

Knowledge, Attitude and Practice towards the use of Over the Counter (OTC) medications among general population in United Arab Emirates (UAE): A cross-sectional study

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ABSTRACT: Over-the-counter (OTC) medication usage is widespread globally, yet there remains a paucity of research regarding its use and understanding among specific demographics, particularly in rapidly growing populations like that of the United Arab Emirates (UAE). This study aimed to assess the knowledge, attitudes, and practices (KAP) of OTC drug use among the general population of the UAE, with a focus on young women. A cross-sectional study was conducted over a six-month period, from December 2022 to May 2023, among the general population aged 18-65 years in the UAE. Participants were recruited after informed consent through online platforms, and data were collected using a validated questionnaire comprising socio-demographic details and questions assessing knowledge, attitude, and practice (KAP) regarding OTC drug use. Descriptive statistics and inferential analyses were conducted to analyse the data. A total of 197 individuals participated in the study. The study revealed moderate knowledge scores among young women regarding OTC medication, with significant gaps in understanding their use and limitations. Positive attitudes towards OTC drug use were prevalent. Self-medication was common (78.2%). Significant associations were found between gender, age, and knowledge/attitude scores, emphasising the need for targeted interventions. No significant associations were observed with educational, occupational status, or chronic diseases. In conclusion, this study provides valuable insights into OTC medication use among young women in the UAE. It highlights the importance of addressing knowledge gaps and promoting safe OTC medication practices through collaborative efforts between healthcare professionals, policymakers, and educational institutions. By targeting specific demographics and addressing key knowledge gaps, stakeholders can work towards improving health literacy and promoting responsible self-medication behaviours among the general population.

KEYWORDS: General population; KAP study; OTC drug use; UAE; Young woman

1. INTRODUCTION

According to United States Food and Drug Administrative in the (USFDA), Over the Counter (OTC) medication is also known as non-prescription drugs [1]. OTC medications are divided into 10 groups under the World Health Organization (WHO) Anatomical Therapeutic Chemical (ATC) classification, as follows: analgesics, laxatives, antithrombotic agents, antacids, cough and cold preparation, antihistamines, dermatological, throat preparation, nasal preparation, and antidiarrheal [2]. According to WHO, for a product to be an OTC medicine, it should be marketed on prescription for at least 5 years. Time period for change of category from prescription to OTC varies from country to country, e.g., European Union – no time specified, New Zealand – 3 years, Japan – 6 years, and Philippines – upto 10 years. Before accepting switch of a given drug into OTC category, it is important to ensure that the drug did not cause serious adverse drug reactions with increasing frequency during the marketing period till then [3].

The United Arab Emirates (UAE) is a federation of seven gulf emirates with an estimated population of 9.36 million people in 2021, with 80% of the population composed of expatriates from different countries. Despite being with an estimated GDP of 415 billion USD in 2021 and a rapidly increasing population, there is

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a paucity of published research regarding people living below the poverty level. This rapidly increasing population necessitates that pharmacists and other members of the healthcare teams have access to adequate and up-to-date information on OTC products and are able to provide advice on the benefits and risks of using such medications to consumers [4].

Self-medication including the OTC drug use has been studied in many different populations, showing that about 25–75% of the population consumes self-medication medicines [5]. Self-medication was highly prevalent in the community in Eastern Mediterranean countries, ranging from 35.4% to 83% in Iran; 42.5% in Jordan; 35.4% in Saudi Arabia and 68.1% in Pakistan. It is also well prevalent among adolescents in many Middle East countries including Jordan (87%), Palestine (98%) Kuwait (92%), Emirates (89.2%), Bahrain (44.8%) , and Pakistan (80.4%) [6].

OTC medications are safe and effective when used in accordance with the guidelines on the label and as advised by your health care provider [1]. Recent study found that drug related issues were occurring with OTC drugs when the patient's attempt to self-medicate for their symptoms [7]. There are multiple risks associated with the misuse of the OTC medications. First, there might be direct harms associated with the pharmacological or psychological consequences of the abused or misused substance. Second, there were physiological side effects from another active element in a compound formulation. Concerns regarding overdoses and presentation at emergency services arose because of these sorts of damage. Third, there were the problems associated with additional repercussions, such as the transition to drug misuse, economic expenses, and impacts on personal and social life [7].

The widespread and unsupervised nature of non-prescription drug usage makes it important that evidence of effectiveness and safety should be gathered in the real-world scenario. Usage of the provided information leaflets help to avoid mistakes associated with OTC drug use [8]. Study by the FDA reveals the problem for consumers to read and understand the leaflets [9]. Advertisements of OTC drug use also can influence its usage, given the fact that OTC medications are inexpensive, effective, and largely safe, they have the potential to cause problems to special population such as pregnant women. Pregnancy causes various physiological changes, and problems that require OTC drugs, such as anxiety, vomiting, constipation, indigestion, back pain, and headache, are particularly prevalent in pregnant women [10].

