

Knowledge, Attitude and associated factors towards self-medication among health professionals at University of Gondar Comprehensive Specialized Hospital: Institution-based cross-sectional study

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Keywords: Self-medication; Knowledge; Attitude; Health professionals

Posted Date: April 27th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-24681/v1>

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Abstract

Introduction Inappropriate self-medication results in wastage of resources, drug resistance and hence serious health risk. Knowledge acquisition and attitudinal change is required for avoiding self-medication practice. There is paucity of published articles regarding this topic. Therefore, this study aimed to study knowledge, Attitude and associated factors towards self-medication among health professionals at University of Gondar Comprehensive Specialized Hospital, northwest Ethiopia.

Methods This cross-sectional study was conducted among health professionals of University of Gondar comprehensive specialized hospital using simple random sampling technique and self-administered questionnaire. We used Epi Info 7 and SPSS 20 for data entry and statistical analysis. Descriptive statistics were computed logistic regression had been performed to identify associated factors for knowledge and attitude separately. We executed crude and adjusted Odds ratio with 95% uncertainty interval. Variables with a $p < 0.05$ were treated as significant.

Results Four hundred and twelve health professionals participated in the study with 97.4% response rate. The mean age of study participants' was 29.9 (± 5.43 , range; 20-60) years and 220 (53.4%) participants were males. From the participants 233(56.6%) (95% UI: 51.8-61.4%) had good knowledge about self-medication and 263 (63.8%) (95% UI: 59.2-68.4%) had good attitude towards self-medication. Knowledge of self-medication was associated with age of 32-60 years (AOR=2.19, UI: 1.14-4.22), Bachelor degree (AOR=6.49, UI: 1.86-22.69), Years after last graduation (AOR=2.49, UI: 1.41-4.41), working hours of 56-110 per week (AOR=2.35, UI: 1.18-4.67), and good attitude (AOR=2.95, UI: 1.77-4.91). Besides this, good attitude was associated with low workload out of workplace (AOR=2.78, UI: 1.03-7.50), ever taking antibiotics (AOR=2.45, UI: 1.31-4.50), and good knowledge (AOR= 2.64, UI: 1.65-4.20).

Conclusion The study demonstrated that the knowledge and attitude of health professionals towards self-medication are relatively high. However still there is a need for health education on the implication and danger of self-medication. There is also need for government to increase awareness by creating training opportunity and incorporating in curricula.

Introduction

Self-medication is the selection and use of drugs and drug products by any person to treat self-recognized or self-diagnosed conditions without proper diagnosis by physicians (1-7). It is a common practice of the health care system (7).

Self-medication drugs and drug products are called 'nonprescription' or 'over the counter' (OTC) which are available in the pharmacy without a prescription ordered by physicians or any other licensed prescribers (8). This includes purchasing medicine without a prescription, sharing medicine with relatives or members of the family (7, 9). Currently more drugs and drug products has been changed from prescription-only medications to over the counter (pharmacy sell without prescription) medications (2)

Self-medication can have benefits and hazards and the reasonable use of self-medication can save limited medical resources from being wasted on minor conditions, reduce the load of health facilities and decrease costs as well as the time spent to visit health care facilities for minor disease conditions (10). Having responsible self-medication has been supported by the World Health Organization (WHO) for the treatment and prevention of disease that is not severe and do not need diagnosis (11). WHO points out that responsible self-medication should be supported with information about drugs and medical products describing how to take the medicine, possible side effects, monitoring, possible interactions, warnings and duration of use (12). On the other hand Self-medication which is not appropriate, may result adverse drug reactions, drug dependence and increased resistance of the microorganisms (13, 14). One of the expected indicators of self-medication is profession and level of education (2, 15).

As several studies showed Self-medication is commonly practiced in both developed and developing countries (16). Some governments are increasingly encouraging self-care of minor illnesses, including self-medication (17) if users should have basic knowledge about drugs in order to conduct self-medication more effectively and safely (18).

Several studies shown that self-medication practice differ between diverse populations (9, 19). Self-medication behavior varies significantly with a number of socio-economic characteristics (20). Self-medication practices is alarmingly high in healthcare professionals. however inappropriate self-medication among health professionals have been found to have severe challenges including legal, ethical, health problems, harmful impacts on patient, unsafe drug interactions, severe adverse reactions (even low chance to be occur) and poor quality of health care delivery (2).

