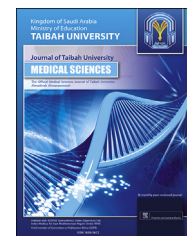




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Original Article

General public knowledge and practices about the common cold



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المخلص

أهداف البحث: تهدف هذه الدراسة إلى تقييم المعرفة والممارسة لأفراد المجتمع تجاه نزلات البرد في الطائف، المملكة العربية السعودية.

طرق البحث: تم تطوير وتوزيع استبانة على ١٧٠٠ مشارك باستخدام طريقة التوزيع الملائمة غير الاحتمالية. وتم تعبئة ١٤٨٧ استبانة صالحة للاستخدام. ثم جمعت البيانات وحللت باستخدام برنامج الحزمة الإحصائية للعلوم الاجتماعية.

النتائج: أظهر غالبية المشاركين في الاستطلاع قلة المعرفة حول نزلات البرد ويعتقد ٤٠٪ منهم أنه لا يوجد فرق بين نزلات البرد والانفلونزا، كما يعتقد ٦٦٪ من المشاركين أن المضادات الحيوية تعالج نزلات البرد. يعتقد ٢٤٪ من المشاركين أن السعال والاتصال المباشر مع المصابين يسهم في نشر المرض. ويتخذ جزءا بسيطا جدا من المشاركين الإجراءات الاحتياطية لمنع انتشار المرض عند الإصابة أو عند مقابلة أشخاص مصابين بنزلة البرد.

الاستنتاجات: دلت النتائج أن أفراد المجتمع بالطائف يفتقرون إلى المعلومات الصحيحة تجاه نزلات البرد، وطرق التعامل معها، ويمكن ملاحظة ذلك من خلال ممارساتهم الخاطئة تجاه التعامل مع نزلات البرد. وينبغي لواضعي سياسة الرعاية الصحية النظر في هذه النتائج بعين الاعتبار لوضع خطط لتحسين المعرفة العامة والممارسة الصحيحة لأفراد المجتمع تجاه نزلات البرد.

الكلمات المفتاحية: المعرفة العامة؛ الممارسة العامة؛ نزلات البرد؛ المضادات الحيوية؛ سياسة الرعاية الصحية

Abstract

Objectives: This study aimed to evaluate the knowledge and practices of the general public about the common cold in Taif, KSA.

Methods: A pre-validated questionnaire was developed and administered to 1700 respondents using a non-probability convenience sampling technique. A total of 1487 completed and valid questionnaires were successfully obtained. All data were analysed using IBM SPSS version 22.0 at an alpha value of 0.05.

Results: The majority of respondents demonstrated poor knowledge about the common cold. Forty percent of respondents believed that there was no difference between the common cold and the flu. Sixty-six percent of participants believed that antibiotics would cure the common cold. Only 24% believed that coughing and direct contact with patients suffering from the common cold would spread this illness. A small number of participants, after catching the common cold, took precautionary measures such as avoiding contact with other people.

Conclusion: It can be concluded that the general public has poor knowledge about the common cold, which is reflected in their routine practices towards illness management. Healthcare policy makers should consider these findings in developing plans for improving public knowledge and practices.

Keywords: Antibiotics; Common cold; Healthcare policy; Public knowledge; Public practices

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Introduction

The common cold is mostly a self-limited illness confined to the upper respiratory tract.^{1,2} This mild upper respiratory tract infection is usually caused by several viruses that belong to different families.^{3–5} The most common viruses are rhinoviruses. The most common symptoms of the common cold are sore throat, acute cough,^{6,7} sneezing, nasal stuffiness and discharge, and nasal congestion.⁸

The incubation period of the common cold ranges from 24 to 72 h, whereas the average duration of illness is one week. The common cold can easily be transmitted through inhaling infected droplets hanging in the air and released when an infected patient coughs or sneezes. Transmission can also occur through direct contact with an infected person.^{1,9}

The common cold causes a great economic burden on society in different ways, such as through the costs incurred due to frequent visits to healthcare providers and the costs of medications and medical supplements.⁸ In addition, absence from work and school contributes greatly to the economic burden on society. Even if patients are not absent from work due to the common cold, the quality and efficiency of their output will be affected.