The trend of OTC Medicines' use has grown steadily in the last few years. Various reasons such as easy availability, affordability, and increased awareness among patients are responsible for this trend. OTC medicines or non-prescription medicines are terms used interchangeably to refer to medicines that can be bought without a prescription. Many countries recognize OTC medicines as a separate category of drugs and have established regulations for their use [4].

General population has poor knowledge of the potential side-effects of their medication. Hence, this study is designed to assess the knowledge, practice, and attitude towards the use of OTC drugs among the general population of UAE. The study also aimed to determine the association of predictors of the knowledge and attitude towards OTC medications among general population

2. RESULTS

A total of 197 individuals participated in this study. The study's participants skewed towards young women, with 58.9% being female and over half (53.8%) falling within the 20-29 age range. Notably, a high proportion (61.4%) held advanced degrees, and nearly half (42.6%) were students. Interestingly, only a minority (17.3%) reported having ongoing medical conditions requiring medication. Sociodemographic characteristics of the study participants are present in Table 1.

Table 1. Sociodemographic characteristics of the study participants

SI No	Variables		Number (%)
1.	Gender	Male	81 (41.1%)
		Female	116 (58.9%)
2.	Age Group	Less than 20 Years	15 (7.6%)
		20 to ≥ 29 Years	106 (53.8%)
		30 to ≥ 39 Years	37 (18.7%)
		40 to ≥ 49 Years	13 (6.5%)
		50 to ≥ 59 Years	22 (11.1%)
		Above 60 Years	4 (2.3%)
3.	Level of education	Less than basic	3 (1.5%)
		Basic	11 (5.5%)

		Intermediate	64 (32.4%)
		Advanced	119 (60.4%)
4.	Occupational Status	Students	84 (42.6%)
		Employed	84 (42.6%)
		Unemployed	29 (14.8%)
5.	Presence of chronic diseases	Population with chronic diseases	163 (82.7%)
		Population without chronic diseases	34 (17.3%)

2.1. Assessment of Knowledge on OTC drug use

The mean knowledge score of the study population was 5.92 ± 2.68 . The study participants demonstrated varying levels of knowledge, with 54.82% exhibiting good knowledge, 29.96% moderate knowledge, and 15.22% poor knowledge. The study revealed a positive understanding of OTC accessibility, with 72.8% of participants correctly stating they can be purchased without a prescription. However, nearly 50% of participants displayed knowledge gaps regarding the intended use of OTC medications. While 78.6% accurately identified their role in managing minor illnesses, only 56.34% recognized their ability to improve overall health and a significant portion were unaware of their limitations in treating major illnesses. Fortunately, awareness regarding safety practices was encouraging. Over 62% correctly identified potential interactions between OTC medications, and a strong majority (78.17%) acknowledged the need for increased caution during pregnancy and breastfeeding. The study also assessed familiarity with specific examples of OTC medications. Painkillers were readily identified as an example by 71.57% of participants. Furthermore, 78.68% accurately recognized paracetamol (sold as Panadol) as a safe and effective OTC medication when used correctly, while highlighting the potential for liver damage from overdosing. Responses of study population on the knowledge questions are presented in Table 2.

2.2 Assessment of attitude on OTC drug use

The mean attitude score of the study population was 19.86 ± 2.73 and a positive attitude towards OTC drug use was observed in 61.4% of the study participants. Over half (51.8%) expressed confidence in the safety of self-medication with OTCs when used correctly, suggesting a positive perception of their autonomy in managing minor ailments. Convenience emerged as a key factor for 34.0% of participants, highlighting the value they place on OTCs' readily available nature. A cautious approach towards OTC use during pregnancy and breastfeeding was evident, with 26.9% correctly acknowledging the need for extra care unless explicitly safe on the label. While 22.8% solely relied on OTCs for minor illnesses, a responsible attitude was showcased by 49% who sought pharmacist advice when unsure about their illness or suitable medication. Table-3 shows the responses of study population on the attitude questions