It has been also shown that self-medication is much more common among health professionals and health students than other population (15). The other study done In India about the practice of self-medication was found to be 11.9%. Males, age >40 years and involving in moderate level activity of occupation, were associated with higher self-medication usage ($P < 0.05$) (21). Better information to users of self-medication reduces adverse events and any harm caused by drugs and drug products (22). Pharmacists play a key role in providing and assisting self-medication to all populations at their private pharmacy setting (19).

self-medication practice will provide effective way to users if with adequate knowledge of appropriate use and can improve compliance as well as reduced costs incurred (23). Health professionals will be predictable to access drugs and drug products as well as easily access and assuming themselves knowledgeable to select products for treating minor symptoms and have more practice. Regulatory bodies are obligatory to constantly review the safety and efficacy of drugs and drug products and shall contribute to enforcement and implementation of laws and regulations of nonprescription drugs (24).

In our country Ethiopia, Self-medication becomes a common phenomenon (1, 25). It is shown that every pharmacy sells drugs and drug products without a prescription like many developing countries as a result, antibiotics and potentially habit forming medicine are easily available.(9)

Even though various studies have been conducted on knowledge and attitude self-medication practices other than health professionals in different parts of Ethiopia (1, 26). There was scarcity of data regarding self-medication practice among health professionals. The finding will help concerned body to plan appropriate educational, regulatory, and administrative measures in preventing public health risks due to poor knowledge and negative attitude of self-medication practice. Therefore, the aim of this study was to assess the knowledge, Attitude and associated factors toward self-medication among health professionals who are working in University of Gondar Comprehensive Specialized Hospital, northwest Ethiopia.

Methods

Study setting, design, and period

Institutional based cross-sectional study was employed to assess knowledge, attitude and associated factors towards self-medication among health professionals at University of Gondar Comprehensive Specialized Hospital, northwest Ethiopia, which is located 728 Km away from Addis Ababa, the capital city of Ethiopia. University of Gondar Comprehensive Specialized Hospital is a teaching Hospital which acts as a referral center for the nearby General Hospitals. It provides referral services for over 5 million inhabitants in the northwest region of Ethiopia. The data collection period was from June to August, 2019.

Population

We used all University of Gondar Comprehensive Specialized Hospital Health professionals working in different departments of the Hospital. The study population was all University of Gondar Comprehensive Specialized Hospital Health professionals working in different departments of the Hospital who were present at the time of data collection.

Inclusion and exclusion criteria

All Health Professionals working in University of Gondar Comprehensive Specialized Hospital were included. Health Professionals who were severely ill during the data collection period were excluded.

Sample size calculation and sampling technique

The sample size (n) was calculated using single population proportion formula with the assumptions of the proportion =0.5 (no previous study in Ethiopia), 95% uncertainty interval, and margin of error (d) = 5%. After adding non response rate of 10%, the final sample size was 423. Simple random sampling technique was used for selection of Health Professionals to be included in the study.

Data collection procedure

We used semi-structured, pretested self-administered questionnaire to collect the required data after preparing the questionnaire by reviewing different literatures (2, 4, 27). The questionnaire consisted of different items regarding Sociodemographic characteristics, self-medication practice related questions, knowledge related questions and attitude related questions. Four BSc Nurses were recruited to distribute and return the questionnaire and facilitate the collection process.

Variables of the study

Dependent variable: Self-medication practice

Independent variables: Sex, age in years, marital status, educational level, work experience, working setting, Profession, working hours per week, work stress , knowledge and attitude towards self-medication.

Operational definition

Knowledge: Respondents were asked twenty two knowledge questions about whether they know antimicrobial resistance, they know self-medication mean, they know medication administration requires basic knowledge about drug action, they know changing of time when taking the drug has hazard, they know antihypertensive drugs could not be discontinued when blood pressure returns to the normal range, they know over use of paracetamol will cause liver toxicity, they know antacid should be chewed before swallowed, they know improper use of medication can result antimicrobial resistance, they know not taking full dose of the medication do have an effect, they know self-medication can mask signs and symptoms, they know drug use during pregnancy should care, they know all medications have its own adverse effects, they know taking medicine with food, drink, tea, or alcohol can interfere with the effect of medicine, they know antibiotics often side effect such as diarrhea, they know antibiotics cause negative effects on body's own bacterial flora, they know to terminate the therapy immediately if one feels better after only partially antibiotics, they know bacteria can become resistance to antibiotics, they know people can become resistance to antibiotics, they know antibiotics use for animals can reduce possibility of effective antibiotics treatment for humans, they know antibiotics resistance can spread from animals to humans and they know antibiotics resistance can spread from person to person. . Study participants who scored mean and above of the questions were considered as having good knowledge.

