Attitude and Practice Regarding the Use of Over the Counter Medicines After the Emergence of Covid-19 Pandemic among General Population

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Abstract:

The utilization of over the counter (OTC) medicine is popular practice all around the world. According to World Health Organization (WHO) 'self - medication is the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms'. During COVID 19 pandemic, a hike in self intake of medicine without prescription was observed. The study was aimed to determine the attitude and practice regarding the intake of over the counter medicines after the emergence of COVID 19 outbreaks among general population. The objectives of the study were to assess the attitude and practice regarding the use of over the counter medicines among general population and to find out the association of attitude and practice with selected baseline variables. The data was collected from 120 people from a selected community at Pathanamthitta district, Kerala, India. Purposive sampling technique was used in this study. Analysis was done by using descriptive and inferential statistics.The study findings indicated that 53.33% of participant's demonstrated moderate practice, 46.67% exhibited poor practice, and no individuals were found to have good practice. More than half (54.17%) of the samples had unfavourable attitude towards the use of OTC medicines and 45.83% had favourable attitude towards the use of OTC drugs. A significant association was found between annual income and practice score (x2 = 13.31). A significant association was also found between level of education (x2 =12.31), profession (x2 =13.75), presence of co-morbidities (x2 =14.11) and annual income (x2 =43.04) with attitude score. Findings indicated a post-COVID-19 rise in OTC medication use compared to pre-pandemic usage.

***Keywords**: Attitude, COVID 19, General population, over the counter medicines, Practice.*

Introduction

Health is among the most essential aspects of human life. Many factors affect health, individuals often turn to medications to alleviate symptoms and address various health issues. It is common for them to seek the guidance of medical professionals to secure the appropriate prescriptions of drugs, the

cornerstone to treat the disease. Individuals may opt to utilize over-the-counter medicines at a later time as needed. After COVID 19, there has been a rise in the ingestion of over-the-counter (OTC) drugs. The use of these medicines can be unsafe, as incorrect self diagnosis or the administration of inappropriate doses may lead to side effects, adverse reactions and drug to drug interaction The attitudes and practices of individuals towards over-the-counter medications have shifted significantly following COVID-19.

Over-the-counter (OTC) drugs are medications available to the public without prescription. In contrast, prescription drugs require a prescription from a doctor or other health care professional and should only be used by the prescribed individual.Prescription medications are drugs that necessitate an official order from a qualified healthcare professional, such as a doctor. These medications are specifically intended for the individual named in the prescription, ensuring receive the appropriate treatment tailored to their unique health needs.On the other hand, some drugs are classified as over-the-counter medications, which do not require a prescription for purchase. However, even these drugs can be dispensed by a pharmacist or from outside. Before providing these medications, pharmacists must conduct a thorough assessment of the patient's needs and offer comprehensive patient education to ensure safe and effective use.

A cross-sectional descriptive observational study was carried out, targeting the entire Spanish population by using an online questionnaire. The results showed that 78.9% of the subjects had previously taken or were currently taking OTC drugs. This consumption decreased as the age of the subjects increased, with a prevalence of 36.4% of subjects aged ≥ 71 taking OTC drugs. Analgesics were the most consumed OTC drugs (49.1%) especially in women, youngsters with non-formal educational qualifications, and individuals of a low-medium socioeconomic level residing in urban areas. Measures should be implemented to optimize the safe use of OTC drugs in order to avoid the occurrence of secondary events associated with the lack of knowledge related to their usage[1].

A study was conducted in Tamil Nadu, India to assess the frequency of use of OTC medications with respect to the COVID-19 pandemic and analyzed population perception and awareness regarding the same. This survey indicated that there was an increase in over-the-counter medication usage from 48.4% prior to COVID to 83.8% after COVID. Non-steroidal anti-inflammatory drugs (NSAIDs) were the most used over the counter drug. Among them, paracetamol was at the riskof abuse/ misuse. The study concluded that more than half of the over-the-counter drug users were not aware of the dosage and adverse reactions of the drug they take.With more individuals tending towards over-the-counter medication, the risk to adverse drug events and complications of undiagnosed diseases tends to be high.

