Original Article

Knowledge and Attitude of secondary school students in Sudair area, Saudi Arabia about Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

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Abstract

Background: With increase prevalence of Middle East Respiratory Syndrome (MERS), Saudi population is at risk of being infected with the condition. The objectives of this study were to determine the knowledge and evaluate the attitude of secondary school male students in Sudair area, KSA about MERS-CoV

Methods: In this cross-sectional study, whole students were selected in all three schools, 386 secondary school male students in Sudair area, KSA were selected. A semi-structured questionnaire was `utilized to collect the data. The sample size was calculated as 386 and Statistical Package for Social Sciences (SPSS) was used for data analysis after obtaining the ethical approval.

الملخص

خلفية: مع زيادة انتشار متلازمة الشرق الأوسط التنفسية، فإن السكان السعوديون معرضون لخطر الإصابة بالعدوى. أهداف هذه الدراسة هي تحديد المعرفة وتقييم سلوك طلاب المرحلة الثانوية من الذكور في منطقة سدير بالمملكة العربية السعودية حول متلازمة الشرق الأوسط التنفسية

طريقة البحث: في هذه الدراسة المقطعية، تم اختيار ٣٨٦ طالبا من طلاب المرحلة الثانوية في منطقة سدير بالمملكة العربية السعودية. استخدم استبيان شبه منظم لجمع البيانات. تم استخدام الحزمة الإحصائية للعلوم الاجتماعية (SPSS) لتحليل البيانات بعد الحصول على الموافقة الأخلاقية من الطلاب

النتائج: أظهرت الدراسة أن مستوى معرفة فيروس كورونا المسبب لمتلازمة الشرق الأوسط التنفسية بين الطلاب الذكور في المدارس الثانوية في منطقة سدير هو (42٪) وأن (71٪) من الطلاب لديهم سلوك إيجابي تجاه فيروس كورونا المسبب لمتلازمة الشرق الأوسط التنفسية. وجدت الدراسة أن لدى ثلاثين (81.1٪) من الطلاب الذين

Results: The study showed that the level of knowledge of MERS-CoV among male students at secondary schools in the Sudair area was (42%) and 71% of the sample had positive attitude towards MERS-CoV. Thirty (81.1%) of students who had illiterate mothers had adequate MERS-CoV knowledge. Adequate MERS-CoV knowledge was found in 47 (65.3%) of students whose mothers had primary school education and147 (53.1%) for students whose mothers had above primary school education.

Conclusion: The study concluded that the secondary school students' knowledge of MERS-CoV in Sudair area, Saudi Arabia is inadequate. However, most of the students have positive attitude towards the disease. The students' MERS-CoV knowledge is significantly associated with mothers' education.

Keywords: MERS-CoV; knowledge, attitude, secondary school male students.

لديهم أمهات أميات معرفة كافية بفيروس كورونا المسبب لمتلازمة الشرق الأوسط التنفسية وأن47(65.3٪)من االطلاب الذين تحصلت أمهاتهم على التعليم الابتدائي لديهم معرفة كافية بالمتلازمة مقابل 147(.353%) من االطلاب الذين تحصلت أمهاتهم على التعليم فوق الابتدائي بالتتابع.

المستخلص: خلصت الدراسة إلى أن معرفة طلاب المدارس الثانوية بمتلازمة الشرق الأوسط التنفسية في منطقة سدير بالمملكة العربية السعودية غير كافية. ومع ذلك، فإن معظم الطلاب لديهم موقف إيجابي تجاه المرض. ترتبط معرفة الطلاب بمتلازمة الشرق الأوسط التنفسية بشكل كبير بتعليم الأمهات

Introduction

Middle East respiratory syndrome (MERS) is a viral respiratory disease caused by a novel corona virus (MERS-CoV) that was first identified in Saudi Arabia in 2012. The virus was detected later in United Arabs Emirates, Qatar, Oman, and Jordan[1].

MERS-CoV infection can appear asymptomatically or rapidly progresses to viral pneumonia with severe acute respiratory syndrome, septic shock and multi-organ failure about a week after onset of infection. Typically, the disease begins with fever and cough, chills, sore throat, myalgia and arthralgia, followed by dyspnea. At least one-third of the patients complain of vomiting and diarrhea, almost half suffer from pneumonia and about 10% develop an acute respiratory distress syndrome (ARDS) [2, 3]. The sudden appearance

and potential lethality of severe acute respiratory syndrome (SARS)-associated corona virus (SARS-CoV) in humans has resulted in a focusing of new attention on the determination of both its origins and evolution [4, 5]. Three genetically distinct lineages of MERS-CoV were observed and documented in Riyadh with 21 MERS-CoV genomes. It is believed that Riyadh infections were unlikely to result from single continuous human-to-human transmission chain [6]. The rates of MERS-CoV cases and deaths are higher in men than in women and those in the age groups of 45–59 and < 60 years had the highest case fatality rate[7].

