

Factors affecting medication administration for the children among care givers in rural areas at Bani-suef

Hoda A. Ahmed 1 Yossria E. Hossein 2, Ekhlass M. Ibrahim 3

1. B.S.C in nursing, faculty of nursing, Assuit university
2. Professor of Community Health Nursing Faculty of Nursing- Minia University
3. Lecturer of Community Health Nursing Faculty of Nursing, Minia University

Abstract

Background: Self-medication is the use of drugs to treat self-diagnosed disorders, symptoms, or the intermittent or continued use of a prescribed drug for recurrent disease or symptoms. Self-medication is considered as an element of self-care, in which individual select and use medicine to treat self-recognized illnesses or symptoms, it is response to illness that can be controlled in its early stage. **The aim** was to assess factors affecting self-medication administration among children caregivers in rural areas at Bani-Suef Governorate. **Design:** Descriptive research was used. **Setting:** The study was conducted at two villages and their manors selected randomly in Beni-Suef governorate that was Baha in Beni-Suef governorate and Elnwera in Ihansia city where lack of medical access. **Tool;** three questionnaires included: **I:** Personal and demographic data of the caregivers'; **II:** Most common self-medication questionnaire and **III:** Factors affecting self-medication questionnaire. **Results:** The most common self-medication is antipyretic drugs (90.7%) followed by antibiotics and anti-cough as a self-medication drug (70.1%, 69.9%) respectively, on the other hand antidiarrheal, antiemetic and sedative were the least (15.2%, 11.7%, 2.1%) respectively. Regarding factors related to child disease, having sudden symptoms, and repeated every short time were representing the most prevailing domains, 87.7%, 72.5% respectively, also 63.7% and 62.1% had previous symptoms in previous diagnosed disease. Regarding economic factors, 97.6% of caregiver referred self-medication the increased price of physician examination followed by 55.7% due to not enough income respectively. **Conclusion:** The major factor affecting on self-medication administration related to child disease is sudden symptoms, also, most of caregivers aligned the increased cost of physician and low income to self medication use. **Recommendation:** Increase public awareness about the risks of using self-medications without prescription, Educating the public on the types of illnesses that can be self-diagnosed and self-treated and the types of drugs to be used for self-medication as safe and reducing the cost of treatment, ensuring more services such as providing universal medical coverage to all populations.

Keywords: Factors affecting Self-Medication Administration, Caregivers

Introduction

Self-medication is the treatment of common health problems with medicines especially designed and labeled for use without medical supervision and approved as safe and effective for such use. Medicines for self-medication are often called 'nonprescription' or 'over the counter' (OTC) and are available without a doctor's prescription through pharmacies; in some countries OTC products are also available in supermarkets and other outlets. Medicines that require a doctor's prescription are called prescription product (Hockenberry & Wilson, 2018).

According to target eight of the Millennium Development Goal (MDG), essential drugs should be accessible and affordable in developing countries with the appropriate information and communication, in line with this, self-medication (SM) is one of the contributors for rational drug use (Central Agency for Public Mobilization and Statistics (CAPMAS), 2017)

Self-Medication is defined as the selection and use of medicinal products by the consumer to treat self-recognized illnesses, its symptoms, the intermittent, continued use of a medication prescribed by a physician for a chronic or recurring disease or symptom (Shehnaz, et al, 2014).

The developing countries, most episodes of illnesses are treated by self-medication this is due to easy availability of a wide range of drugs commercially and owing to inadequate availability of health services, with a surge of drug resistance being reported widely in the recent times, the irrational use of drugs by the community without a valid doctors' prescription

has become a prime cause of concern and needs to be addressed immediately (Selvaraj et al, 2014). Also includes the selection of a medication for a chronic or recurrent condition by the patient, after an initial diagnosis and prescription by a physician. Self-medication also regards as the administration of medicinal products to family members, specially infants and children (Singh, et al., 2013).

Factors affecting self medication administration are various as urge of self-care, feeling of sympathy towards family members in sickness, poverty, ignorance, misbeliefs, extensive advertisement and availability of drugs in other than drug shops are responsible for growing trend of self-medication. The nature and extent of self-medication varies in different cultural, social and educational contexts. The issue of self-medication in children is different as in majority of cases it is not the child who is self-medicating but the parents who are responsible for self-medicating their children (TaK. et al., 2011). The harmful consequences of self-medication include treatment failure, antibiotic resistance, prolonged hospitalization, drug toxicity and increase in treatment cost (Mohamed, 2017).

