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RESEARCH ARTICLE

AWARENESS OF SCABIES AMONG SCHOOL STUDENTS IN HAIL CITY AND ITS SURROUNDING VILLAGES, KSA.

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Abstract

Background: scabies resulted from the burrowing effect of a female parasite, Sarcoptes scabiei. Scabies considered to be one of the possible health problems in our area. The aim of this study was to Measure the level of awareness of Hail school students and its surrounding villages on scabies.
Material: The work was cross-sectional study on different males and females schools, forming three groups; primary, middle and secondary, of Hail city and surrounding villages between 2018 January and 2019.
Methods: The collected data, from previously designed questionnaires of different groups, were analyzed by computer using statistical SPSS program.
Results: The total mean of awareness of the three groups indicated that the students of secondary schools had the highest awareness level followed by the primary level then middle students, Also the awareness level in female students more than males.

Introduction:-

Scabies is a skin infestation disease resulted from the burrowing effect of a female parasite, *Sarcoptes scabiei* (Itch mite). This causes irritation and vesicle or pustule formation [1].

The direct effect of scabies is debilitating itching, leading to scratching, which is in turn followed by complications due to secondary bacterial infection of the skin, ranging from impetigo, abscesses, cellulitis, through to septicemia and even death .Bacterial infections secondary to scabies can also lead to more serious sequelae associated with group A streptococcal infection such as rheumatic fever and glomerulonephritis [1,2].

Scabies and its complications are considered endemic in most Pacific Island countries and in many other tropical countries including Africa largely on the basis of anecdotal reporting. Prevalence surveys of scabies have been conducted in localized areas of a limited number of countries. These studies have generally confirmed high levels of scabies in these locations but none have been national that we are aware of, and have not been sufficiently broad-based to provide the basis for developing and informing national disease control strategies [1].

Scabies infestation is everywhere .No difference in incidence related to age, sex or skin colour. Treatment of scabies is domiciliary, so mostly patients are in contact with GPs (general practitioner). GPs are not only involved in the

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management of scabies but they are also responsible for providing health education to the patients about this disease. The patients' queries about scabies, such as mode of spread, prevention and protection of family members, are often directed at the GPs, as they are more readily available than the skin specialists [2,3].

Although national data for scabies is not available but reports based on hospital outpatient attendance records showed alarming prevalence indicating a lack of awareness about this common skin problem. Also there was an epidemic of scabies in schools of Macca in 2018 that necessitate closing of schools there. **Thus, the aim of the present work:** was to assess the level of awareness about scabies disease in different schools 'levels in Hail and its surrounding villages.

Materials:-

The present work was cross- sectional study on different males and females 'schools of Hail city and its surrounding villages, between November 2018-January 2019, The schools of the present study were located in the following Hail 's districts: Barzan, AlNaqra, Almatar, Annisiyah, Western Sadyan, Alzahra, Alkhozama, Alkhamashiah, Aldabab, Alhamra, Sababah, Alkhota ,Alhoydi, Aja, King abdallah, Almasif, Altarifi,Altilifizyun. The villages were Annisiyah , Alkhota , Alhoydi.

A questionnaire was designed of 13 questions about their awareness of scabies disease. The total sample size was 324 students and was chosen randomly. The data were collected from 19 schools (11 female school, 8 male school) aged from (12-18 years old).

The students (324) were divided into 3 groups according to their level of education:

1. Group 1: 100 students of primary schools
2. Group 2: 100 students of preparatory (middle) schools
3. Group 3: 124 students of secondary schools

The questionnaire included 13 questions relating to the following **:A**.**Demographic data**, which included: name, age, school grade (primary, middle, secondary), number of family members.

B.Participants' awareness about scabies disease was assessed as follows: each question had (Yes),(No),and (Don't know) choices .for the route of transmission of scabies, signs, and symptoms of scabies, knowledge about scabies, their attitudes about this infection, risk factor group and preventive measures to prevent disease**.**

Methods:-

Collected data from questionnaires of different groups were analyzed by computer using Statistical Package for windows Science ver. 22.0 IBM Inc (Spss,22.0). SPSS for windows Rel 15.0 2006 Chicago lnc [4].