Attitude: Respondents were asked thirteen attitude questions whether they strongly disagree, disagree, agree and strongly agree about self-medication is part of self-care, pharmacists are good source of information for minor medical problems, the course of medicine should be complete although the symptoms subside, health care workers have good ability to treat symptoms ,self-medication is acceptable for health care workers, self-medication would be harmful if taken with without proper knowledge of drug and disease, medical license would be essential for better administration of drugs, the course of medication should be complete although the symptoms subside, they should be careful with non-prescribed over the counter medicine, health care workers should check the accompanied medication leaflets, self-medication is not acceptable at all and it would be harmful, left over antibiotics can be saved

for personal future use and left over antibiotics should be taken back to the pharmacy. Study participants who scored mean and above of the questions were considered as having positive attitude.

Statistical analysis

Epi-info 7.1 was used for data entry and then exported into SPSS version 20 for computing, recoding, and statistical analysis. Mean with standard deviation (SD), and frequency with percent were computed to descriptive results of the study. Logistic regression was used to explain the relationship between knowledge and Attitude with the independent variables. Bivariable analysis was executed to determine crude association between knowledge and Attitude with each independent variable. Independent variables with a p-value of < 0.2 were selected for multivariable logistic regression. A variable with a p-value of ≤ 0.05 with 95% uncertainty interval was treated as significant factor for knowledge and Attitude of self-medication.

Data quality control

Quality control was considered starting from questionnaire design until the analysis process. It was pretested and facilitators were trained about the purpose of study and ethical issues in the process of data filling. Pretest was done among 20 health professionals outside of the study area and we amended the questionnaire based on difficulties we face during pretest.

Reliability

We computed Cronbach's alpha to test internal consistency of the tool which was used to assessing knowledge and attitude of health professionals towards self-medication practice. The result showed that the alpha coefficient is 0.702 for knowledge and 0.655 for attitude which are acceptable according to Malley (28).

Results

Sociodemographic characteristics of the respondents

The study used four-hundreds and twelve health professionals with 97.4% response rate. The mean age of respondents was 29.9 years (± 5.43), which ranged from 20- 60 years. From the participants two-hundred and twenty (53.4%) participants were males. More than half of respondents were married 54.9% while the singles accounted for 45.1%. Three-hundred and thirty-nine (82.3%) participants attained educational level of Bachelor's degree. One-hundred and ninety-six (47.6%) professionals were Nurses. Majority (63.5%) of the respondents had three and more than three years work experience. One hundred seventy two (41.7%) participants had reported that they have had work load and One-hundred and seventeen (28.4%) participants reported having high workload out of work (Table 1).

Knowledge and Attitude towards self-medication

From a total of 412 respondents, three hundred and forty three (83.3%) health professionals reported that they have used antibiotics from their life and from this 183(53.4%) respondents have taken antibiotics within a year. From the participants 233(56.6%) (95% UI: 51.8-61.4%) had good knowledge about self-medication practice and 263 (63.8%) (95% UI: 59.2-68.4%) had good attitude towards self-medication (Table 2).

Associated factors of good Knowledge to self-medication

Age, educational level, department, years after last graduation, working hours per week, work load, Work load out of work, Do you know OTC classification of drugs ,Ever taken antibiotics , Ever taken antibiotics with a year and attitude were candidate variables for the final model and entered into multivariable logistic regression.