From point of view of consumers Self-medication (SM) has major benefits such as self-reliance and decreased expense. However, inappropriate practice can have potential dangers such as incorrect self-diagnosis, dangerous drug to drug interactions, incorrect manner of administration, incorrect dosage, incorrect choice of therapy, masking of a severe disease, and/or risk of dependence and abuse (Coleman, et al., 2019). Self-medication practices cannot be

considered as entirely harmful. Drugs classified as “over the counter” can be purchased without prescription and many a times might save time and money for the patients. Deprived regions, and other hard to reach areas where there is a huge shortage of human health work force, patients are still dependent on self-medication practices for minor symptoms (Selvaraj et al., 2014).

Monitoring systems, a partnership between patients, physicians, community health nurse and pharmacists and the provision of education and information to all concerned on safe self-medication, are proposed strategies for maximizing benefit and minimizing risk (Bennadi, 2013).

Self-medication is an age-old practice. Urgency of self care can be attributed to different factors such as, feeling of sympathy towards family members in sickness, lack of health services, poverty, ignorance, misbeliefs, extensive advertisement and availability of drugs in other than drug shops are responsible for growing trend of self-medication. World Health Organization is promoting practice of self-medication for effective and quick relief of symptoms without medical consultations and reduce burden on health care services, which are often understaffed and inaccessible in rural and remote areas (Patil et al., 2014).

World Health Organization(WHO) points out that responsible self-medication requires the medicinal product to be supported with information describing how to take the medicine, possible side effects, monitoring, possible interactions, warnings, duration of use, should also be noted that since herbal medicines are regulated as over-the-counter (OTC) medicinal products, self-medication only medicines/drugs, dietary supplements, functional or health food in most countries, the use of herbal medicines also constitutes a potential case of responsible-self-medication, provided that they are supported by the appropriate information (Jalilian, et al., 2013)

Finally, the nurse must be prepared to teach clients about the limits and benefits of cultural health care practices. The community health nurse should provide individual and family assessment of care giving based on scientific evidence Community health nurse should provide sound health education about healthful practices regarding care of each illness that should be based on each unique cultural groups (Allender .et al., 2014)

Aim of study

To assess factors affecting self-medication administration among caregivers in rural areas in Bani-Suef.

Research questions

1. What are the factors affecting self- medication in rural areas?
2. Is there is association between the sociodemographic data and self-medication?

Subjects and Methods

Design: Descriptive research design was used.

Settings: The study was conducted at two villages and their manors selected randomly in Beni-Suef governorate that was Baha in Beni-Suef governorate and Elnwera in Ihensia city where lack of medical access. The data are collected through home visit.

Sample A multi-stage random sample was used, it is made by dividing the governorate into districts, then select two districts randomly (Ihensia and Bani-Suef district), then

the investigator makes a list of its villages (200 village); many of them have difficult access to medical care. Finally, the investigator selected randomly two villages. The selected villages are Baha that is covered one healthcare unit called Baha healthcare unit that has poor services and has 21653 of population number that located in the north west of Bani-suef district .The second village is Elnwera that is located in the east of Ihensia district and has one health care unit called Elnwera healthcare unit and has 21880 of population number, the main job of these villages is agriculture.

Sample size

Using Epi-info software program at 95 % confidence level, frequency level at 86.4% acceptable margin of error 5%, for population size 21653 $n_1=179$ and for population size 218879 and for population size 21880 $n_2=196$ (Directorate of Health Affairs) and the investigator added 10% to total sample for exclusion after pilot (38 participant) Total sample $N=375$

Instruments for Data Collection:

Three interviewing questionnaire included the following:

Socio- demographic data of the caregivers' and child questionnaire:

A-Child socio-demographic questionnaire

The questionnaire consisted of four questions such as age, gender, previous administration of self-medication and ranking of the child.

B-Caregiver socio-demographic questionnaire

The questionnaire consisted of 12 questions such as education level, marital status, income, number of children in family, and type of family.

Most common self-medication questionnaire

The questionnaire was developed by the investigator after intensive reviewing of the literature of El Nimer (2015), Zeitlin, (2016) and Leifer (2018),. It was used for assessing the most common drug used for self-medication in rural areas and consisted of eight (8) medication as antiemetics, antibiotics, antipyretic, bronchodilator, analgesics and antihistaminic

Factors Affecting Self-Medication Questionnaire

This part adopted from Arzi, et al., (2010), Siponen, (2013) to assess factors affecting self-nonprescription medication administration among children in rural areas. The questionnaire contained (30) questions. It consisted of five main parts containing closed question with two responses (yes&no):

- **A-Child diseases factor:** it consisted of four (4) statements such as sudden symptoms, time of symptoms occur at night, etc.
- **B- Economic factor:** it consisted of two (2) statements such as not enough income and increase price of physician examination.
- **C- Health services factors:** it consisted of six (6) statements such as the near hospital away10 kilos at least, time of outpatient clinics up to 11am, etc.
- **D-Behavioral factors:** it consisted of eleven (11) statements such as child plays well and use right dose of self-mediction etc.
- **E- Other factors:** it consisted of seven (7) statements such as stress from the family, no dangerous signs from uses self-medication without physician order,

pharmacist enough from the physician examination, etc.