Since March 2014, the frequency of MERS-CoV infection reported cases is increasing, with the majority of recent cases reported in Saudi Arabia and United Arab Emirates. In addition, the frequencies with which travel-associated MERS cases have been reported and the numbers of countries that have reported them to the World Health Organization (WHO) have also increased[8] A study about Knowledge and attitude of healthcare workers about Middle East respiratory syndrome was conducted in Qassim, Saudi Arabia, showed good knowledge and positive attitude towards the syndrome[9] Another study was conducted to determine the awareness level of dental students at Al-Farabi Colleges, Jeddah toward Middle East Respiratory Syndrome-corona virus showed that more than half of the dental students (54%) interviewed had good knowledge about MERS-CoV[10]. Another study was conducted in Jeddah, KSA among general population showed a good level of knowledge and level of attitude is reasonable[11].

The objectives of this study were to determine the knowledge and attitude of secondary school male students about MERS-CoV; to determine the relation between knowledge about MERS-CoV and the social characteristics as well as academic performance of the students

Subjects and methods

The design was cross-sectional study to determine knowledge and attitude of secondary school male students about Middle East Repertory Syndrome Corona virus (MERS-CoV).The study was conducted in Sudair area which includes HawtatSudair and Rawdat Sudair which are located in the central region

of Saudi Arabia. The villages which surround these cities were also included in the study.

The sample included 386 male secondary school students between the age of 15 and 19 years who enrolled in three different schools. The data were collected using a pre-tested questionnaire. The questionnaire contained questions about socio demographic factors, school year Level, academic performance and mother education. Knowledge of students about MERS-CoV (causative organism, transmission, reservoir, prevention, control and treatment) was assessed. Students have been assessed by answers of their knowledge about MERS-CoV in question sheet. Nine questions regarding knowledge were asked. The students who answered correctly five to nine questions were considered to have adequate knowledge while those who answered correctly less than five questions were considered to have inadequate knowledge.

Attitude of the students about MERS-CoV was also evaluated. Five questions were asked. The student who had three or more positive approaches towards MERS-CoV was considered to have a positive attitude: however if the student has one or two positive approaches towards the syndrome was considered to have a negative attitude.

The data was analyzed by SPSS version 22, applying Pearson's Chi Square to confirm association between variables. All the analyses were conducted at an alpha level of 0.05. The ethics committee of Basic Medical and Health Research Center (BMHRC) of Majmaah University gave the ethical approval of the study. Consents were obtained from all respondents.

Results

Table 1 shows the Social characteristics of the sample. For the age, there were 127(33%) younger than 17 years, 226(58.5%) aged 17-18 years, and 33(8.5%) older than 18 years of age. Regarding distribution of the students in the school, 158(40.9%) were from Almajel, 129(33.4%) were from Megren, and 99(25.6%) were from Rawdat Sudair. For the school year level, 152(39.4%) were in the 1st year, 131 (33.9%) in the 2nd year and 103 (26.7%) in the 3rd year. Regarding academic performance, excellent students were 160 (41.5%), very good were 131(33.9%), good were 65(16.8%) and poor were 30(7.8%). For the mother education, results showed that 72(18.7%) were primary school educated,

166(43.0%) were intermediate and secondary school educated and 111(28.8%) were university and above graduates. The illiterate mothers constituted 9.6% of the sample. Regarding father education, there were 68(17.6%) primary school educated, 151 (39.2%) were intermediate and secondary school educated, 141(36.5%) were university and above graduates. The illiterate fathers were 26 (6.7%. Regarding family income, 104(26.9%) had lower family income, 124 (32.1%) had moderate family income and 158(40.9%) had poor family income.

Figure 1 shows the level of knowledge of MERS-CoV among the participants. The level of knowledge is adequate in 42% of the participants .Figure 2 shows the level of students 'attitude towards MERS-CoV which was positive in 70.7% of the students.

Table 2 shows the relation between level of knowledge and mother education. 30 (81.9%) of students of illiterate mothers have adequate MERS-CoV knowledge, while 7(18.9%) is inadequate. Adequate MERS-CoV knowledge is adequate for 65.3% of students of primary school educated mothers, 53.1% of selected students have adequate knowledge of above primary education mothers, while 130 (46.0%) is inadequate. This table shows a significant relation between Students' level of knowledge and mother education (p=<0.001).

Table 3 shows the relation between level of knowledge and academic performance. 82 (51.3%) students who had excellent academic performance had adequate MERS-CoV knowledge. On the other hand students who had very good, good, and poor academic performance had 45.8%, 21.5% and 20% adequate MERS-CoV knowledge respectively. This table shows a significant relation between level of knowledge and academic performance p 0.001.

