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Research Article

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A Study of Parent Health Literacy about Infectious Diseases, and their Impact on the Academic Performance of School-Age Children

Bishayr Hassan Aljaffar[1*], Naimah Abdullah Almarzooq[2], Nehad Nouh Almosa[3], Waad Salman Alenzy[4], Ghadeer Ahmed Alasseeri[5] and Maram Sultan alosaimi[6]

[1]*Alhasa healthcare cluster/ king Faisal general hospital, Saudi Arabia*

[2]*Umm Al-Sahek Health Center, Saudi Arabia*

[3]*Makkah healthcare cluster/ Alhindawiyah Primary Healthcare Centre, Saudi Arabia*

[4]*Tabuk healthcare cluster/ king Khaled hospital, Saudi Arabia*

[5]*Prince Sultan Military Medical City Riyadh, Saudi Arabia*

[6]*Prince Mansour Military hospital, Saudi Arabia*

[*]Corresponding author

Bishayr Hassan Aljaffar, Alhasa healthcare cluster/ king Faisal general hospital, Saudi Arabia.

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ABSTRACT

Background: Infectious diseases pose a serious threat to global health. It is particularly important to note that large-scale infectious diseases are often associated with epidemics that result in massive population declines as well as serious economic and social problems. School plays a crucial role in the efforts to foster health-conscious communities, considering a large portion of the population is involved in education. School environments are thus ideal for planning and implementing measures to promote a healthy lifestyle and raise awareness about infectious diseases.

Aim: The purpose of this study was to assess the perception of parents regarding infectious diseases and their impact on the health of primary school children.

Methods: The method of this study was a descriptive cross-sectional survey. The sample included (516) parents from primary schools in western, eastern, and central provinces of Saudi Arabia. A questionnaire was developed by researchers and independently validated by an expert.

Results: Results showed that parents' perception and knowledge of sore throats and tonsils was the highest.

Conclusion: It is crucial to address and mitigate the spread of infectious diseases among primary school children due to their pervasive nature. Infectious diseases and parental literacy have a significant impact on children's health and academic performance. Infectious diseases affected the attendance rate of school age children. A better understanding of health and competence of parents may lead to better outcomes for children.

Keywords: Infection, Infectious Diseases, General Health, Primary School Children

Introduction

Among the various infectious diseases that exist worldwide, tuberculosis (TB), influenza, and mumps are relatively prevalent. Numerous scholars studied the effects of health education on influenza, TB, and mumps on the improvement of knowledge on infectious diseases and changes in preventive behaviors among school students [1]. Investigated medical college students' awareness of influenza A (H1N1) before and after a health education program, and found that the primary method for getting medical students to accept specific and scientific information about preventing influenza A (H1N1) is through health education [2].

Since infectious diseases have historically been the primary cause of death and disability, they place a heavy burden on public health and the financial stability of societies. Additionally, they pose an increasing threat to human advancement and health security. Globally, it is estimated that infectious diseases cause the deaths of 57 million people annually [1].

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Studying infectious diseases among primary school children is of paramount significance for various reasons. Firstly, children within this age group often possess developing immune systems, making them more susceptible to various infections. By understanding these diseases, educators and healthcare professionals can detect symptoms early, provide timely treatment, and implement preventive measures to mitigate the impact on children's health [3].

Examining and researching infectious diseases within various demographics supports the execution of focused vaccination initiatives and the advocacy for appropriate hygiene habits [4]. Every infectious disease possesses distinct biological and environmental characteristics, impacting different geographical areas uniquely. Hence, each ailment demands tailored control and preventive measures. Nevertheless, there exist potent "universal approaches" to avert and alleviate infectious diseases overall, delivering substantial outcomes, particularly when these approaches incorporate human, environmental, animal, and pathogenic elements in an interconnected manner from a comprehensive One Health standpoint [5].

Study problem

Children, by nature, interact closely with peers, teachers, and family members, making them potential carriers of infections [6]. Analyzing and studying infectious diseases among these demographics aids in implementing targeted vaccination programs, promoting proper hygiene practices, and educating both children and their families about preventive measures [4]. This, in turn, reduces the spread of diseases not only within schools but also within the broader community.