Need for the study

The use of over-the-counter (OTC) medications has become increasingly common as consumers take more responsibility for their health management. Understanding the attitudes and practices surrounding these medications is essential for several reasons. First and foremost is consumer empowerment. As individuals increasingly rely on OTC medications for self-treatment, it is crucial to understand their perceptions, knowledge, and decision-making processes. This study can highlight how empowered consumers feel about managing their health. Public health implication is the next reason why it's important. Improper use of OTC medications can lead to adverse health effects, including drug interactions and addiction. By assessing current practices and attitudes, this study can highlight the areas where public health education is needed to promote safe usage. Another reason is to understand market trends. The increasing sales of OTC medications reflect changing consumer behaviors and perceptions of healthcare. Understanding these trends can help healthcare providers and policymakers create strategies to optimize healthcare delivery and consumer support.

Objectives

- To assess the attitude regarding the intake of OTC mediciness among the general population
- To assess the practice regarding the intake of over-the-counter medicines among the general population
- To find the association between attitude and selected baseline variables.
- To find the association between practice and selected baseline variables.
- To develop a booklet regarding the judicious use of over-the-counter medicines.

Assumptions

- The general population may have a positive attitude regarding the judicious use of over-the-counter medicine
- The general population may be practicing the safe use of over-the-counter medicines

Hypotheses

H_1: There is a marked association between attitude and specific demographic variable

H_2: There is a marked association between practice and specific demographic variable

Conceptual framework

A theoretical framework is defined as "interrelated concepts or abstractions that are assembled in the same rational scheme by their relevance to a common theme". It is constructed according to researcher's own experiences, previous research findings, or concepts of several theories and models.The conceptual framework for this study was built upon Von Bertalanffy general system theory.

Review of literature

A cross-sectional study was carried out among 436 patients affected with COVID-19, admitted in Ayatollah Alimoradian Hospital affiliated with Hamadan University of Medical Sciences (UMSHA), Namaland Province, Iran. The objectives pertaining to this research were to assess knowledge, attitude and practice of self-medication with antibiotics. Most patients who self-medicated with antibiotics had low awareness, low attitude, and average practice. Among the participants, 20.8% of the participants used antibiotics during the COVID-19 epidemic out of which 20% said that the COVID-19 outbreak and quarantine prevented them from seeking medical treatment as the reason behind the utilization of self- medication[3].

A research investigation was performed in Mandya district to assess the use of over the counter drug. The result showed a high proportion (72.8 %) of practice in Independent use of non-prescription medications in both urban and rural population. The prevalence of Over-the-counter drug self-use in the study was found to be 72.87% and is nearly same in both urbanized and rural regions. The main reasons identified for self-medication were the assessment of their ailment as being minor, financial constraint and non-availability of doctors in rural areas[4].

An online cross sectional survey related to OTC medicines was carried out among students in Brunei Darussalam. A total of 364 responses were obtained, with the median age of participants being 23 years. The average knowledge score was 7.3 out of 9, with the majority of respondents (77.7%) had good knowledge of OTC medicines. Almost all (92.9%) showed a positive attitude towards OTC use. A statistically significant difference ($p \leq 0.05$) was found in attitude scores across different age groups and education levels. The majority of participants (88.2%) reported practicing self-medication with over-the-counter (OTC) medicines, primarily due to their easy accessibility (79.4%). A small proportion engaged in improper practices, such as taking doses exceeding the recommended amount (6.0%) or neglecting to check the expiry date (0.5%). Promoting knowledge on the correct use of OTC medicines among adults is crucial to prevent unsafe practices and reduce the risk of health hazards associated with medication misuse[5].

“An observational study conducted in India examined the use of over-the-counter (OTC) drugs and self-medication. During the COVID-19 pandemic, widespread paranoia and challenging circumstances were observed in India. The results indicated a notable increase in the use of OTC medications and self-medication, with the situation in India worsening due to lax regulatory oversight. This trend has led to multiple issues, including drug shortages and severe adverse effects from overdosing and harmful drug interactions. These findings highlight the urgent need for stronger regulatory measures to control self-medication and OTC drug use, protecting the uninformed public from potential harm[6].