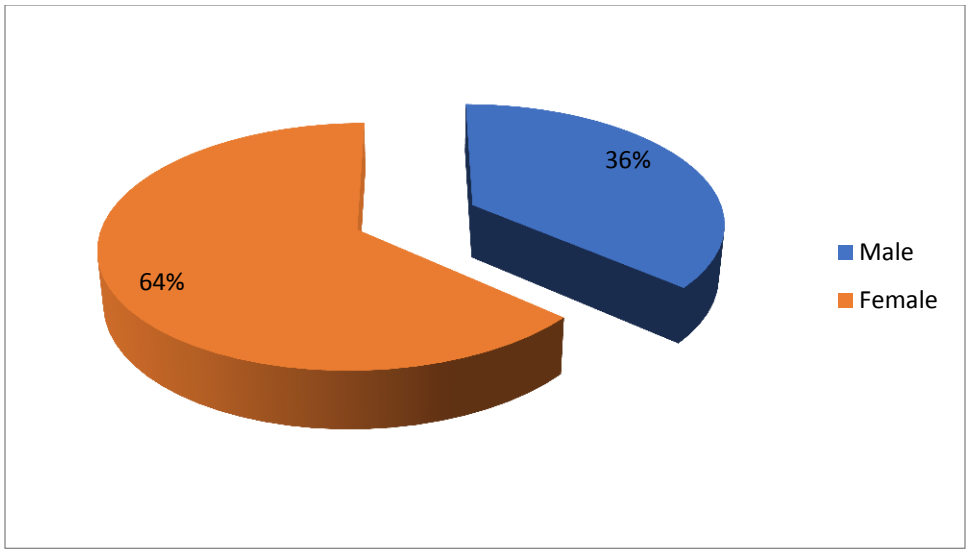
Results:-

The study participant's Demographic analysis:

Table (I) shows gender group (Female) had the highest representation (63.6%) while the male group was less (36.4 %).

Table I:-Distribution of the participants by Gender groups

Variable		Frequency	Percent
Gender	Male	118	36.4
	Female	206	63.6
	Total	324	100.0

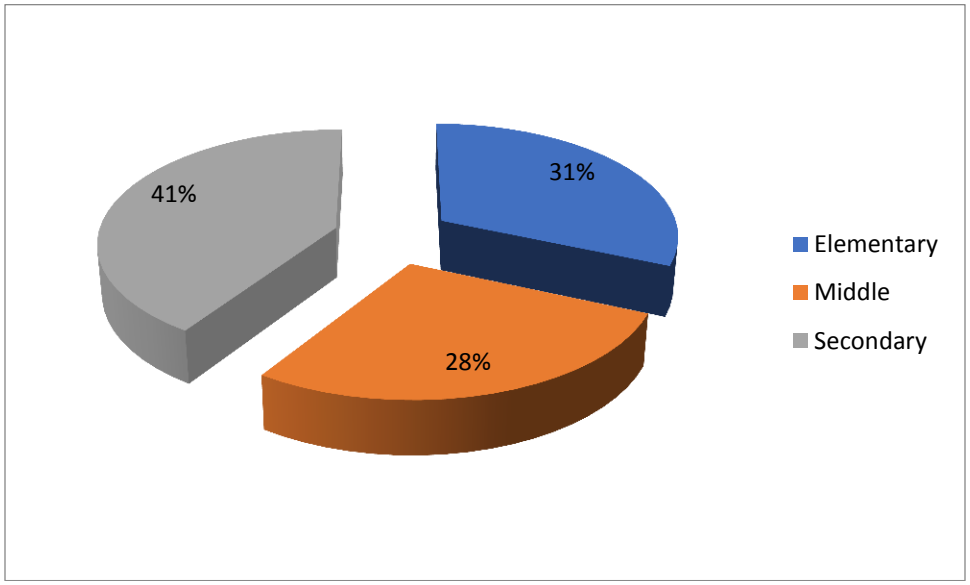


Distribution of the participants by education groups:

Table (II) showed education group (Secondary schools' students) had the highest representation (40.7%), and the second group (Middle schools' students) was the lowest (27.8 %).

Table II:-Distribution of the participants by education groups.

Education groups		Frequency	Percent
Group 1	Primary	102	31.5
Group 2	Middle	90	27.8
Group 3	Secondary	132	40.7
	Total	324	100.0



B.Awareness of scabies:

Table III:-The percentage and mean of awareness of scabies of primary schools 'students' (Group 1).