Scoring system

1. Each drug used for self-medication was took one score (1) and not used took zero score (0).
2. Each factor affecting in self-medication was took one score (1) and not used took zero score (0).

Validity; the questionnaire was reviewed for content validity by a five of experts in community health nursing. an official permission to carry out the study was obtained from the responsible authorities; faculty of Nursing, Ain-Shamis University, by the investigator to the administrators of the community health nursing, where the data were collected to conduct the study after an explanation of the purpose of the study.

Reliability: The investigator tested the internal consistency of the instruments; it is the administration of the same instruments to the same subjects

- Test -retest was ($\alpha= 0.727$) for most common self medication (SM)drugs questionnaire
- Test-retest for factors affecting SM questionnaire was ($\alpha= 0.85$)

Pilot study

A pilot study conducted on 10 % (38 mothers) of the sample to assure internal consistency, estimate the required time needed for answering the questionnaires and to identify the problems that may interfere with data collection. The pilot study was included in the sample after omitting the repeated questions of study tool. The time taken for every questionnaire to be completed was about 10-15 minutes for each caregiver. Caregiver who agreed to participate in the study is interviewed to complete the required tools. The investigator introduced her to the respondents, and explained the aim and objectives of the study to the caregiver in the study settings.

Results

Table (1): Distribution of the Caregiver According to Their Personal and Demographic Characteristics (n= 375).

Personal and Demographic Characteristics	No.	%
Age/ Years		
Less than 25	42	11.2
25 -< 35	272	72.5
35- < 45	51	13.6
More than 45	10	2.7
Mean \pm SD		
Educational level		
Illiterate	109	29.1
Read and write	64	17.1
Middle education	138	36.8
University education	64	17.0
Occupation		
Housewife	321	85.6
Worker	54	14.4
Number of children in the family		
One child	58	15.5
two- three child	236	62.9
four- five child	81	21.6
Income level		
Sufficient	182	48.5
Insufficient	193	51.5
Type of family		
Single	164	43.7
Extended	211	56.3

Table (1): shows that, 72.5% of the caregivers' age is 25- < 35. Also, 29.1% of caregivers are illiterate. 85.6% of caregivers work and 62.9% of caregivers have 2- 3 child in the family. Regarding type of family 56.3% of caregivers lived in extended family 51.5% have insufficient income.

Anonymity and confidentiality of the information gathered was ensured. This was repeated in each place of the study setting.

Method for Data collection

- **Study period:** This study was conducted during the period starting from February 2019 to the end of April 2019.
- **Approval:** an official permission to carry out the study was obtained from the responsible authorities on the facultyof nursing –Minia university

Administrative Design:

Before starting the actual data collection, a written initial approval obtained from the research ethical committee of the faculty of Nursing and Minia University to obtain the administrative approval for conducting the study. The aims and the importance of the study were explained

Ethical consideration:

The oral agreement for participation of the subjects was taken after the aims of the study were explained. They were given an opportunity to refuse to participate and they were notified that they could withdraw at any time. Also, they were assured that, the information would be remained confidential and used for the research purpose only.

Statistical analysis:

The data obtained from the study tool were categorized, tabulated, analyzed and data entry was performed using the SPSS software (statistical package for social sciences version (IBM SPSS 25.0). Descriptive statistics were applied (e.g. mean, standard deviation, frequency and percentage). Chi test was used to differentiate between two qualitative variables. A significant level value was considered when $P < 0.05$.

Table (2): Distribution of the health services factors related to affecting on self-medication administration among Care Giver in rural areas (n= 375).

Health services factors	No.	%
Decreases number of physicians in MCH	349	93.1
Available medication administered to all different diagnosis	359	95.7
The physician present two days in the weeks	317	84.8
The near hospital away 10 kilos at least	32	8.5
Time of outpatient clinics up to 11 a.m	323	86.1
Waiting time is long in the physician clinics	364	97.1

Table (2): shows 97.1%, 95.7% and 93.1% of caregivers are waiting time is long in the physician clinics, available medication administered to all different diagnosis, and decreased number of physicians in MCH respectively. On the other hand, only 8.5% of caregivers are the near hospital away 10 kilos at least.