Infectious diseases can significantly disrupt a child's education due to illness-related absenteeism. Schools play a central role in the transmission of infections. Therefore, understanding and managing these diseases within the school environment can help maintain a healthier atmosphere, reducing the instances of outbreaks and subsequent closures, and ensuring educational continuity for children. To protect the health and well-being of children, it is important to prevent infectious diseases such as diarrhea, pneumonia, and other communicable diseases [7].

Lastly, studying infectious diseases among primary school children facilitates ongoing research and development [8]. Insights gained from studying these diseases in children often lead to advancements in treatments, the development of new vaccines, and the formulation of more effective healthcare strategies, benefiting not only the children themselves but also the wider population susceptible to similar infections [9].

Common infectious diseases affecting primary school children

Several infectious diseases can affect primary school children due to their developing immune systems and proximity to others. Some common infectious diseases among this age group include [10]. Respiratory Infections, Gastrointestinal Infections, Skin Infections, Hand, Foot, and Mouth Disease (HFMD), Head Lice: Though not an illness, head lice infestations are common in primary schools. They spread through close head-to-head contact and cause itching and discomfort.

The impact of infectious diseases

The impact of infectious diseases on the health, academic performance, and attendance of children, particularly those in primary school, can be significant and multifaceted, health impact, academic performance effect, attendance problem, and psychological impact [11,12].

This study assessed parents' knowledge and attitude towards infectious diseases in school-age children. Also, the study assessed parents' perceptions about the most common infectious diseases and its causes among primary school children.

Methods and procedures

Study Design

A descriptive cross-sectional survey method was used.

Study Population

The study population consisted of all parents of the primary schools in KSA in western, eastern, and Central provinces of Al-Riyadh Governorate for the first academic year of the year 1445/1446 AH.

Study Sample and Sampling

The researchers conducted their study on the entire study population. The process of selecting study samples was nonprobability sampling which entails; convenience and snowball types. The number of questionnaires that were retrieved, completed, and ready for analysis was (516).

Study Tool

Researchers developed a questionnaire that was independently validated by an expert. Prior to administering the questionnaire to the study participants, the questionnaire was pretested among parents who weren't included in the final study participants. There were four sections in the study questionnaire: 1) demographic variables including age, number of children, and gender; 2) a knowledge section with seven questions about infectious diseases; 3) five questions about infectious diseases and their causes; and 4) five questions about parents' perceptions about the impact of diseases on children's general health and academic performance.

A questionnaire including the research objectives. A web-based questionnaire for the survey given to teachers to send it to parents.

Statistical Methods

The data were collected using self-administered questionnaires. Several statistical methods have been used such as percentage, means, and standard deviation. The collected data were encoded in MS Excel before being analyzed using Epi Info® version 7. Demographic data were analyzed using descriptive statistics utilizing the SPSS program V. 22.

Ethical Considerations

Obtaining informed consent from parents' participants was done. Ensuring confidentiality and anonymity of collected data. Adhering to ethical guidelines and obtaining necessary approvals. During the study, parents voluntarily participated and were assured of their anonymity.

Results

The study evaluated the knowledge and attitude of parents towards infectious diseases among school-aged children. Furthermore, the study examined parents' perceptions about the most common infectious diseases among primary school children and their causes. There were 516 parents participating in the study. Table (1) shows that 91.9% of participants were female. In relation to age, the total population under 30 years of age comprises 77 individuals, which makes up 15.0% of the sample. There are 217 individuals aged 41 to 50, representing 42.1% of the total population surveyed. Nearly half the participants, 243 (47.1%), had two children, while nearly one quarter, 127 (24.6%), had only one.

Table 1: Demographic Characteristics of Study Samples

	Frequencies (516)	Percentages %
Gender		
Male	42	8.1
Female	474	91.9
Total	516	100.0
Age		
less than 30 years old	77	15.0
from 30 to 40	207	39.9
from 41 to 50	217	42.1
more than 50	15	2.9
Number of Children		
One child	127	24.6%
Two children	243	47.1%
Three children	80	15.6%
Four children	32	6.2%
Five children and more	34	6.5
Children with chronic conditions or disabilities		
Yes	33	6.4%
No	483	93.6%

Figure (1) illustrates the educational level of the study sample. The majority of respondents had bachelor degrees (310), diplomas (140), master's degrees (55) and PhD (11).