The scenario of self-medication practices during the covid-19 pandemicwas a systematic review conducted on October 2022 to observe the current scenario of self-medication during COVID-19.A total of 660 papers were collected and 14 cross-sectional studies among them were finalized from 12 different countries after apposite screening processes. The study found that during the COVID-19 pandemic, self-medication had a prevalence of 44.79%. Analgesics, antibiotics, and nutritional supplements were the most commonly used drugs, with pharmacies and hospitals serving as the primary sources. Fever, sore throat, body ache (muscle pain), and flu or cough were the most frequently recorded illnesses; treatment and prevention of COVID-19 were the main culprit behind self-medication. During the COVID-19 pandemic, the primary factors influencing self-medication were fear, anxiety, and perceptions related to the disease. Additionally, concerns about immunity boosters, nutritional supplements, financial constraints, and the easy availability of even non-OTC drugs contributed to increased self-medication practices[7].

A cross-sectional study was conducted in Jordan in 2021 to assess the prevalence and predictors of self-medication for the prevention or treatment of COVID-19, as well as to evaluate patterns and factors influencing these practices during the pandemic. Using an online questionnaire, the investigators examined the types of drugs and treatments used for self-medication, the reasons behind their use, and the factors affecting self-medication behaviours. A total of 1,179 participants (46.4% female) with a mean age of 32 years (SD = 12.5) completed the questionnaire. The overall proportion of individuals using at least one product for COVID-19 prevention or treatment was 80.4%. The products most frequently used were vitamin C (57.6%), paracetamol (51.9%), zinc (44.8%), and vitamin D (32.5%). Factors associated with self-medication included female gender, employment in the medical field, and a history of COVID-19 infection. The study concluded that self-medication may worsen health outcomes and delay seeking professional medical advice. Interventions involving pharmacists and other healthcare professionals are needed to mitigate the risks of self-medication and to counteract false claims about medications, particularly those disseminated through the media[8].

Methodology

Research methodology is the systematic study of how research is conducted to address a specific research problem, plays a crucial role in any research work, providing structured procedures to solve problems effectively. The present study was carried out to evaluate the attitude and practice regarding the use of over the counter medicines after the emergence of COVID-19 pandemic among general population.

Research approach

Research approach is an umbrella that covers the basic procedure for conducting research. Quantitative approach was used to assess attitude and practice regarding the use of over the counter medicines after the emergence of COVID-19 pandemic among general population.

Research design

The research design is the plan structure and strategy of the investigation of answering the research questions and it spells out strategies that the researcher adopted to develop information i.e. accurate, objective, and interpretable .The research design used in this study is descriptive survey research design.

Variables under study

1 .Dependent variable

Dependent variable is the response behaviour or outcome .Changes in the dependent variable is presumed to be caused by the independent variable. In the current research, attitude and practice regarding the use of over the counter medicines is the dependent variable.

2. Independent variable:

An independent variable is a variable, which influences the dependent variable. In this study, emergence of COVID-19 pandemic is the independent variable.

Setting of the study

The setting refers to the physical location and conditions in which data collection occurs. The setting was a selected community in Pathanamthitta district.

Study population and Sample

All possible elements that could be included in researchis called as population. It represents the entire group under study. A sample is a small portion of population selected for observation and analysis Sample size was 120.

Sampling technique

Sampling is the process of selecting a subset of the population to represent the whole. In this study, a purposive sampling technique was employed to choose the participants.

Inclusion criteria

Study included those who were

- Available throughout the data collection period
- Agreeable to take part in the study

Exclusion criteria

Those who were

- Differently abled
- Below 18 yrs of age
- People with memory disorders
- People with mental disorders

Tool for data collection

Tool1: Baseline Performa
Tool2: Attitude scale regarding the use of over the counter medicines
Tool 3: Assessment of practice

Description of tool

Baseline data collected from the sample using baseline programme.Attitude and practicewere assessed by using Likert attitude scale and practice questionnaire respectively

1.Baseline Proforma :It consist of age, gender ,level of education, profession ,presence of health worker in the family ,presence of co-morbidities ,type of residence ,type of family ,annual income, consultation with doctor and prescription

2. **Attitude scale regarding the use of over the counter medicines:** It consists of total of 10 question related to attitude using 5 point Likert attitude scale

Score

: 10-30: Favourable attitude
: 31-50: Unfavourable attitude

3**. Assessment of practice: It consist of 10 question related to practice**

Score

: 15-21=Good practice
: 8-14=Moderate
: 0-7=Poor Practice

Content validity of the tool

It concerns the degree to which an instrument has an appropriate sample of items for the construct being measured[9].Data are valid if they are actually measured what they are supposed to be measured. The validity of the structured interview schedule was finalized by submitting it to 5 subject experts.They were instructed to give their opinion and suggestions regarding the accuracy and relevancy of the items.