Table (3): Distribution of care giver behavioral factors affecting on self-medication administration among for care giver in rural areas (n= 375).

Behavioral factors	No.	%
Apply self-medication to solve current health problem	106	28.3
Identify side effect of self-medication	26	6.9
The child follows suitable nutrition	252	67.2
Uses nutritional program for your child	300	80.0
Store self-medication by suitable methods	306	81.6
Discard residual amount of self-medication	322	85.9
apply self-medication to solve health problem	352	93.9
Stop self-medication after resolve symptoms	358	95.5
The child plays well	358	95.5
Read and follow instruction of the medication	363	96.8
Suffering from any health problem last year	366	97.6
Use right dose of self-medication	370	98.7

Table (3): explains behavioral factors as 98.7%,97.6%,96.8%,95.5% are use right dose of self-medication, suffering from the same symptoms last year, read and follow instruction of the medication, the child plays well respectively. On the other hand, only 6.9%, 28.3% are identify side effects of self-medication and apply self-medication to solve health problem respectively.

Table (4): Distribution of other factors affecting on medication administration among care givers children in rural areas (n= 375).

Other factors affecting on self-medication	No.	%
Stress from the family	186	49.6
No dangerous signs from uses self-medication without physician order	225	60.0
Pharmacist enough from the physician examination	306	81.6
Increase uses of antibiotics	311	82.9
Antipyretic and antibiotics present in the home all time	350	93.3
Identify dangers of self-medication	16	4.6
If the child is still sick go to the doctor	364	97.1%

Table (4): shows other factors of self- medication97.1%, 93.3%, 82.9%, reports If the child is still sick go to the doctor, Antipyretic and antibiotics present in the home all time and Increase uses of antibiotics respectively. On the other hand, the least reports are Stress from the family& Identify dangers of self-medication (49.6% &4.6%).

Table (5): Relation between Demographic Characteristics of the Caregiver and Previous Administration of Self-Medication (n= 375).

Items	Previous administration of self-medication				X ²	P - value
	Yes		No			
	No.	%	No.	%		
Age/ Years						
Less than 25 (n= 42)	41	97.6	1	2.4	2.950	.399
25 -< 35 (n = 272)	244	89.7	28	10.3		
35- < 45 (n= 51)	45	88.2	6	11.8		
More than 45 (n= 10)	9	90.0	1	10.0		
Educational level					4.921	.178
Illiterate (n= 109)	103	94.5	6	5.5		
Read and write (n= 64)	57	89.1	7	10.9		
Middle education (n= 138)	125	90.6	13	9.4		
University education (n= 64)	54	84.4	10	15.6		
Occupation					1.977	.160
Housewife (n= 321)	293	91.3	28	8.7		
Not work (n= 54)	46	85.2	8	14.8		
Number of children in the family					.384	.825
One child (n= 58)	52	89.7	6	10.3		
Two-three child(n= 236)	215	91.1	21	8.9		

Items	Previous administration of self-medication				X ²	P - value
	Yes		No			
	No.	%	No.	%		
Four-five(n= 81)	72	88.9	9	11.1		
Income level						
Sufficient (n= 182)	162	89.0	20	11.0	.786	.375
Insufficient (n= 193)	177	91.7	16	8.3		
Type of family						
Single (n= 164)	150	91.5	14	8.5	.380	.538
Extended (n=211)	189	89.6	22	10.4		

Table (5): shows that, there is no statistically a significance difference between demographic characteristics of the caregiver and previous administration of self-medication.

Table (6): Relation between Personal Characteristics of the Child and Previous Administration of Self-Medication (n= 375).

Items	Previous administration of self-medication				X ²	P - value
	Yes		No			
	No.	%	No.	%		
Gender						
Male (n=170)	159	93.5	11	6.5	3.509	.06
Female (n=205)	180	87.8	25	12.2		
Age/ year						
<2 (n=103)	87	84.5	16	15.5	5.895	.05*
2- ≤ 4 (n=71)	65	91.5	6	8.5		
5- ≤ 7(n=201)	187	93.0	14	7.0		
Ranking of the child						
Single child (n= 56)	51	91.1	5	8.9	4.402	.221
First (n= 65)	63	96.9	2	3.1		
Middle (n= 88)	79	89.8	20	10.0		
Last (n= 166)	146	88.0	20	12.0		

*statistically significance differences at <.05

Table (6): shows that, 93.0% of children who aged 5- < 7 years had previous history of self- medication administration than other child age group with statistically significance differences but no statistically significance differences between gender and ranking of the child with previous administration of self-medication significance differences between gender and age of the child with currently administered self-medication.