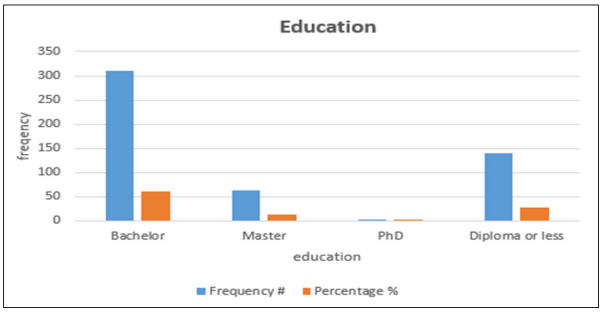

Figure 1: Education

The results of the Knowledge and Awareness of Infectious Diseases include 7 items. According to this table, the total mean score for health literacy about infectious diseases is (3.8/5) and the standard deviation is (81.9). In this table, paragraph "Sore throat and tonsils: Children may have a sore throat or tonsils as a result of bacterial or viral infections, which may affect their ability to concentrate." ranked first with a mean (4.19/5) and standard deviation (90.2). With a mean (3.92) and standard deviation (75.4), the paragraph "I understand infectious diseases in children" was ranked second. With a mean score of 3.66 and a standard deviation of 77.9, the paragraph "Vaccination strategies and herd immunity are important to control infectious disease spread". "I know how individuals can reduce the risk of spreading these diseases in the community" ranked last with a mean (3.62) and standard deviation (87.0).

Table 2: Parents Health Literacy in the study sample about Infectious Diseases

Number	Items	Means	Standard deviations
1.	I constantly receive information or education about preventing the spread of infectious diseases at school	3.97	90.2
2.	I know about common infectious diseases that affect children	3.92	75.4
3.	I Understand the basic modes of transmission of infectious diseases	3.85	0.88
4.	I have knowledge that contributes to enhancing public awareness of the symptoms and signs of infectious diseases	3.78	0.63
5.	I know about how understanding the epidemiology of infectious diseases contributes to effective prevention and control strategies	3.71	0.76
6.	It is important to have a comprehensive understanding of vaccination strategies and the concept of herd immunity in controlling the spread of infectious diseases	3.66	77.9
7.	I know how individuals can reduce the risk of spreading these diseases in the community	3.62	87.0
	Mean Knowledge Score	3.80	81.9

This table illustrates parents' health literacy and knowledge about the causes and outcomes of disease among school-aged children. The table indicates that children may experience sore throats and tonsils due to bacterial or viral infections, as the most common infection with mean score (4.19). It was followed by infection with colds and influenza with a mean score of 4.08. Parents reported head lice and skin diseases as the last prevalence.

Table 3: Parents Health Literacy and Knowledge about Causes and Outcomes of Disease among Primary School Children

Items	Mean	Standard Deviations
Children can suffer from sore throat and tonsils resulting from a bacterial or viral infection, and this may affect their ability to concentrate in class	4.19	83.8
Infection with colds and influenza	4.08	83.5
Diarrhea and intestinal diseases: such as bacterial or viral infections that cause diarrhea and vomiting, and spread quickly, especially in the school environment	4.02	83.3
Head lice: It is a parasite that lives on the scalp and spreads easily among school children.	3.89	83.0
Skin diseases: such as inflamed skin, sores, and rashes resulting from infection with certain fungi or germs	3.83	82.7
Total	3.91	82.3

The most important concept for parents was that infectious diseases can cause symptoms such as fatigue, fever, and discomfort, affecting the child's concentration during school hours with mean score (4.08). Parental awareness of infectious diseases also included the fact that recurring or chronic illnesses may lead to missed school days, causing gaps in learning and hindering academic achievement (3.99). From parents' perspective, when children suffer from diseases, their academic growth is also affected with mean score (3.95).

Table 4: Parents perceptions about the impact of diseases on children's general health and academic performance

Items	Mean	Standard Deviations
These diseases can cause symptoms such as fatigue, fever, and discomfort, affecting the child's concentration during school hours	4.08	83.9
Recurring or chronic illnesses often lead to missing school days, creating gaps in learning and hindering their academic progress	3.99	83.1
When children suffer from diseases, it not only affects their physical health, but also their ability to grow academically	3.95	82.7
Prolonged illness can lead to emotional stress further affecting their mental health and participation in classroom activities	3.86	81.2
Prolonged illness can lead to social isolation, further affecting their ability to interact and participate in classroom activities	3.74	80.5
Total	3.88	81.5

The table below illustrates the levels of health literacy among parents regarding infectious diseases. It is evident that 180 (34.9%) participants had good knowledge. Fair knowledge was found in 150 (29%) participants. In contrast, poor knowledge was found among 186 (36.1%).