In the final model; Age in years 32-60 years had greater than 2 folds (AOR=2.19, 95% UI (1.14, 4.22)) good knowledge than respondents having 20-25 years old. Educational level with Bachelor degree had 6.5 times (AOR=6.49, 95% UI (1.86, 22.69)) greater knowledge than diploma holders. Years after last graduation 3+ had about 2.5-fold (AOR=2.49, 95% UI (1.41, 4.41)) better knowledge than those respondents having < 3 years after last graduation. respondents having 56-110 working hours per week had more than 2 folds (AOR=2.35, 95% UI: (1.18, 4.67)) better knowledge of medication than those respondents having 30-38 working hours per week and health professionals with good attitude to self-medication had about 3 times (AOR=2.95, 95% UI: (1.77, 4.91)), good knowledge than to self-medication than those who had poor attitude to self-medication (Table 3).

Associated factors of good Attitude to self-medication

Educational level, work experience, work load, Work load out of work, Do you know OTC classification of drugs ,Ever taken antibiotics and knowledge were candidate variables for the final model and entered into multivariable logistic regression.

In the final model; Low Work load out of work had greater than 2.5 folds (AOR=2.78, 95% UI (1.03, 7.50)) good Attitude than respondents reporting none work load out of work. Respondents who ever taken antibiotics had more than 2 times (AOR=2.45, 95% UI (1.31, 4.50)) good attitude than those respondents who do not ever taken antibiotics and health professionals with good knowledge to self-medication had about 2.5 times (AOR=2.64, 95% UI: (1.65, 4.20)), good attitude than to self-medication than those who had poor knowledge to self-medication.(Table 4).

Discussion

The current study assessed health professionals' knowledge and attitude towards self-medication at University of Gondar Comprehensive Specialized Hospital. In this study, 56.6% (95% UI: 51.8-61.4%) health professionals had good knowledge towards self-medication which is similar with a study in Nigeria (47.2%) (29). Good attitude was seen among 63.8% (95% UI: 59.2-68.4%) health professionals.

There is paucity of studies regarding knowledge and attitude towards self-medication among health professionals globally and there is no such study in Ethiopia. Self-medication knowledge is associated with age, educational level, years after last graduation, working hours per week, and good attitude. Health professionals aged 32-60 years had two-fold good knowledge than those aged 20-25 years. It could be due to the fact that as age increases the health professionals get better experiences (30). This is supported by other studies (31, 32). Participants who attended Bachelor degree were 6.5 times more likely to have good knowledge than lower educational level (diploma holders) which is supported by other study (31, 33). The possible reason for this association might be because of increased in information as educational level increases. Having good attitude is associated with good knowledge towards self-medication. A three-fold better knowledge is found in those professionals with good attitude. This is supported by other study (34) .

Good attitude is associated with lower workload, ever taking antibiotics, and good knowledge. Health professionals who had good knowledge had 2.5-fold better attitude towards self-medication (34, 35). This might be due to the common sense in that knowledge is acquired though information which is a base line for most attitudinal changes (36).

Conclusion

Above half number of health professionals reported above 50% of good knowledge and good attitude. Age of 32-60 years, bachelor degree, years after last graduation, working hours of 56-110 per week, and good attitude were determinant factors of self-medication knowledge. On the other hand, low workload out of workplace, ever taking antibiotics, and good knowledge were associated with good attitude. The above listed findings demand the focus of governmental and nongovernmental organizations to draft and implement strategies such as awareness creation to increase knowledge and attitudinal changes of health professionals to enhance the health care system.

Limitations of the study because of the nature of the study design, it cannot show cause and effect. It might also be affected by social desirability and recall bias.

Abbreviations

AOR: Adjusted odds ratio COR: Crude odds ratio OTC: Over the counter SD: Standard deviation UI: Uncertainty interval WHO: World health organization

Declarations

Ethical approval and consent to participate

Ethical approval was gained from ethical committee of School of Pharmacy, University of Gondar and communicated with the hospital administrators. Written informed consent was given to each participant

to ascertain their interest of participation. Any possible identifying statements were eliminated to keep confidential. The ethical issues were fulfilled according to ethical declaration of Helsinki.

Consent for publication

Not applicable

Availability of data and materials

The dataset is found at the primary author and anyone can access it by sending email or any other media from the corresponding author upon reasonable application.

Competing interests

No competing of interest was sought among all authors.

Funding

This research was not funded by any governmental or nongovernmental organizations.

Authors' contributions

All authors contributed to data analysis, drafting or revising the article, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

Acknowledgements

The authors of this research would like to acknowledge the study participants, University of Gondar, Gondar Comprehensive Specialized Hospital and facilitators.