Table (7): Relation Between Demographic Characteristics of the Caregiver and Currently the Child Taken Self-Medication (n= 375).

Items	Currently, the child taken self-medication				X ²	P - value
	Yes		No			
	No.	%	No.	%		
Age/ Years						
Less than 25 (n= 42)	10	23.8	32	76.2	3.485	.323
25 -< 35 (n = 272)	68	25.0	204	75.0		
35- < 45 (n= 51)	11	21.6	40	78.4		
More than 45 (n= 10)	0	.0	10	100.0		
Educational level						
Illiterate (n= 109)	20	18.3	89	81.7	5.067	.167
Read and write (n= 64)	17	26.6	47	73.4		
Middle education (n= 138)	31	22.5	107	77.5		
University education (n= 64)	21	32.8	43	67.2		
Occupation						
Housewife (n= 321)	76	23.7	245	76.3	.004	.949
Working (n= 54)	13	24.1	41	75.9		
No of children in the family						
One child (n= 58)	18	31.0	40	69.0	2.441	.295
2- 3 (n= 236)	55	23.3	181	76.7		
4- 5 (n= 81)	16	19.8	65	80.2		
Income level						
Sufficient (n= 182)	46	25.3	136	74.7	.464	.496
Insufficient (n= 193)	43	22.3	150	77.7		
Type of family						
Single (n= 164)	31	18.9	133	81.1	3.758	.05*
Extended (n=211)	58	27.5	153	72.5		

*statistically significance differences at <.05

Table (7): shows that, there is no statistically a significance difference between demographic characteristics of the caregiver and currently the child taken self-medication except type of family was statistically significance differences in which extended family used self-medication more than single family p – value ≤ .05.

Table (8): Relation between Demographic Characteristics of the Caregiver and Number of Self-Medication Uses by the Pharmacist (n= 375).

Items	Number of self-medication uses by the pharmacist						X ²	P - value
	<5 times		5 - 10		≥10 times			
	No.	%	No.	%	No.	%		
Age/ Years								
Less than 25 (n= 42)	11	26.2	17	40.5	14	33.3	19.365	.004**
25 -< 35 (n = 272)	125	46.0	62	22.8	85	31.3		
35- < 45 (n= 51)	20	39.2	9	17.6	22	43.1		
More than 45 (n= 10)	0	.0	3	30.0	7	70.0		
Educational level							3.756	.710
Illiterate (n= 109)	46	42.2	27	24.8	36	33.0		
Read and write (n= 64)	24	37.5	15	23.4	25	39.1		
Middle education (n= 138)	64	46.4	30	21.7	44	31.9		
University education (n= 64)	22	34.4	19	29.7	23	35.9		
Occupation							6.221	.045*
Housewife (n= 321)	135	42.1	71	22.1	115	35.8		
Working (n= 54)	21	38.9	20	37.0	13	24.1		
Number of children in the family							11.433	.02*
One child (n= 58)	17	29.3	23	39.7	18	31.0		
2- 3 (n= 236)	103	43.6	55	23.3	78	33.1		
4- 5 (n= 81)	36	44.4	13	16.0	32	39.5		
Income level							16.448	.000**
Sufficient (n= 182)	95	52.2	35	19.2	52	28.6		
Insufficient (n= 193)	61	31.6	56	29.0	76	39.4		

*statistically significance differences at <.05**highly statistically significance differences at <.01

Table (8): shows that, 46.0% of caregivers who aged between 25- < 35 years administered self-medication less than 5 times than other age group respectively. Also, 52.2% of caregivers have sufficient income level administered self-medication less than 5 times. Also, there are statistically significance different with age and occupation P – value < .004 and .045 respectively.

Discussion

The aim of study is to assess the factors affecting self-medication administration among children caregivers in rural areas. Children are given medications by parents. When children become sick the first response by most of the parents is to self-medicate them. Majority of the parents in both developed and developing countries prefer to treat child’s common ailments like fever, cough/ cold and diarrhea without consulting a physician. Analgesics, antipyretics, anti-inflammatory agents, cough and cold preparations are amongst the commonly practiced self-medications (Gohar et al., 2017)

Regarding demographic characteristics of caregivers ,the current study findings shows that, less than three quarter of the studied caregiver’s age were 25- < 35. Also, less than one third of them were illiterate. The majority of them work and near two third of had 2- 3 child in the family. This is in the same line with (Gohar et al.,2017) who studied "Self-Medication Trends in Children by their Parents' stated that more than half belonged to age group 25-34 years and 36.25% were graduated. As far as the monthly income was in sufficient in more than two third of them, the most of them have two or three children.