Table 2. Responses of study participants on the knowledge questions

Sl No	Statement	Correct N (%)	Incorrect N (%)	Do not know N (%)
1.	OTC medicines are medicines you can buy without a prescription	142(72.08)	28(14.21)	27(13.70)
2.	We are allowed to use OTC medicines to improve our health.	111(56.34)	49(24.87)	37(18.78)
3.	OTC medicines are used to treat, prevent or relieve major illnesses (brain and heart diseases	105(53.29)	45(22.84)	47(23.85)
4.	OTC medicines are used to treat, prevent or relieve minor illnesses (fever and mild headache).	155(78.68)	20(10.15)	22(11.16)
5.	Interactions involving OTC medicines can sometimes produce unwanted results or make medicines less effective	124(62.94)	26(13.19)	47(23.85)
6.	Pregnant and breast-feeding women should be extra cautious while using OTC drugs.	154(78.17)	14(7.10)	29(14.72)
7.	Painkiller is an example of an OTC medicine.	141(71.57)	21(10.65)	35(17.76)
8.	Paracetamol (such as Panadol) is safe and effective when used correctly, but taking too much can lead to liver damage.	155(78.68)	17(8.62)	25(12.69)

Table 3. Responses of study population on the attitude questions

Sl no	Statement	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly agree
1.	Using OTC medicines as self-medication is safe when you use them correctly.	102 (51.8)	32 (16.2)	55 (27.9)	8 (4.1)	0
2.	OTC medicines are convenient to obtain and use	68 (34.0)	101 (51.3)	23 (11.7)	5 (2.5)	1 (0.5)
3.	OTC medicines can be used in pregnancy and breastfeeding but with caution unless stated on the label to avoid.	53 (26.9)	75 (38.1)	39 (19.8)	2 (11.7)	11 (5.6)
4.	I should take OTC medicines when I have a minor illness.	45 (22.8)	83 (42.1)	47 (23.9)	21 (10.7)	1 (0.5)
5.	OTC medicines are safe, but I would seek a pharmacist's advice if I am not sure about my minor illness and which is suitable for it.	96 (49.0)	79 (40.3)	16 (8.02)	5 (2.6)	1 (0.5)

2.3 Assessment of practice of OTC drug use

The study revealed a high prevalence of self-medication with OTCs, with 78.2% of participants reporting regular use. When experiencing minor symptoms, 40.2% opted for OTCs, while 28.4% turned to them generally when feeling unwell. The study identified easy accessibility (39%), low cost (21.3%), and safety and tolerability (15.4%) as the primary drivers of OTC drug use among participants. Notably, 55.8% reported never experiencing adverse events, suggesting generally safe practices. However, 13.7% admitted to exceeding recommended dosages, and 17.8% were unsure if they stayed within recommended limits. This highlights the need for further education on proper OTC use. Encouragingly, 56.3% consistently checked for expiry dates, indicating responsible medication management by over half the population. Responses to the of study population on the practice questions are presented in Table 4.

Table 4. Responses of study population on the practice questions

Sl No	Statement	Number (%)
1.	Have you ever practised self-medication with OTC medicine(s)?	
	• Yes	154(78.2)
	• No	43(21.8)
2.	When do you usually consume OTC medicine(s)?	
	• Symptoms are minor or manageable	78(40.2)
	• Whenever I feel sick	55(28.4)
	• Whenever I cannot visit a doctor	23(11.6)
	• When pain or discomfort is unbearable	41(21.1)
3.	Common reason(s) for using OTC medicines is	
	• Time-saving	28(14.4)
	• Low cost	42(21.3)
	• Safe and well tolerable	30(15.4)
	• Easy accessibility	76(39)
	• Effectiveness	21(10.8)
4.	Have you experienced adverse effects from OTC medicine(s)?	
	• Yes	24(12.2)
	• No	110(55.8)
	• Do not know	59(29.9)
	• Have never self-medicated with OTC medicine	8(4.1)
5.	Have you ever taken more than the recommended dose for OTC medicine(s)?	
	• Yes	
	• No	27(13.7)
	• Do not know	126(64)
	• Have never self-medicated with OTC medicine	35(17.8)
		9(4.6)
6.	How often do you read the instructions on the medicine's label before use?	
	• Always	
	• Often	55(27.9)
	• Sometimes	47(23.9)
	• Rarely	57(28.9)
	• Never	25(12.7)
	• Have never self-medicated with OTC medicine	11(5.6)

		4(2.0)
	How often do you check the expiry date?	
	• Always	111(56.3)
	• Often	43(21.8)
	• Sometimes	22(11.2)
7.	• Rarely	15(7.6)
	• Never	5(2.5)
	• Have never self-medicated with OTC medicine	3(1.5)
	How often do you store your OTC medicine(s) in a cool, dry place or as stated on the label?	
	• Always	99(50.3)
	• Often	53(26.9)
8.	• Sometimes	36(18.3)
	• Rarely	5(2.5)
	• Never	2(1.0)
	• Have never self-medicated with OTC medicine	6(3.0)
	If the OTC medicine showed a change in shape, colour, or odour, I would immediately discard the medicine.	
9.	• Yes	147(74.6%)
	• No	23(11.7%)
	• Do not know	20(10.2%)
	• Have never self-medicated with OTC medicine	8(4.1%)