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Tables

Table 1: Sociodemographic characteristics of study participants in University of Gondar Comprehensive Specialized Hospital, Gondar, Ethiopia, 2019 (n=412)

Variable	Categories	Frequency	Percent
Marital status	Married	226	54.9
	Unmarried	186	45.1
Sex	Female	192	46.6
	Male	220	53.4
Age in years	Mean=29.92(\pm 5.43) Min=20		Max=60
Marital status	Married	226	54.9
	Unmarried	186	45.1
Education	Diploma	26	6.3
	Bachelor degree	339	82.3
	Masters and above	47	11.4
Work experience in years	2	142	36.5
	3-4	66	16.0
	5-8	137	33.3
	8-37	67	16.3
Department	Nurse	196	47.6
	Pharmacy	112	27.2
	Medicine	18	4.4
	Midwifery	69	16.7
	Laboratory	17	4.1
Working hrs	30-38	45	10.9
	39-43	161	39.1
	44-55	97	23.5
	56-110	109	26.5
Average patients contacted per day	4-9	100	24.3
	10-14	85	20.6
	15-29	59	14.3
	30-200	168	40.8
Work load	None	32	7.8
	Low	43	10.4
	Medium	165	40.0
	High	172	41.7
Work load out of work	None	51	12.4
	Low	84	20.4
	Medium	160	38.8
	High	117	28.4
Years after last graduation	<3	101	24.5
	3+	311	75.5

Table 2: Items related with Knowledge and Attitude of self-medication among health professionals at University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia, 2019 (n=412)

Variables	Categories	Frequency	Percent (%)
Do you know OTC drugs classification	Yes	311	75.5
	No	101	24.5
Ever taken antibiotics	Yes	343	83.3
	No	69	16.7
Used antibiotics within a year	Yes	183	44.4
	No	229	55.6
Knowledge	Good	233	56.6
	Poor	197	43.4
Attitude	Good	263	63.8
	Poor	149	36.2
Practice	Use self-medication	225	54.6
	No self-medication	187	45.4

Table 3: Associated factors of Knowledge to self-medication among Health professionals at University of Gondar Comprehensive Specialized Hospital, Gondar, northwest Ethiopia, 2019 (n=412)

Variables	Categories	Knowledge		COR (95% UI)	AOR (95% UI)
		Good (%)	Poor (%)		
Age in years	20-25	42(60.9)	27(39.1)	1	1
	26-28	86(64.7)	47(35.3)	0.83(0.45,1.52)	0.82(0.38,1.75)
	29-31	38(41.8)	53(58.2)	0.73(0.42,1.17)	0.60(0.32,1.11)
	32-60	67(56.3)	52(43.7)	1.80(1.04,3.12)	2.19(1.14,4.22)*
Education level	Diploma	8(30.8)	18(69.2)	1	1
	Bachelor	190(56.0)	149(44.0)	6.56(2.27,18.94)	6.49(1.86,22.69)**
	Masters +	35(74.5)	12(25.5)	2.29(1.15,4.56)	2.04(0.92,4.53)
Profession	Nurse	115(58.7)	81(41.3)	1.10(0.69,1.77)	0.99(0.55,1.78)
	Pharmacy	63(56.2)	49(43.8)	0.28(0.08,1.01)	0.30(0.08,1.22)
	Medicine	15(83.3)	3(16.7)	1.30(0.75,2.26)	1.03(0.51,2.07)
	Midwifery	36(52.2)	33(47.8)	4.61(1.45,14.66)	3.94(0.08,14.39)
Work experience after last graduation	laboratory	4(23.5)	13(76.5)	1	1
	<3	46(45.5)	55(54.5)	1	1
Work experience after last graduation	3+	187(60.1)	124(39.9)	1.80(1.15,2.84)	2.49(1.41,4.41)**
	3+	187(60.1)	124(39.9)	1.80(1.15,2.84)	2.49(1.41,4.41)**
Working hrs per week	30-38	21(46.7)	24(53.3)	1	1
	39-43	91(56.5)	70(43.5)	2.05(1.01,4.15)	2.68(1.11,6.47)*
	44-55	51(52.6)	46(47.4)	1.38(0.84,2.28)	1.54(0.81,2.93)
	56-110	70(64.2)	39(35.8)	1.62(0.93,2.83)	2.35(1.18,4.67)*
Workload	None	8(25.0)	24(75.0)	1	1
	Low	17(39.5)	26(60.5)	5.75(2.43,13.58)	3.30(0.97,11.28)
	Medium	95(57.6)	70(42.4)	2.93(1.47,5.83)	2.26(0.92,5.56)
	High	113(65.7)	59(34.3)	1.41(0.91,2.19)	0.83(0.44,1.56)
Workload out of work	None	20(39.2)	31(60.8)	1	1
	Low	34(40.5)	50(59.5)	5.18(2.55,10.49)	1.38(0.47,4.06)
	Medium	89(55.6)	71(44.4)	4.90(2.66,9.04)	3.56(1.58,8.03)
	High	90(76.9)	27(23.1)	2.66(1.56,4.52)	2.36(1.12,4.99)
Do you know OTC classification of drugs?	Yes	193(62.1)	118(37.9)	2.49(1.58,3.95)	1.45(0.79,2.68)
	No	40(39.6)	61(60.4)	1	1
Have you taken antibiotics	Yes	213(62.1)	130(37.9)	4.01(2.28,7.06)	1.97(0.94,4.13)
	No	20(29.0)	49(71.0)	1	1
Have you taken antibiotics with year	Yes	116(63.4)	67(36.6)	1.66(1.11,2.46)	1.33(0.79,2.26)
	No	117(51.1)	112(48.9)	1	1
Attitude	Good	180(68.4)	83(31.6)	3.93(2.57,6.01)	2.95(1.77,4.91)***
	Poor	53(35.6)	96(64.4)	1	1