The current study results revealed health services factors as affecting on self-medication administration among children in rural areas the present study shows that the fast majority related to health services factors are waiting time is long in the physician clinics, available medication administered to all different diagnosis, and decreases number of physicians in MCH. The current result come in the line with (Muoneke et al., 2018)who reported that the most factors of self-medication were long waiting time in health facility, sickness was not severe, urgency of care, financial constraint, attitude of health workers, no means of transportation to health facility and prior experience.

The current result are confirmed by (Pajueto et al., 2018)who studied "Delays in seeking and receiving health care services for pneumonia in children under five in the

Peruvian Amazon: a mixed-methods study on caregivers’ perceptions" and reported that the non-seeking for medical help were related to barriers to making a prompt decision to seek care, lack of knowledge of the signs and symptoms, reliance on self-medication, lack of confidence in the health care system, and need for input from other family members to make a final decision.

Regarding behavioral factors related to affecting on self-medication administration among children in rural areas the present study shows that the fast majority are using right dose of self-medication, suffered from the same symptoms last year, read and followed instruction of the medication, the child plays well, stop self-medication after resolve symptoms and apply self-medication to solve health problem. The current study results come in the line with (Karimy et al.,2019) who studied Risk factors associated with self-medication among women in Iran reported that the most important reasons of self medication were perceived self-medication harmless, having history of a disease, and availability of medications at home.

In relation to the other factors affecting on self-medication administration among children in rural areas, the current study shows that the majority of if the child is still sick go to the doctor, antipyretic and antibiotics present in the home all time and increase uses of antibiotics. The current study results are accordance with(Lei et al.,2018) who studied Self-Medication Practice and Associated Factors among Residents in Wuhan, China reported that the most of the studied sample self-medicated with antibiotic and antipyretic without visiting physician. Also (Ghorbani et al.,2019) who studied evaluation of Self-medication and Related Factors in Elderly Population of Sanandaj, Iran confirmed that the most commonly used drugs was antipyretic.

Regarding relation between demographic characteristics of the caregiver and previous administration of self-medication the present study shows that there are no statistically significance differences between demographic

characteristics of the caregiver and previous administration of self-medication. The current study results are similar to (Klemenc et al.,2011) who studied "the effect of demographic characteristics on self-medication patterns: a cross-sectional nationwide study from Slovenia" reported that Younger people were more confident about the absolute safety of self-medication whereas older people were more certain that they could practice it no matter what disease they might have. As self-medication is very common among Slovenian population and various demographic factors affect the opinions about it and the reasons for its use and also a doctor-patients communication about it, it is important that doctors.

Also The current study results are similar to (Yu et al.,2014) who studied "Knowledge, attitudes, and practices of parents in rural China on the use of antibiotics in children: a cross-sectional study" mentioned that the most of those who Living in rural villages purchasing antibiotics without a prescription storing antibiotics at home and were independently associated with self-medicating behavior. The current study results are confirmed by(Ding et al., 2015) who studied " Antibiotic use in rural China: a cross-sectional survey of knowledge, attitudes and self-reported practices among caregivers in Shandong province" reported that there were important gaps in knowledge, attitudes and practices concerning antibiotics among rural population of caregivers.

Regarding relation between personal characteristics of the child and previous administration of self-medication, the current study shows that the majority of the studied children who aged between 5- < 7 years old had previous history of self- medication administration than other child age group with statistically significance differences but no statistically significance differences between gender and ranking of the child with previous administration of self-medication. The current study results come in the same line with (Gupta, 2018) who stated that there was no statistically significance differences between gender and ranking of the child with administration of self-medication.

The current study results come in consistent with (Cristescu et al., 2018)who mentioned that there was no statistically significance differences between gender and age of the child with administered self-medication. Also the current study come in consistent with (Esan et al.,2018) who studied "Assessment of Self-Medication Practices and Its Associated Factors among Undergraduates of a Private University in Nigeria" reported that young adults are more vulnerable to the practice of self-medication due to their low perception of risk associated with the use of drugs, knowledge of drugs, easy access to Internet, wider media coverage on related health issues, ready access to drugs, level of education, and social status.