The study revealed a statistically significant association between knowledge and attitude scores towards OTC drugs and certain demographic characteristics, notably gender ($p = 0.33$ and $p < 0.001$ respectively) and age group ($p = 0.0206$ and $p < 0.001$ respectively). Interestingly, no such association was observed with educational status, occupational status, presence of chronic diseases, or health insurance status. Table 5 describes the association of knowledge and attitude scores with the demographic details

Table 5. Association of knowledge and attitude scores with the demographic details

Particulars		Knowledge Scores		Attitude Score	
		Mean Score $\pm$ Standard Deviation	P Value	Mean Score $\pm$ Standard Deviation	P Value
Gender*	Male	5.35 $\pm$ 1.94	0.033	19.88 $\pm$ 2.62	<0.000
	Female	4.67 $\pm$ 2.31		19.86 $\pm$ 2.83	
	20-29 years	4.5 $\pm$ 2.27		20.17 $\pm$ 2.87	
Age#	30-39 years	5.88 $\pm$ 1.31	0.0206	19.30 $\pm$ 2.43	<0.000
	40-49 years	6.00 $\pm$ 1.41		21.00 $\pm$ 0.81	
	50-59 years	5.33 $\pm$ 1.07		20.06 $\pm$ 2.14	
	60-69 years	3.05 $\pm$ 0.50		16.50 $\pm$ 0.50	
	Less than basic	4.92 $\pm$ 1.93		19.12 $\pm$ 2.14	
Educational status#	Basic	5.33 $\pm$ 1.65	0.223	19.37 $\pm$ 2.27	0.103
	Intermediate	5.93 $\pm$ 1.98		21.80 $\pm$ 1.81	
	Advanced	6.12 $\pm$ 1.23		20.96 $\pm$ 2.29	
	Students	4.9 $\pm$ 2.24		20.25 $\pm$ 2.49	
Occupational Status	Employed	5.02 $\pm$ 1.95	0.746	19.81 $\pm$ 2.70	0.24433
	Unemployed	5.57 $\pm$ 1.90		20.28 $\pm$ 3.72	
Presence of chronic diseases	Population with chronic diseases	4.93 $\pm$ 2.16	0.402	19.56 $\pm$ 2.91	0.316
	Population without chronic diseases	5.07 $\pm$ 1.94		19.91 $\pm$ 2.69	
Health Insurance	Active	4.55 $\pm$ 2.01	0.117	19.83 $\pm$ 2.61	0.436
	Inactive	5.08 $\pm$ 2.00		19.92 $\pm$ 2.93	

Analysis performed - *independent t test, one way ANOVA#

3. DISCUSSION

The demographic composition and health profile of the study participants offer valuable insights into the patterns of OTC medication use and attitudes among young women. The predominant representation of young woman in the sample aligns with existing literature emphasising the importance of understanding the gender specific health behaviours and needs [12]. Notably, the majority falling within the 20-29 age range suggests a focus on a critical transitional period marked by emerging adulthood, where individuals often experience unique health challenges and decision-making regarding self-care practices [13].

The findings regarding knowledge scores among the study population reflect a moderate level of understanding of OTC medication. While over half demonstrated good knowledge, a substantial proportion exhibited only moderate or poor knowledge, indicating potential gaps in awareness and understanding of safe and appropriate medication use [14]. These findings underscore the importance of targeted health education initiatives aimed at improving health literacy, particularly among young women, who represent a significant proportion of OTC users [15].

The positive attitudes towards OTC drug use observed in the study population are consistent with previous research highlighting convenience and perceived safety as key drivers of self-medication behaviour.[16] However, notable knowledge gaps were evident regarding the intended use and limitations of OTC medications, suggesting a disconnect between attitudes and actual understanding of safe medication practices [17]. This emphasises the need for comprehensive education efforts to promote responsible self-medication practices and mitigate potential risks associated with inappropriate OTC use.

The statistically significant associations between knowledge and attitude scores towards OTC drugs and certain demographic characteristics, particularly gender and age group, highlight the importance of considering socio-demographic factors in designing targeted health interventions [18]. Interestingly, no significant associations were observed with educational status, occupational status, presence of chronic diseases, or health insurance status, suggesting that knowledge and attitudes towards OTC medication may be influenced more strongly by gender and age-related factors [19].