A lack of knowledge and malpractice towards the diagnosis and management of the common cold increases the economic burden and reduces patients' quality of life.⁸

Many studies have shown that patients usually self-treat their illness with over-the-counter (OTC) or prescribed medicines.^{10–12} Patients' lack of knowledge about the aetiology of the illness leads either to using the wrong medications or pressuring medical professionals to prescribe them unnecessary medications.¹³ This can be easily seen in the use of antibiotics for common cold treatment, which indicates that the majority of patients believe that the common cold is caused by bacteria.¹³ Another major segment of society believes that antibiotics are effective against both viruses and bacteria.¹² This leads to economic wastage by using unnecessary medications in addition to an increased risk of developing antibacterial resistance.

The relatively cool year-round climate of the city of Taif and its proximity to the city of Makkah make it attractive to visitors and thus a natural place for a frequent and large number of patients infected with the common cold. Therefore, this study was designed to measure the knowledge, attitudes and practices of the general public in Taif regarding the common cold. The results of this study will be helpful for decision makers in the Saudi Ministry of Health to design programs and make interventions to minimize the inappropriate management and irrational use of medicines among the general public in Taif for the treatment of the common cold.

Materials and Methods

Study design

A cross-sectional research design using a non-probability convenience sampling technique was used in this study.

Data collection tool: the questionnaire

The questionnaire was developed after a comprehensive literature search in well-known databases. A first draft was developed and validated by an expert team of researchers from the clinical pharmacy department of Taif University. The final draft of the questionnaire was then translated into Arabic and verified by the same researchers. The final draft of the Arabic version was piloted on 15 respondents to solicit their feedback on the questionnaire draft. The respondents raised some comments and suggestions that were considered in creating the final draft of the questionnaire.

The questionnaire was divided into three parts. The first part included the respondents' demographics, such as age, gender, and educational level. The second part included the respondents' general knowledge about the common cold, such as causes of the common cold, its management and methods of transmitting the common cold. The third section addressed the respondents' practices for managing the common cold. The questions addressed the steps that patients usually take to manage the common cold, the steps patients take if symptoms of the common cold continue for more than seven days, and how respondents respond upon interacting with those suffering from the common cold. Answers were designed to be either Yes/No or multiple choice. It is believed that close-ended questions are much easier for respondents to answer and lead to a higher response rate.

Data collection procedure

Researchers met with respondents in public areas in the city of Taif. They started by introducing themselves to the respondents and then informed them that no findings that could be used to identify them would be published and that all information would be kept confidential. Researchers gave the questionnaire to those who agreed to participate in the study. The questionnaire took no more than 10 min to complete.

Inclusion criteria

Members of the general public above the age of 16 and able to read and write in Arabic were included in this study.

Exclusion criteria

Any respondent who was under the age of 16, who was unable to read and write in Arabic, or who refused to participate in this study was excluded from this study.

Data collection areas

Data were collected from the general public in public areas such as shopping malls, restaurants and health centres.

Data analysis

Descriptive analyses such as frequencies, percentages and graphs were used to describe the findings of this study, whereas the Chi square test was used to compare the results with different demographic variables of the respondents such as age, marital status and education. A 95% significance level was used in data analysis, and any alpha value of less than 0.05% was considered significant. Data obtained from this

survey were coded, entered and then analysed using IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.

Results

A total of 1487 valid responses were successfully obtained. The majority of respondents were Saudi nationals (85.7%), male (63%), living in urban areas (92.3%) and in the age group 19–35 years old (80%). Full details of the respondents' demographics are shown in Table 1.

When the respondents were asked about the number of times a year that they catch the common cold, 50.4% responded that they get it 1–3 times a year, 28.4% responded 4–6 times a year, and 15.4% responded more than 6 times a year.