The tool was evaluated for its adequacy, comprehension, simplicity, efficiency and relevancy. According to their suggestions, the languages of a few items were modified, few questions were added and few questions were removed.

Reliability

Reliability of an instrument is a major criterion for assessing the quality, adequacy and consistency of the tool. Reliability is the consistency with which an instrument measures the attribute [9]. The reliability of the tool was tested by initially finding out the value of coefficient correlation by using the Karl Pearson's coefficient formula. The coefficient correlation was found to be 0.79.This value was then used in Brown prophesy's formula which showed that the tool washighly reliable (r = 0.88).

Ethical Consideration

Approval to conduct the study was obtained from Institutional review board of Pushpagiri institute of medical sciences and research centre. The clients had the freedom to withdraw from the study at any time without giving any reason and their consent was taken for the study.A written permission was also obtained from Thiruvalla municipality for conducting the research study.

Pilot study

Pilot study is the small scale version or trial run of the major study[10].The investigator conducted the pilot study by administering the questionnaire to 12 people who fulfilled the criteria of the study. The feasibility of the study was confirmed. The pilot study also helped in the refinement of the study instrument.

Procedure for data collection

The data collection was done between May and July 2024. Participants meeting the inclusion criteria were selected by the investigator, who provided them with an explanation of the study's purpose. A written informed consent was obtained from the participants. Subsequently, the tools were distributed to the participants and the details gathered.

Plan for data analysis

It was planned to include both descriptive and inferential statistics for the analysis interpretation of the data which is as follows:

- ❖ Frequency and percentage distribution of clients based on baseline variables.
- ❖ Frequency and percentage distribution of attitude and practice score
- ❖ Association between the attitude score and variables
- ❖ Association between the practice score and demographic variables

Analysis and interpretation

The research presented here was undertaken to assess the attitude and practice regarding the use of over the counter medicines after the emergence of COVID -19 pandemic among general population in a selected community at Pathanamthitta district, Kerala with a view to develop an information booklet. Analysis was performed using descriptive and inferential statistics. For describing the baseline variables, frequency and percentages were used

Presentation of data

The collected data were organized and tabulated. The findings were presented in tables and figures.

Section A Distribution of sample based on baseline variables

Section B Analysis of practice score

Section C: Analysis of attitude score

Section D: Association between practice score and selected baseline variables

Section E: Association between attitude score and selected baseline variables

Section A: Distribution of samples based on baseline variables.

Table 1: Distribution of sample according to their baseline variables N=120

Demographic Variables	**Frequency (f)**	**Percentage (%)**
Age		
<20 Years	8	6.67
21-30	26	21.67
31-40	25	20.83
41-50	27	22.50
51-60	24	20.00
61-70	6	5.00
>70	4	3.33
Gender		
Male	50	41.67
Female	70	58.33
Level of education		

Primary	12	10
Upper Primary	5	4.17
High school	22	18.33
Pre-degree	37	30.83
Degree	42	35
Post Graduate	2	1.67
Profession / job		
Government Sector	13	10.83
Private Sector	47	39.17
Other sectors	22	18.33
Not working	38	31.67
Health worker present in the family		
Yes	41	34.17
No	79	65.83
Presence of co-morbidities		
Yes	40	33.33
No	80	66.67
Type of residence		
Urban	0	0
Rural	0	0
Semi-urban	120	100
Type of family		
Nuclear	85	70.83
Joint	35	29.17
Type of family		
Nuclear	85	70.83
Joint	35	29.17
Annual income		
≤25,000	54	45.00
25,000-50, 0000	22	18.33
50,000-1, 00000	38	31.67
> 100000	6	5.00
Consulted doctor for any illness		
Yes	109	90.83
No	11	9.17