Q	Percentage % yes		Percentage	Mean	S.D
	Male	Female			
Q1	6%	23%	18%	1.91	0.51

Q2	6%	0%	2%	1.99	0.17
Q3	9%	11%	11%	1.96	0.42
Q4	69%	76%	74%	1.44	0.78
Q5	50%	67%	62%	1.64	0.87
Q6	19%	53%	42%	1.94	0.89
Q7	41%	64%	57%	1.64	0.81
Q8	44%	64%	58%	1.62	0.80
Q9	44%	10%	21%	1.88	0.53
Q10	13%	31%	25%	1.83	0.56
Q11	28%	84%	67%	1.55	0.83
Q12	3%	31%	23%	2.08	0.73
Q13	13%	26%	22%	1.94	0.61
Mean of awareness	27%	42%			

Table (III) showed the percentage of "yes" for primary schools 'level. In females, the lowest was for question 2 (do you have an idea of scabies infection?) 0%. The highest one was for question 11 (Does scabies lead to skin ulcers?) (84%). In male students; the lowest awareness was for questions 12(Do you have an idea of the most vulnerable groups of scabies?) (3%), and the highest was for question 4 (Can poor hygiene be a cause of scabies?) (69%) .The mean of total awareness of female students of primary schools was higher (42%) than that of males' students (27%).

Table IV:-the percentage and mean of awareness of scabies of students of middle schools level (Group 2).

Q	Percentage % yes		Percentage % yes	Mean	S.D
	Male	Female			
Q1	38%	55%	50%	1.54	0.58
Q2	0%	0%	0%	2.00	0.00
Q3	8%	6%	7%	2.01	0.38
Q4	38%	81%	69%	1.52	0.82
Q5	35%	55%	49%	1.88	0.92
Q6	27%	50%	43%	1.97	0.92
Q7	38%	66%	58%	1.77	0.94
Q8	27%	78%	63%	1.64	0.89
Q9	8%	14%	12%	1.93	0.42
Q10	12%	34%	28%	1.84	0.62
Q11	35%	66%	57%	1.76	0.92
Q12	12%	14%	13%	2.12	0.62
Q13	8%	20%	17%	1.97	0.55
Mean of awareness	22%	41%			

Table (IV) showed that the percentage of "yes" for students of middle level. In males the lowest was for question 2(do you have an idea of scabies infection?) 0%, while the highest was for two questions 4 and 7(Can poor hygiene be a cause of scabies? ,Is scabies transmitted through blankets and bed sheets?). In females the lowest was also question 2 (0%), and the highest one was for question 4 (Can poor hygiene be a cause of scabies?) (81%). The total mean of awareness of females in group 2 was higher than males of the same group (41%).

Table V:-The percentage and mean of awareness of scabies of students of Secondary schools level (Group3).

Q	Percentage % yes		Percentage % yes	Mean	S.D
	Male	Female			
Q1	48%	79%	65%	1.37	0.53
Q2	0%	0%	0%	2.00	0.00
Q3	3%	13%	8%	1.96	0.36
Q4	78%	85%	82%	1.29	0.65
Q5	67%	69%	68%	1.51	0.80

Q6	58%	75%	67%	1.58	0.87
Q7	65%	76%	71%	1.50	0.82
Q8	63%	86%	76%	1.43	0.79
Q9	23%	19%	21%	1.83	0.47
Q10	37%	72%	56%	1.52	0.64
Q11	65%	76%	71%	1.55	0.89
Q12	38%	25%	31%	1.96	0.77
Q13	17%	29%	23%	1.86	0.55
Mean of awareness	43%	54%			

Table (V) clarified that the percentage of yes for secondary students level.in males the lowest was for question2 (do you have an idea of scabies infection?)(0%), and the highest one was for question 4 (Can poor hygiene be a cause of scabies?). In females the lowest awareness was for question 2 (0%), while the highest was for question 8 (Can scabies be transmitted by using personal items such as clothes and towels?) (86%).

The total mean of awareness of females in group 3 was more than males' students of the same group (54% and 43% respectively).

Table VI:-comparison between the mean of the percentage of awareness of the three groups of students in Hail region.