Seventy-five percent of respondents reported that they believed viruses were the main cause of the common cold, while more than one-third (36.5%) of respondents believed that bacteria can cause the common cold. Conversely, only 5.1% and 7.4% of respondents believed that worms and fungus, respectively, could cause the common cold. Age,

education and marital status showed significance too. A higher proportion of younger, married and university graduate respondents believed that the common cold is caused by viruses.

When respondents were asked about the duration of time that they usually wait before starting treatment after the appearance of common cold symptoms, approximately 43.8% said that they start immediately after the appearance of symptoms. Thirteen percent of respondents mentioned that they begin their treatment the day following the appearance of symptoms, while 13.8% reported that they usually wait three or more days before starting their treatment.

In terms of the source of medications that respondents usually rely on when beginning self-treatment of their common cold symptoms, 40.3% of respondents get them from leftover medicines at home, 16.1% from their friends and relatives, 45.3% from the pharmacy, and 40% from a clinic or hospital.

As shown in Table 2, almost 50% of respondents believed that the common cold would go away on its own. In addition, three-quarters of respondents believed that the common cold is contagious, whereas approximately 40% of respondents believed that the common cold and the flu are the same. Fifty percent of the respondents believed that garlic and chicken soup could cure the common cold. Furthermore, two-thirds of respondents believed that antibiotics could effectively treat the common cold. Respondents' age, education and residence area showed a significant influence.

Older, married and less-educated respondents showed significantly different responses in terms of their beliefs about whether the common cold would go away on its own, if the common cold and flu are the same, whether chicken soup and garlic could cure the common cold, and whether antibiotics could cure the common cold. A higher proportion of university graduate respondents believed that the common cold is contagious and that the general public must learn how to manage the common cold.

Table 3 shows respondents' awareness about the main causes of spreading the common cold. The majority of respondents showed a low level of knowledge regarding the causes of spreading the common cold. Only one-quarter of respondents believed that coughing could spread the common cold. In addition, a low proportion of respondents believed that direct contact with patients and sharing their

Table 1: General characteristics of the respondents.

Demographic characteristics		Frequencies (n)	Percentages (%)
Gender	Male	942	63.3
	Female	545	36.7
Age	<19	550	37.4
	19–35	617	42.0
	36–50	230	15.6
	>50	73	5.0
Nationality	Saudi	1267	85.7
	Non-Saudi	211	14.3
Education level	Primary education	53	3.6
	Intermediate education	197	13.4
	Secondary education	713	48.6
	Higher education	472	32.2
Marital status	No formal education	33	2.2
	Single	933	63.4
	Married	484	32.9
Residence location	Divorced	54	3.7
	Rural	114	7.7
	Urban	1369	92.3

Table 2: General public knowledge about the common cold.

	Yes n (%)	No n (%)	Don't know n (%)	Age	Marital	Education
The common cold will go away on its own	723 (49.4)	621 (42.4)	121 (8.3)	0.001	<0.001	<0.001
The common cold is contagious	1122 (76.4)	245 (16.7)	101 (6.9)	0.216	<0.001	<0.001
Do you believe that the cold and flu are the same?	606 (41.4)	639 (43.7)	218 (14.9)	<0.001	<0.001	<0.001
Does chicken soup cure colds?	765 (52.2)	314 (21.4)	387 (26.4)	<0.001	<0.001	<0.001
Does garlic cure colds?	689 (47.3)	338 (23.2)	429 (23.5)	<0.001	<0.001	<0.001
Do you believe that people should go to the doctor when they have the common cold?	749 (51.5)	641 (44.1)	65 (4.5)	0.112	0.360	<0.001
Do you believe that more people should know how to treat the common cold by themselves?	1071 (73.5)	270 (18.5)	116 (8)	0.447	0.004	<0.001
Do you think that the common cold could lead to death?	344 (23.6)	769 (52.7)	347 (23.8)	<0.001	<0.001	<0.001
Can antibiotics cure the common cold?	691 (65.8)	238 (16.3)	262 (17.9)	<0.001	<0.001	<0.001

Table 3: Public knowledge about spreading the common cold.