The high prevalence of self-medication with OTCs among study participants underscores the need for healthcare providers to engage in proactive patient education and counselling regarding safe and appropriate medication use [20]. Furthermore, policymakers should consider implementing targeted health promotion campaigns aimed at improving knowledge and attitudes towards OTC medication, particularly among young women, who represent a vulnerable population in terms of self-care practices [21].

Overall this study contributes valuable insights into the demographics, knowledge, attitudes, and practices regarding OTC medication use among young women. The findings underscore the importance of addressing knowledge gaps and promoting responsible self-medication behaviours through targeted education and healthcare initiatives.

4. LIMITATIONS OF THE STUDY

The sample was predominantly young women, limiting the generalizability to other demographics. The high educational attainment of participants may have skewed knowledge scores and attitudes towards OTC medications. Self-reported data from the online survey could introduce response bias, and the cross-sectional design only provides a snapshot in time. Additionally, potential confounding factors such as healthcare access and cultural differences were not considered. Future research should aim for a more diverse sample and include longitudinal and qualitative methods for a comprehensive understanding.

5. CONCLUSION

In conclusion, this study provides valuable insights into the demographics, knowledge, attitudes, and practices regarding over-the-counter (OTC) medication use among young women. The predominance of young women in the sample, coupled with varying levels of knowledge and attitudes towards OTC drugs, highlights the importance of targeted health education initiatives aimed at improving health literacy and promoting responsible self-medication behaviours. The statistically significant associations between demographic characteristics and knowledge/attitude scores emphasise the need for tailored interventions that consider socio-demographic factors such as gender and age. Furthermore, the high prevalence of self-medication with OTCs underscores the importance of proactive patient education and counselling by healthcare providers to mitigate potential risks associated with inappropriate medication use. Overall, this

study underscores the importance of addressing knowledge gaps and promoting safe OTC medication practices through collaborative efforts between healthcare professionals, policymakers, and educational institutions.

6. MATERIALS AND METHODS

This study followed a cross-sectional design and was done for a period of 6 months from December 2022 to May 2023 among the general population of UAE. The study recruited participants from the general population aged 18-65 years old, excluding individuals unwilling to participate, unable to read and write English, or lacking proficiency in using electronic devices. Study used a validated self-administered questionnaire[11] to collect the study specific data. Institutional Review Board approval for the study and the informed consent form was obtained (Ref No: IRB/COP/STD/40/Nov-2022) prior to start of the study. Eligible participants were enrolled after the informed consent. The data collection process was conducted using an online survey distributed through various digital platforms, including email, Facebook, WhatsApp, and Instagram. This approach was chosen to ensure broad and efficient reach to a diverse and extensive population. Utilizing these platforms allowed for convenient and timely responses, leveraging the widespread use of social media and digital communication tools. This method also facilitated the collection of data from a geographically dispersed sample, enhancing the generalizability of the study findings.

The survey link was shared initially through social media, and from then recipients were asked to share the link with family members, friends and their acquaintances, hence following the snowball sampling approach. Sample size was calculated based on the results of a similar study [4], with a confidence interval of 95%, 5% margin of error and a 50% population proportion. The calculated sample size for the study is 188. The collected data was extracted to Microsoft excel file and the analysis was performed using Statistical Package for the Social Sciences (SPSS) software. The data collected was summarised using descriptive statistics for the frequencies, percentages, medians, means and standard deviation. Independent T tests and One way ANOVA was used to analyse the association between variables of knowledge, attitude, and socio-demographic characteristics. A P value of <0.05 was considered statistically significant.

Questionnaire Structure and Assessment Methodology

The questionnaire was divided into two sections. The first section is to collect the socio-demographic details of the study participants including gender, age, occupation, highest degree, or level of education completed, availability of health insurance and presence of chronic illness. The second session to assess the KAP of the study participants on OTC drug use had 23 questions (9 questions assessing knowledge, 5 questions assessing attitude and 9 questions assessing practice). The sections on knowledge and practice consisted of basic statements and general questions, while the five -point Likert scale of agreement was used in the attitude section. For the knowledge section, correct responses were scored as one mark, while incorrect responses and 'I do not know' were scored as zero. The total knowledge scores ranged from zero to nine, which were then categorised into 'Good' ($\geq$ correct answers), 'Moderate' (4 to 6 correct answers) and 'poor' (<4 correct answers). For the attitude section a score of 1 was given to strongly agree, 2 to agree, 3 to neither agree nor disagree, 4 to disagree and 5 to strongly disagree. The positive and negative attitude depends on the total attitude score, with 20 and above considered a positive attitude.

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