- Majority of the sample belonged to the age range between 21-60 (21-30-21.67%, 31-40-20.83%, 41-50-22.50% and 51-60-20%)
- In the selected samples, 58.33 % were females and 41.67% were males.
- The results shows that majority of the samples having degree education (35%)
- Among the samples 39.17% were working in private sector
- Findings showed that 34.17% were having health worker as their family member.
- Majority of the family (66.67%) didn't have the history of any co-morbidity.
- All samples were residing in semi urban area.
- Majority of the samples belonged to nuclear family
- The annual income of majority of the samples are below 250000(45%) and 31.67% are having the income between 50,000 to 100000 Rs.
- The results show that 90.83% samples consulted doctor for illness

Section B

Analysis of Practice score

Table 2: Frequency and percentage distribution of practice score

Level of Practice score	Frequency (f)	Percentage (%)
Good (15-21)	0	0
Moderate (8-14)	64	53.33
Poor (0-7)	56	46.67

Above table depicts that majority of the samples (53.3%) having moderate practice.

Table 3: Mean and standard deviation of practice score

Mean	6.81
Median	8
Mode	0
Standard deviation	3.81

Section C

Analysis of Attitude score

Table4: Frequency and percentage distribution of Attitude score

N=120

Level of Attitude score	**Frequency (f)**	**Percentage (%)**
Favourable attitude (10-30)	55	45.83
Unfavourable attitude (31-50)	65	54.17

The table above illustrates that 54.17% of samples are having unfavourable attitude towards the use OTC medicines.

Table5: Mean and standard deviation of Attitude score

N=120

Mean	32.22
Median	31.5
Mode	33
Standard deviation	8.01

Section D

Table6: Analysis of association between practice score and demographic variable

Characteristics	**Chi square**	**Df**	**Table value**	**Level of significance**
Annual income	13.31	3	7.82	**S**

The above table shows that there is significant association between annual income and practice score.(**x2** = 13.31).So the hypothesis, there is an association between practice score and demographic variable is partially accepted at 0.05 significant level.

Section E

Table7: Analysis of association between attitude score and demographic variable

Characteristics	**Chi square**	**Df**	**Table value**	**Level of significance**
Level of education	12.31	5	11.07	**S**
Profession/job	13.75	3	7.82	**S**
Presence of co-morbidities	14.11	1	3.84	**S**
Annual income	43.04	3	7.82	**S**

The above table depicts that the educational level (**x2 =12.31)** profession (**x2 =13.75)** presence of co-morbidities (**x2 =14.11)** and annual income (**x2 =43.04)** associated with attitude score. So the hypothesis there is an association between attitude and demographic variable is partially accepted at 0.05 significant levels.

Results

Section A: Distribution of sample based on baseline variables

The greater part of the participants were in the age between 21-60 (21-30-21.67%, 31-40-20.83%, 41-50-22.50%, 51-60-20%).In the selected samples, 58.33 % were females and 41.67% were males. The results shows that majority of the samples having degree education (35%).Among the samples 39.17% were working in private sector. Findings showed that 34.17% were having health worker as their family member. Majority of the family (66.67%) didn't have the history of any co-morbidity. All samples were residing in semi urban area. Majority of the samples belonged to nuclear family. The annual income of majority of the samples are below 250000(45%) and 31.67% are having the income between 50,000 to 100000 Rs..The results show that 90.83% samples consulted doctor for illness.

Section B: The distribution and proportion of practice score

- Majority of the subjects moderately practiced the use of OTC drugs (53.33%), no one had good practice and 46.67% had poor practice of OTC medication use.

Section C: The distribution and proportion of attitude score

- 54.17% of samples are having unfavourable attitude towards the use OTC medicines and 45.83% having favourable attitude towards the use of OTC drugs.