	Yes n (%)	No n (%)
What causes the common cold to spread? (You may chose more than one answer)		
Sneezing	925 (63)	544 (37)
Coughing	357 (24.3)	1110 (75.6)
Direct contact with patient	596 (40.6)	871 (59.3)
Dust	427 (29.1)	1041 (70.9)
Sharing patients' belongings	468 (31.9)	1001 (68.1)
Low level of cleanness	431 (29.3)	1038 (70.7)
Other	92 (6.3)	1377 (93.7)

belongings could spread the cold (40% and 31%, respectively).

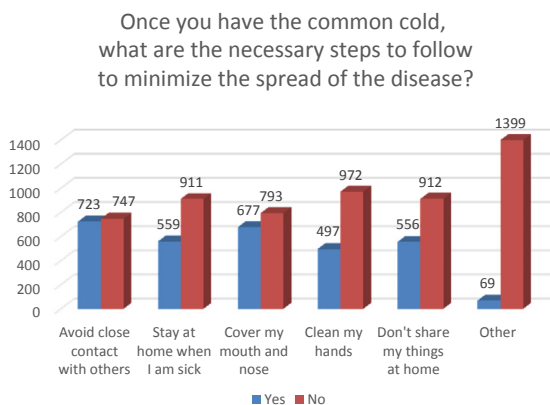
Sinusitis, headache, sore throat and fever were believed to be the main side effects of the common cold (62%, 45%, 38% and 43%, respectively, as seen in Table 4).

Figure 1 shows the precautions that respondents undertake once they have the common cold. Respondents reported taking a low level of precautions. Just under half of respondents avoid direct contact with others, while only one-third of respondents wash their hands and avoid sharing their belongings with others.

Table 5 shows respondents' responses once they have the common cold. About one-quarter of respondents rest at home, take antibiotics, drink chicken soup and go to a clinic

Table 4: Public knowledge about common cold side effects.

	Yes n (%)	No n (%)
18. What do you think are the side effects of the common cold? (You may choose more than one answer)		
Sinusitis	917 (62.5)	550 (37.5)
Otitis media	393 (26.8)	1075 (73.2)
Headache	661 (45)	806 (54.9)
Vomiting	99 (6.7)	1367 (93.2)
Sore throat	558 (38)	908 (61.9)
Diarrhoea	135 (9.2)	1333 (90.8)
Fever	639 (43.5)	827 (56.3)
Other	50 (3.4)	1418 (96.6)

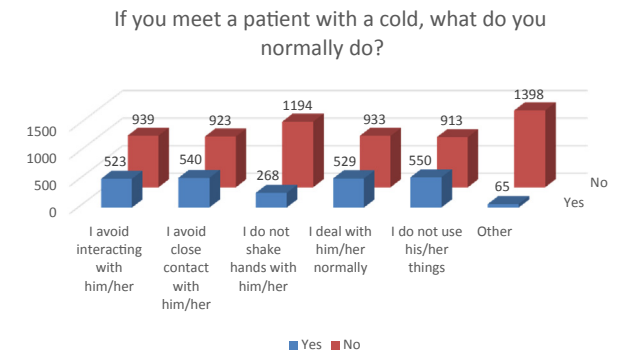
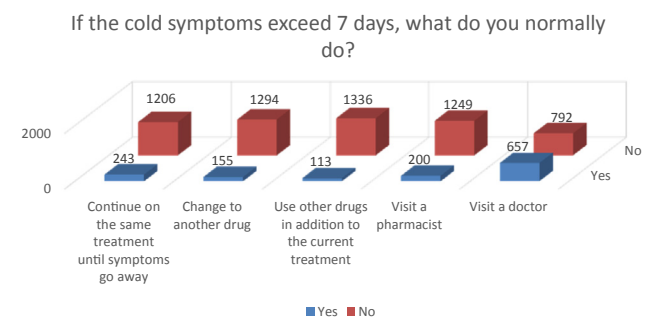
**Figure 1:** Steps followed by respondents to minimize the spread of the common cold.**Table 5: General public practices after catching the common cold.**