Regarding relation between demographic characteristics of the caregiver and currently the child taken self-medication the current study shows that there are no statistically significance differences between demographic characteristics of the caregiver and currently the child taken self-medication. The current study results come in contradictory to (Potchoo & Awizoba, 2018) who reported that the most of caregivers who practice self-medication with their children were mothers and and low education level were significantly associated with self-medication. But the same author agree with the current study regarding caregiver age when he reported that the age of parents was not associated with self-medication ($p = 0.79$ for father; $p = 0.67$ for mother.

Concerning the relation between demographic characteristics of the caregiver and number of self-medication uses by the pharmacist, the present study shows that less than half of caregivers who aged between 25- < 35 years administered self-medication less than 5 times , more than two fifth of housewives administered self-medication less than 5 times than working caregivers and more than half of them have sufficient income level administered self-medication less than 5 times.The current study results comes in the same line with (Sridhar et al.,2018) who studied "Assessment of Nature, Reasons, and Consequences of Self-medication Practice among General Population of Ras Al-Khaimah, UAE reported that gender and employment status were significantly associated with self-medication usage. Female respondents were 1.3 times more likely to self-medicate compared to male respondents. Also respondents from working [$P = 0.040$] and nonworking group were less likely to self-medicate compared to student respondents.

Conclusion

Conclusions Based on the results of the present study, it can be concluded that:

The major factor affecting on self-medication(SM) administration related to child disease are sudden symptoms. Regarding economic factors, most of the caregivers related SM to the increased price of physician examination and long waiting time at physicians' clinics.

There were statistically significance differences between caregivers' age, occupation, number of children in the family and income level and number of self-medication uses by the pharmacist. There were no statistically significant difference between demographic characteristics of the caregiver and previous administration of self-medication. Also, there was no statistically significant difference between demographic characteristics of the caregiver and currently the child taken self-medication.

Recommendations

- Public awareness about the risks and beliefs of using self-medications without prescription.
- Educating the public on the types of illnesses that can be self-diagnosed and self-treated and the types of drugs to be used for self-medication as safe.
- Reducing the cost of treatment, ensuring more services such as providing universal medical coverage to all populations regardless of the socioeconomic and educational levels.
- Educating people about healthcare services available
- Increase efficiency of healthcare services
- Increase number of healthcare units
- Connecting healthcare services to remote areas through medical convoys

References

- (1) Allender, JA., Rector, C., and Warner, KD. (2014). Community & public health nursing promoting the public's health. 8TH Edition. Wolters Kluwer . hong kong.
- (2) Arzi A, Ashtarinezhad A, Sarahroodi S, and Sawalha AF. (2010). Antibiotic self-medication among Southern Iranian University students. Int J Pharmacol ; 6 (1): 4 Bennadi, D. (2013). Self-medication: A current challenge. Journal of basic and clinical pharmacy, 5(1), 19
- (3) Central Agency for Public Mobilization and Statistics (CAPMAS) (2017). Egyptian population, Census, Census