Section D: Analysis of association between practice score and demographic variable

The result shows that there is significant association between annual income and practice score (**x2 =** 13.31). No significant association was found between practice and age(x2=1.63),gender(x2=0.98), educational background (x2 =6.79),profession (x2=6.1), family member as health worker (x2=0.68),presence of co-morbidities(x2=1.07),type of residence(x2=0.53),type of family(x2=0.88) and consultation with doctor for any illness(x2=0.44**).**

Section E: Analysis of association between attitude score and demographic variable

The result shows that there ia an association exists between education (x2 =12.31) profession (x2 =13.75) presence of co-morbidities (x2 =14.11) and annual income (x2 =43.04) with attitude score. But there was no relationship between attitude and age(x2=5.48),gender(x2=1.31,family member as health

worker(x2=0.73), type of residence(x2=0.83),type of family(x2=2.55) and consultation with doctor(x2=0.44)

Discussion

Over-the-counter (OTC) medicines are used mainly for the treatment of minor illnesses such as headache, cold, pain, heartburn etc. The highest consumption was observed for antipyretics, antihistamines and analgesics[11]. Non judicious use of any drug, especially for non clinical purpose may cause minor to very serious adverse effects. Studies showed that outbreak of COVID 19 pandemic has caused and resulted in an increased use of OTC medicines[6].

In a study undertaken before the COVID-19 outbreak, to assess the prevalence & practice of self-medication in Ernakulum district, southern India, Kerala. 21.5% (114/539) reported that they practised self-medication within last three months of the study period.

The investigation conducted in this study revealed that majority 53.33% of the sample moderately practiced the use of OTC drugs; no one had good practice, while 46.67% had poor practice of OTC medication use. This result suggests a growing trend in the use of OTC medications after the COVID-19 pandemic[12].

A cross-sectional study was implemented among the patients admitted in Ayatollah Alimoradian Hospital affiliated with Hamadan University of Medical Sciences (UMSHA), Nahavand Province, Iran. Data collected from 436 patients with COVID-19 to assess knowledge, attitudes, and practices concerning self-medication with antibiotics revealed that people who self-medicate with antibiotics had low awareness, low attitude, and average practice of OTC medication use.Among this, 20.8% of the participants used antibiotics in the context of the COVID-19 pandemic. Among the total participants, 20% said that COVID-19 outbreak and quarantine prevented them from seeking medical treatment as the reason behind the usage of self- medication.

An online cross sectional survey was conducted among Brunei Darussalam adults amid the COVID -19 pandemic to assess the knowledge, attitude and practice regarding over the counter medicines .The greater part of the study sample (92.9%) showed a positive attitude towards over the counter medicine use. The mean attitude score of the respondents was 28.6 out of 40, where 8 were the lowest score and 40 was the highest score. More than half agreed that they were taking over the counter medicines when they have a minor illness (61.1%) and that pregnant and breastfeeding women may use over the counter medicines with caution (56.6%). This was a study done during the COVID-19 pandemic. Compared to this study result, a contrast result was found in the present study conducted after four years. Present study result showed that 45.83% had favourable attitude and 54.17% of participants showed an unfavourable attitude towards the use OTC drugs. Comparison of these two results supports the possibility of an attitude change when the scenario changed.

The present study result showed that there was a meaningful association was established between practice and annual income (**x2 =** 13.31). But there was no relationship was found between practice and baseline variables such as age, gender, level of education, profession, family member as health worker, presence of co-morbidities, type of residence, type of family, and consultation with doctor for any illness. A study conducted in Nepal regarding knowledge and practice on over-the-counter drugs among adults of age group 20 and above residing in Kaski, Nepal, showed that there was a significant association between practice and education status of the respondents[13].

Recommendations

It's very essential to create awareness among public about the judicious use of OTC drugs. The observations from the study throw the light to the need of emphasising in imparting health education on knowledge and attitude regarding the use of OTC drugs. Health personnel should conduct public awareness programs to update knowledge and attitude of public towards use of OTC medicines.

Limitations

Study was confined to one selected community area and generalization of the finding is difficult because of small sample size.

Conclusion

World widely, a growing use of over-the-counter after COVID 19 pandemic. The current study aimed to determine the attitude and practice regarding the intake of over the counter medicines after COVID-19 pandemic among general population in a selected community of Pathanamthitta district, Kerala, India. The study revealed an increase in OTC medication use after COVID 19 when compared with previous levels. However, it is very essential to create awareness in public about the risk involved in the utilization of OTC and the need for consultation of any ailments as well.

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