
Legal practitioner	2(1.4)	2(2.6)	

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Teachers/lecturers	20(14.4)	10(12.8)	
Current grade level			
6 and below	69(43.9)	28(31.8)	
7 to 12	71(45.2)	41(46.6)	χ^2 =6.57, df=2, p<0.04
13 and above	17(10.8)	19(21.6)	
Presence of chronic illness			
Yes	61(31.9)	31(30.1)	χ^2=0.105, df =1,
No	130(68.1)	72(69.9)	p =0.75
Residential area			
High density	72(37.9)	28(28.0)	
Moderate density	86(45.3)	51(51.0)	χ^2 =2.94, df=2,
Low density	32(16.8)	21(21.0)	p=0.23
Chemist within working distance			
Yes	166(89.2)	92(92.9)	χ^2 =1.02, df=1 p=0.31
No	20(10.8)	7(7.1)	
Knowledge of self-medication			
Poor	56(28.7)	24(23.5)	χ^2 =0.92, df=1 p=0.34
Good	139(71.3)	78(76.5)	
Perception of risk			
Low	93(47.9)	42(41.2)	χ^2 =1.23, df=1 p=0.27
High	101(52.1)	60(58.8)	

f=frequency; % = percentage

Figure 1: Knowledge of self-medication

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Figure 2: Perception of risk on self medication