Table 5: Health Literacy Categories for parents

Categories	Number	Percent
Good	180	34.9
Fair	150	29
Poor	186	36.1

Table (6) illustrates the relationship between parents' health literacy about infectious diseases and their demographic data. The study sample shows a weak positive correlation between the number of children and parents' health literacy about infectious diseases, but it is not statistically significant. Furthermore, there is no significant correlation between the number of children and parents' knowledge about causes and outcomes of diseases or their perceptions about the impact of diseases on children's health and academic performance.

A weak negative correlation exists between chronic conditions and parents' health literacy about infectious diseases, but it is not statistically significant. Parents' knowledge and perception about infectious diseases and child's chronic conditions are also not significantly correlated.

On the other hand, there is a weak positive correlation between gender and parents' health literacy about infectious diseases impact on children academic performance, which is statistically significant at $p < .05$ level. There is no significant correlation between parents' knowledge about infectious diseases causes and outcomes and gender.

Education and age do not significantly correlate with parents' health literacy, knowledge, or perceptions about infectious diseases impact on child academic performance and outcomes.

Table 6: Association between parents' health literacy and demographic data

		Health Literacy in the study sample about Infectious Diseases	Parents Health Literacy and Knowledge about Causes and Outcomes of Disease	Parents perceptions about the impact of diseases on children's general health and academic performance
Number of children	Pearson Correlation	.077	.041	.053
	Sig. (2-tailed)	.081	.351	.232
	N	516	516	516
Chronic condition	Pearson Correlation	-.062	-.020	.079
	Sig. (2-tailed)	.160	.657	.072
	N	516	516	516
Gender	Pearson Correlation	.070	.007	.169**
	Sig. (2-tailed)	.115	.882	.000
	N	516	516	516
Education	Pearson Correlation	.030	.062	.007
	Sig. (2-tailed)	.494	.158	.880
	N	516	516	516
Age	Pearson Correlation	.048	.031	.046
	Sig. (2-tailed)	.272	.485	.300
	N	516	516	516
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Discussion

It is important for parents and front-line health professionals to recognize and identify those children who are at risk of deterioration and who may have low academic performance. One of the most common causes of absenteeism in school-age children is infectious diseases. According to our findings, health literacy about infectious diseases is weakly correlated with age, gender, number of children and chronic conditions.

This study's results were in line with another study that found that a higher monthly income and higher education were associated with a better knowledge level.

In our study, we found no significant relationship between parents' educational level and their knowledge about infectious diseases in their school-age children. In contrast, another study found that educated parents understood more about infectious diseases and vaccinations' benefits.

According to our study, 36.1% of parents had little knowledge about infectious diseases in their school-age children. Meanwhile, another study reported that 45.8% of the parents exhibited problematic or inadequate health literacy [13].

Numerous studies have found that Saudis have differing levels of knowledge about diseases. According to the study at al Ahsa, more than half of the subjects (62.9%) had limited knowledge of SCD [14]. Along with a community-based study, (76.6%) percent of participants had poor general stroke knowledge [15]. As part of a study about community awareness of mental wellbeing, it was mentioned that it was critical to correct knowledge and misconceptions about mental illness within the Saudi community [16-24].

Conclusions

In conclusion, the pervasive nature of infectious diseases among primary school children underscores the critical importance of addressing and mitigating their spread. The level of parental literacy and perception about infectious diseases has a significant impact on the health and academic performance of children. The attendance rate of students in school age children was highly affected by infectious diseases. Improved health knowledge and competence of parents may contribute to better child outcomes, particularly when it comes to infectious diseases.

Recommendations

There is an importance to focusing on educational initiatives and awareness campaigns related to prevalent health issues such as sore throat, colds, influenza, and possibly head lice and skin diseases could help improve overall knowledge and awareness among individuals regarding these specific health concerns affecting children. Also, highlighting the importance of managing recurring or chronic illnesses to prevent school absenteeism and subsequent learning gaps is essential. Offering support systems or educational resources that help children keep up with their studies despite health-related absences could be valuable.

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