Chi-square test and Lemeshow goodness of fit $p=0.07$, * $p<0.05$, ** $p<0.01$ and *** $p<0.001$

Table 4: Associated factors of Attitude to self-medication among Health professionals at University of Gondar Comprehensive Specialized Hospital, Gondar, northwest Ethiopia, 2019 (n=412)

Variables	Categories	Attitude		COR (95% UI)	AOR (95% UI)
		Good (%)	Poor (%)		
Education level	Diploma	11(42.3)	15(57.7)	1	1
	Bachelor degree	217(64.0)	122(36.0)	3.98(1.44,11.00)	2.26(0.71,7.10)
	Masters and above	35(74.5)	12(25.5)	1.64(0.82,3.38)	1.20(0.55,2.5)
Work experience	2	46(65.7)	24(34.3)	1	1
	3	43(59.7)	29(40.3)	1.17(0.62,2.24)	1.19(0.57,2.4)
	4-7	102(61.4)	64(38.6)	1.52(0.81,2.85)	1.43(0.70,2.9)
	8+	72(69.2)	32(30.8)	1.41(0.84,2.37)	1.65(0.92,2.9)
Professional Work load	None	11(34.4)	21(65.6)	1	1
	Low	26(60.5)	17(39.5)	4.79(2.15,10.67)	1.53(0.53,4.3)
	Medium	103(62.4)	62(37.6)	1.64(0.82,3.29)	0.87(0.39,2.00)
	High	123(71.7)	49(28.5)	1.51(0.96,2.39)	0.83(0.45,1.50)
Work load out of professional work	None	22(43.1)	29(56.9)	1	1
	Low	49(58.3)	35(41.7)	6.80(3.24,14.26)	2.78(1.03,7.50)*
	Medium	94(58.8)	66(41.2)	3.68(1.91,7.10)	2.26(1.01,5.00)*
	High	98(83.8)	19(16.2)	3.62(2.02,6.49)	3.23(1.54,6.70)**
Do you know OTC classification drugs	Yes	218(70.1)	93(29.9)	2.92(1.84,4.63)	1.56(0.90,2.70)
	No	45(44.6)	56(55.4)	1	1
Ever taken antibiotics	Yes	240(70.0)	103(30.0)	4.66(2.69,8.09)	2.45(1.31,4.50)**
	No	23(33.3)	46(66.7)	1	1
Knowledge	Good	180(77.3)	53(22.7)	3.93(2.57,6.01)	2.64(1.65,4.20)***
	Poor	83(46.4)	96(53.6)	1	1

Chi-square and Lemeshow goodness of fit $p=$, 0.14* $p<0.05$, ** $p<0.01$ and *** $p<0.001$