Table 4 shows the relation between students' attitude towards MERS-CoV and level of knowledge. 97(85.8%) of the students had poor attitude and poor knowledge while 16(14.2%) had poor attitude and good knowledge. On the other hand, 127 (46.5%) of the students had poor knowledge and good attitude while 146 (53.5%) had good attitude and good knowledge of MERS-CoV. This table shows a significant relation between students' attitude towards MERS-CoV and level of knowledge p 0.001.

Table (1) Social characteristics of the sample (n=386)

Social characteristics	No.	%
Age:		
Younger than 17	127	33.0
17-18	226	58.5
Older than 18	33	8.5
Residence:		
Hawtah Sudair	209	54.1
Rawdat Sudair	71	18.4
Others	106	27.5
School level:		
1st year	152	39.4
2nd year	131	33.9
3rd year	103	26.7
Academic performance:		
Excellent	160	41.5
Very good	131	33.9
Good	65	16.8
Poor	30	7.8
Mother education:		
Primary	72	18.7
Intermediate/secondary	166	43.0
University and above	111	28.8
Illiterate	37	9.6
Father education:		
Primary	68	17.6
Intermediate/secondary	151	39.2
University and above	141	36.5
Illiterate	26	6.7
Family income:		
less than 5000 SR	104	26.9
5000 - 10000 SR	124	32.1
more than 10000 SR	158	40.9