- Report.http://egyptindependent.com/capmas-egypt-population(Accessed 11 July 2017)
- (4) Coleman, T., Taylor, A., Crothall, H., & Martinez, F. E (2019). Respiratory Support during Bronchiolitis Due to One Virus versus More Than One Virus: An Observational Study. *Journal of Pediatric Intensive Care*.
 - (5) Cheng, J., Chai, J., Sun, Y., & Wang, D. (2019). Antibiotics use for upper respiratory tract infections among children in rural Anhui: children's presentations, caregivers' management, and implications for public health policy. *Journal of public health policy*, 40(2), 236-252.
 - (6) Cristescu, C., NEGREȚ, S., Suciuc, M., Voicu, A., Buda, V., Suciuc, L., . . . Voicu, M. (2018). STUDY REGARDING THE PARENTS'USE OF SELF-MEDICATION AMONG CHILDREN UNDER 12 YEARS OLD. *practice*, 66,
 - (7) Ding, L., Sun, Q., Sun, W., Du, Y., Li, Y., Bian, X., . . . Dyar, O. J. (2015). Antibiotic use in rural China: a cross-sectional survey of knowledge, attitudes and self-reported practices among caregivers in Shandong province. *BMC infectious diseases*, 15(1), 576.
 - (8) Esan, D. T., Fasoro, A. A., Odesanya, O. E., Esan, T. O., Ojo, E. F., & Faeji, C. O. (2018). Assessment of Self-Medication Practices and Its Associated Factors among Undergraduates of a Private University in Nigeria. *Journal of environmental and public health*, 2018.
 - (9) El-Nimr NA, Wahdan MH., Wahdan AM. And Kotb RE. (2015). Self medication with drugs and complementary and alternative medicines in Alexandria, Egypt: prevalence, patterns and determinants. *Eastern Mediterranean Health Journal*. Vol. 21 No. 4 • Pp256 – 265.
 - (10) Gohar, U. F., Khubaib, S., & Mehmood, A. (2017). Self-medication trends in children by their parents. *J Develop Drugs*, 6(2), 1-7.
 - (11) Gupta, K. C. (2018). Knowledge, attitude and practice of parents towards antibiotic usage in children. *Journal of Advanced Medical and Dental Sciences Research*, 6(5).
 - (12) Jalilian, F., Mehdi Hazavehei, S., Vahidinia, A. A., Jalilian, M., & Moghimbeig, A. (2013). Prevalence and related factors for choosing self-medication among pharmacies visitors based on health belief model in Hamadan Province, west of Iran. *Journal of research in health sciences*, 13(1), 81-85. Keers, R. N., Williams, S. D., Cooke, J., & Ashcroft, D. M. (2013). Causes of medication administration errors in hospitals: a systematic review of quantitative and qualitative evidence. *Drug safety*, 36(11), 1045-1067.
 - (13) Klemenc-Ketiš, Z., & Kersnik, J. (2011). The effect of demographic characteristics on self-medication patterns: a cross-sectional nationwide study from Slovenia. *Collegium antropologicum*, 35(4), 1237-1242.
 - (14) -Levy, M. (2019). The many faces (and potential dangers) of self-medication as an explanatory concept for substance use. *International Journal for the Advancement of Counselling*, 41(1), 15-24.
 - (15) Muoneke, V., Una, A., Mbachu, C., Eke, C., Ododo, C., Nkaleke, D., . . . Nwuzor, C. (2018). Caregivers' Perception and Practice of Self-medication for Fevers in Under-five Children: A Cross-sectional Study in a Rural Community, South-East Nigeria. *Journal of Advances in Medicine and Medical Research*, 1-12.
 - (16) Musoke, D., Boynton, P., Butler, C., & Musoke, M. B. (2014). Health seeking behaviour and challenges in utilising health facilities in Wakiso district, Uganda. *African health sciences*, 14(4), 1046-1055. Patil, S. B., Vardhamane, S.,
 - (17) Patil, B., Santoshkumar, J., Binjawadgi, A. S., & Kanaki, A. R. (2014). Self-medication practice and perceptions among undergraduate medical students: a cross-sectional study. *Journal of clinical and diagnostic research: JCDR*, 8(12), HC20.
 - (18) Pajuelo, M. J., Huaynate, C. A., Correa, M., Malpartida, H. M., Asayag, C. R., Seminario, J. R., . . . Paz-Soldan, V. A. (2018). Delays in seeking and receiving health care services for pneumonia in children under five in the Peruvian Amazon: a mixed-methods study on caregivers' perceptions. *BMC health services research*, 18(1), 149.
 - (19) Siponen S, Ahonen R, Kiviniemi V, and Hämeen-Anttila K. (2013). Association between parental attitudes and self-medication of their children. *International Journal of Clinical Pharmacy*; 35(1): 113-20
 - (20) Potchoo, Y., & Awizoba, A. (2018). Socio-Demographic Factors of Parental Self-Medication among Children under 15 Years, at the Teaching Hospitals of Lomé, Togo. *Journal of Advances in Medical and Pharmaceutical Sciences*, 1-6.
 - (21) Singh, S., Sinha, A., Banerjee, B., & Jaswal, N. (2013). The Health-Seeking Behavior of Leprosy Patients: An explanatory model. *Health, Culture and Society*, 4(1), 52-65.
 - (22) Selvaraj, K., Kumar, S. G., & Ramalingam, A. (2014). Prevalence of self-medication practices and its associated factors in Urban Puducherry, India. *Perspectives in clinical research*, 5(1), 32.
 - (23) Sridhar, S. B., Shariff, A., Dallah, L., Anas, D., Ayman, M., & Rao, P. G. (2018). Assessment of nature, reasons, and consequences of self-medication practice among general population of Ras Al-Khaimah, UAE. *International Journal of Applied and Basic Medical Research*, 8(1), 3.
 - (24) Yu, M., Zhao, G., Lundborg, C. S., Zhu, Y., Zhao, Q., & Xu, B. (2014). Knowledge, attitudes, and practices of parents in rural China on the use of antibiotics in children: a cross-sectional study. *BMC infectious diseases*, 14(1), 112.