	Yes n (%)	No n (%)
Once you have a cold, what do you normally do to recover from the disease? (You may choose more than one answer)		
Drink plenty of water	539 (36.8)	921 (62.9)
Rest at home	339 (23.1)	1126 (76.8)
Take vitamin C	676 (46.1)	790 (53.9)
Take herbal drugs	176 (12)	1289 (88)
Eat garlic	213 (14.5)	1252 (85.5)
Take antibiotics	404 (27.6)	1062 (72.4)
Drink chicken soup	351 (24)	1113 (76)
Get medication from the pharmacy	451 (30.8)	1015 (69.2)
Go to a clinic or hospital	387 (26.4)	1079 (73.6)
Take ginger	464 (31.7)	1000 (68.3)
Other	45 (3.1)	1421 (96.9)

or hospital. In addition, approximately 37% of respondents drink plenty of water, and 41% take vitamin C.

Respondents showed a low level of awareness in dealing with patients with the common cold. Only approximately one-third of respondents stated that they avoid interacting with patients with the common cold, avoid close contact with them and do not use their belongings. In addition, only approximately one-fifth of respondents stated that they do not shake hands with those who have the common cold (see Figure 2).

The behaviour of respondents when their common cold symptoms exceed 7 days in duration is presented in Figure 3.

**Figure 2:** General public response when meeting a person with a cold.**Figure 3:** General public response when cold symptoms exceed 7 days.

Visiting doctors was the main action undertaken by our respondents (45%). Other respondents continued on the same medication, changed their drugs, used an additional drug or visited a pharmacist (17%, 11%, 8% and 14%, respectively).

Discussion

General public knowledge and practices about the common cold are an important issue. Incorrect knowledge could lead to mistreatment that could negatively affect the country's resources and patients' quality of life. Of the 1487 valid responses, more than 40% catch a cold more than four times a year. This indicates the approximate number of patients who catch a cold every year and the public and government resources spent annually to manage this illness. Studies conducted in London and Windsor yielded different results, finding that only 10% of their respondents catch a cold more than three times a year.¹⁴

Knowledge about the nature and the causative agents of the common cold is needed to manage the illness correctly. The public widely believes in the effectiveness of antibiotics to cure viral infections.¹² In addition, age, marriage and education showed significantly different responses in this study. Older, married and less-educated respondents believed that the common cold could be cured on its own, that the common cold and flu are the same and that chicken soup or garlic could effectively treat the common cold. Older and less-educated people rely mainly on the inherited practices from their families and are not frequently exposed to health-related information. This might be seen from their beliefs, such as using chicken soup and garlic to treat the common cold. Conversely, this belief and practice is less likely to be seen among younger and educated generations that rely mainly on conventional medicines. In this study, more than a third (36%) of respondents believed that bacteria are the causative agents for the common cold. Conversely, 66% of our respondents believed that antibiotics could cure the common cold. Furthermore, 28% of our respondents actually take antibiotics when they catch a cold. Other studies in the UK have shown that only 13% of their respondents believed that the cold and flu are the same. In addition, 53% of their respondents believed that bacteria primarily cause colds. Forty-four percent of them believed that antibiotics can cure a cold.¹⁴ Another study of home interviews for 453 primarily Hispanic households in north Manhattan found that 88% of them agreed that bacteria cause the cold and flu. Moreover, 90% of them said that antibiotics could treat the cold and flu. Only 30% of them believed that the cold and flu are limited illnesses and can be cured without treatment.¹⁵ Findings from a New Zealand study show similar findings: 38% of their respondents believed that antibiotics could treat viral infections, and almost 50% asked doctors to prescribe them antibiotics.¹⁰