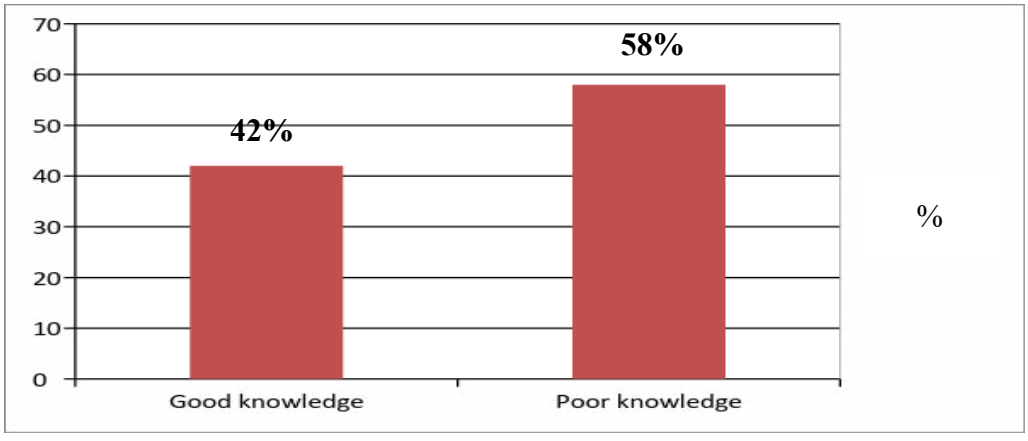


Fig (1) Level of knowledge of secondary students

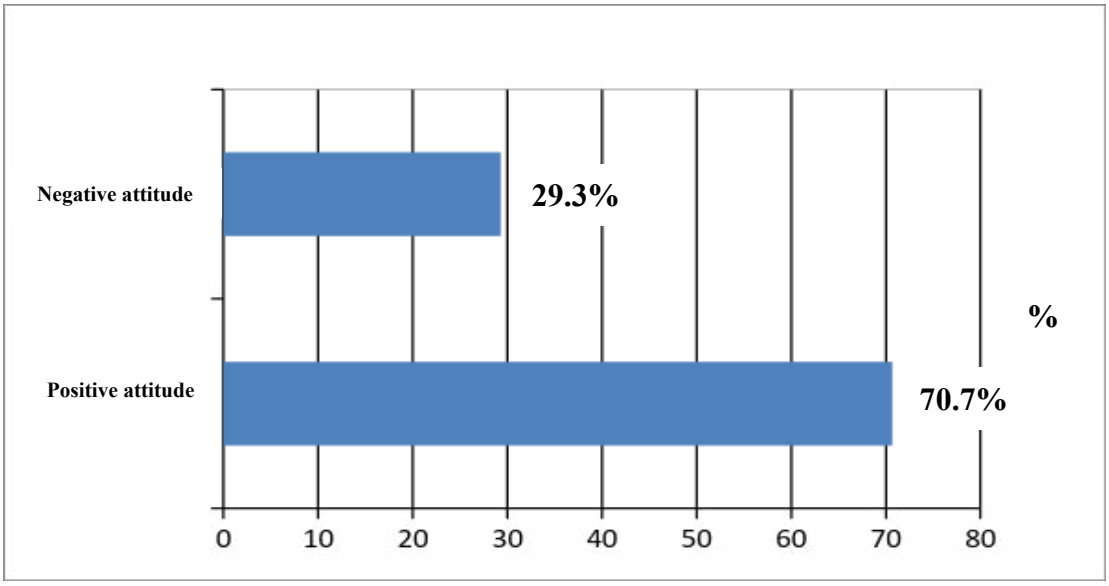


Fig (2) Attitude of the students towards MERS-CoV

Table (2) Relation between levels of Student' knowledge and mothers' education

Mother education	Level of knowledge		Total	P
	Adequate	Inadequate		
Illiterate	30 (81.1%)	7 (18.9%)	37 (9.6%)	<0.001
Primary education	47 (65.3%)	25 (34.7%)	72 (18.6%)	
Above primary education	147(53.1%)	130(46.9%)	277 (43.0%)	
Total	224 (58.0%)	162 (42.0%)	386 (100%)	

Table (3) Relation between level of knowledge and academic performance

Academic performance	Level of knowledge		Total	P
	Poor knowledge	Good knowledge		
Excellent (80% and above)	78 (48.8%)	82 (51.3%)	160 (100%)	<0.001
Very good (70%-79%)	71 (54.2%)	60 (45.8%)	131 (100%)	
Good (60%-69%)	51 (78.5%)	14 (21.5%)	65 (100%)	
Poor (Less than 60%)	24 (80%)	6 (20%)	30 (100%)	
Total	224 (58%)	162 (42%)	386 (100%)	

Table (4) Relation between attitude towards MERS-COV and level of knowledge

Level of attitude	Level of knowledge		Total	P
	Poor knowledge	Good knowledge		
Poor attitude	97(85.8%)	16(14.2%)	113(100.0%)	<0.001
Good attitude	127(46.5%)	146(53.5%)	273(100.0%)	
Total	224(58.0%)	162(42.0%)	386(100.0%)	

Discussion

This study was conducted in Sudair area, Saudi Arabia aiming at providing insight into knowledge and attitude of secondary school students about MERS-CoV. In general, our results showed the students had inadequate knowledge 58% but positive attitude 70.7 % towards MERS-CoV. Regarding knowledge, our results are consistent with a study conducted among female students at Qatar University. [12] Our findings are also consistent with a study conducted among medical students in the College of Medicine, King Saud Bin Abdul-Aziz University for Health Sciences in Riyadh, Saudi Arabia.[13]Our findings also agree with a study conducted among colleges of King Saud University students. This study also included secondary schools in Riyadh for comparison. In this study no significant difference was observed between university and secondary school students in Riyadh.[14] these findings agree with recently published study at Makah among healthcare providers which reported poor knowledge of MERS-CoV .[15] These findings may indicate the region is lack of awareness, published researches, and campaigns that increase awareness toward MERS-CoV.

Our findings regarding knowledge of MERS-CoV contradicts a study conducted in Qassim region that reported good knowledge of healthcare providers about the disease .[4]Our findings also disagree with a study conducted in Jeddah among dental students which showed good knowledge of MERS-CoV.[6] Studies conducted in Riyadh and different settings in Saudi Arabia among general public showed adequate knowledge and concern [16,17]. Health authorities in Sudair area and university of Majmaah should increase their effort to increase the awareness toward MERS-CoV.

For attitude regarding MERS-CoV, our

findings agree with a study conducted in Qassim.[3]On the other hand our findings of good attitude contradict a study conducted in Makah which is presented very high negative attitude towards the disease.[15] Attitude seems to be more important than knowledge, because attitude could prevent many diseases which are unnecessary to know them, by following the right preventive methods.

The study showed that the students' level of knowledge regarding MERS-CoV increases as the mothers' education increases; this finding showed a significant association (p=0.006).The results showed that there is a significant association between students' level of knowledge regarding MERS-CoV and mothers' education (p <0.001), the students' level of knowledge regarding MERS-CoV increases as the mothers' level of education increases. These findings may reflect the importance of educating parents in order to combat MERS-CoV. Our findings showed that the students who had poor knowledge had also poor attitude towards MERS-CoV and those who had good knowledge had positive attitude towards the disease. This association is significant (p<0.001).

The main source of knowledge of the students regarding MERS-CoV, according to our study, is the media. This finding is in agreement with other studies conducted in Saudi Arabia.[15,4] Other study showed that television and colleagues are the most important source[12,6]

Conclusion

The study concluded that the secondary students' knowledge of MERS-CoV in Sudair area, Saudi Arabia is inadequate. However, most of the students have positive attitude towards the disease. The students' MERS-CoV knowledge is significantly associated with parents' education. The students' attitude towards MERS-CoV is significantly associated with the disease knowledge. The main source of information regarding MERS-CoV is the media.

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