Another study by Faber et al. in Germany found that a majority of people were aware that antibiotics were not needed to treat the common cold, and only 25% stated that antibiotics are effective against viruses.¹⁶ However, in many cases antibiotics are prescribed for viral infections, even though prescribers are aware that antibiotics are not effective against viral infections, sometimes due to the

pressure they feel from patients to assign them antibiotics.^{16–18} Conversely, vitamin C, which is believed to reduce symptoms and severity of the common cold, was used by 41% of our respondents.¹⁹

The general public tends to self-treat their cold illness using a wide range of over-the-counter medicines before visiting physicians.^{20,21} Less than 30% of our respondents sought pharmacist or physician help once they caught a cold. A study conducted in the Midwest found that 50% of their patients seek medical care once catching a cold, whereas 50% rely on self-care for managing the illness.²² Seeking physician help takes time and resources for both patients and physicians. Therefore, a public campaign by the Ontario Ministry of Health for cold and flu self-care was held in London to reduce the number of physician visits. This campaign showed little reduction in the number of physician visits for cold cases.²³ In some instances, patients might wait a week before seeking help from physicians after trying to solve their illnesses on their own.²⁴ This could be due to the frustration felt by many patients about their illness or worries about developing cold complications.²⁴

Other campaigns led to significant improvements. A student peer-taught educational campaign was conducted in 21 schools in Chisinau, Moldova, between 2003 and 2004. This campaign aimed to reduce the use of antibiotics for the cold and flu. The results showed a significant reduction in using antibiotics to treat the cold and flu.¹³

Respondents' knowledge about the causes of spreading the common cold might be influenced strongly by their practices and educational level. Higher proportions of educated respondents believed that the cold is contagious and that the public needs to be educated about how to treat the common cold. In this study, 63% of our respondents believed that sneezing can spread the cold, though fewer indicated that coughing, direct contact with infected patients and sharing belongings with the sick could spread the cold (only 24%, 41% and 32%, respectively). This was reflected in their practices: once they have a cold, 49% avoided direct contact with others, 38% stayed at home, 34% washed their hands, and 38% did not share their belongings with others. Furthermore, if they encountered others with a cold, only 36% avoided interacting with them, 37% avoided direct contact, and 38% shared their belongings with them. Another study among primarily Hispanic households in northern Manhattan reported that 52% of their respondents believed that avoiding direct contact with infected patients reduced the spread of the illness.¹⁵

The general public in Taif had a low level of knowledge regarding the common cold and its causes, treatment and effective management. Given the high frequency with which people catch a cold in Taif, it is believed that decision makers should plan campaigns and awareness programs to improve general public knowledge and practices regarding the common cold. In the long run, this will improve quality of life and save the country's resources.

Study limitations

Two main limitations were encountered in this study: first, using a non-probability convenience sampling technique in the data collection and, second, the scope of the study. Although an adequate sample size was obtained, the data

only represent respondents who reside in Taif, so the findings of this study cannot be generalized to the whole population of the KSA.

Conclusion

The general public in Taif showed a low level of knowledge about the common cold, which was reflected in their management of this illness. Incorrect beliefs about the effectiveness of antibiotics against viral infections led a large number of our respondents to use antibiotics for the common cold. It has been seen that a large proportion of our respondents interact without precautions when they or others have the common cold. Decision makers in the Saudi Ministry of Health must consider this issue seriously and should launch public educational and awareness campaigns. They should focus on educating the public about the common cold in terms of its causes, symptoms, precautionary measures and management. Because this study was conducted only in Taif, the results cannot be generalized to the whole population in the KSA. Therefore, it is highly recommended to launch a study covering all states in the KSA to obtain an overview for the whole population of the Kingdom.

Conflict of interest

The authors have no conflicts of interest to declare.

Authors' contributions

MSH was involved in research planning, research design, data analysis and writing the manuscript. QMA was involved in research planning, research design and writing the manuscript. AHH and AJT were involved in research planning, data collection and analysis. SMS was involved in research planning and data analysis.

Ethical approval

This research was approved by the research committee of the College of Pharmacy at Taif University. Because this was a survey study based on questionnaires and no private data were to be obtained, the committee decided to proceed with the research without applying to the ethical committee.

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