Q	Percentage % yes			Total percentage	Mean	Std. Deviation
	Primary	Middle	Secondary			
Q1	6%	14%	27%	47%	1.59	.585
Q2	1%	0%	0%	1%	2.00	.096
Q3	3%	2%	3%	8%	1.98	.385
Q4	23%	19%	33%	75%	1.40	.746
Q5	19%	14%	28%	61%	1.65	.865
Q6	13%	12%	27%	52%	1.80	.904
Q7	18%	16%	29%	63%	1.62	.856
Q8	18%	18%	31%	67%	1.55	.826
Q9	6%	3%	9%	18%	1.87	.478
Q10	8%	8%	23%	39%	1.71	.627
Q11	21%	16%	29%	66%	1.61	.878
Q12	7%	4%	13%	24%	2.04	.716
Q13	7%	5%	10%	22%	1.91	.572
Mean	12%	10%	20%			

Table (VI) showed the mean percentage of "yes" of the three education levels. It was evident that the lowest awareness was for question 2 (do you have an idea of scabies infection) 0% for middle and secondary students and 1% for primary schools, with a total of 1% +/- 0.096. The highest one was for question 4 (Is poor hygiene a cause of scabies?) (23%, 19%, 33% for groups 1, 2, 3 respectively) and the total was 75% +/-0.746.

The total mean of awareness of the three groups indicated that the students of secondary schools had the highest awareness level (20%) followed by the primary level (12%) then middle students (10%).

Discussion:-

Scabies was recently added to the World Health Organization's list of Neglected Tropical Diseases, but has generally not been recognized as a public health priority in most developing countries, perhaps because of the absence of large scale surveys to fully define its extent and risk factors [5]. It can be transmitted from infected patients as well as from domestic animals such as goats and sheep (Asghar et al 2011) [5].

In the present study, three groups of school students of Hail and its surrounding villages (primary, middle and secondary) were interviewed by questionnaires to assess their awareness of scabies. They were of different age groups, ranging from 12 to 18 years old. There was a significant difference between the percentages of awareness of

three groups. This study revealed an overall unsatisfactory knowledge of scabies among school students in Hail and its surrounding villages.

In the present work, only 12% of primary school students (group l) had satisfactory awareness about scabies. This reflected an overall poor knowledge about it. The lowest awareness in this group for females was for question (do you have an idea of scabies infection?) and it was 0% which defined that they had inadequate knowledge about scabies at all. The lowest respond for males was for question (Do you have an idea of the most vulnerable groups of scabies?) and it was (3%) that's mean they didn't recognize the group who are at risk to have scabies. On the other hand, females had a high awareness level on question (Does scabies lead to skin ulcers?) by (84%) and for males it was for the question (Can poor hygiene be a cause of scabies?) by (69%). Carapetis et al (1997) [6] stated that eradication of pediatric scabies in their patients was done by mass treatment together with mass health education programs to increase population awareness. Also, Zayyid et al (2010) [7] in Malesia.

The overall awareness for all questions was higher for female students in this group. Possible reasons for lack of awareness in this group are due to the educational level and lack of awareness about scabies in their schools and society. Qassim (2015) [8] stated that Parents education could not be overlooked as it plays a significant role in children education , quality of life and the hygiene of their children. He found that the majority of the parents of boys and girls of primary schools of his research were illiterate. He added that professional active mothers were more aware owing to their social contact and better knowledge [8]. Ihsan et al (2006) [9] found that increasing awareness of mothers was an important factor to manage scabies in nursery schools in Turkey [9].

About middle school students (group 2) in the present study, there is only 10% of satisfactory awareness about scabies. This reflected an overall poor knowledge about it. The lowest awareness in this group for both males and females was for question (do you have an idea of scabies infection?) and it was 0%, which defined that they had inadequate knowledge about scabies at all. In the other hand, females had a high awareness level (81%) on question (Is poor hygiene an important factor to cause scabies?), while in males it was 38% for the questions (Do you have an idea about scabies infection?), (Is poor hygiene an important factor to cause scabies?) and (Is scabies transmitted through blankets and bed sheets?). Similarly, Hegazy et al (1999) [10] reported that the age between 12-15 years old showed a poor knowledge about scabies in a village in Egypt [10].

The overall awareness for all questions was higher in female students in this group. Beginning of adolescents at this age may not be interested in health education or awareness programs, maybe a possible reason for lack of awareness in this group. Heukelbach et al (2005) [11] in a research done in Brazil, found a high prevalence of scabies and pediculosis in the age between 13-16 years old. They described the cause to be low awareness together with bad hygiene [11].

In the present work, students of secondary school (group3) showed the lowest awareness (0%) for females and males was for question (do you have an idea of scabies infection?) which clarified that they had inadequate knowledge about scabies at all. Females had a high awareness level (86%) for question (Can scabies be transmitted by using personal items such as clothes and towels?). Males had high level (78%) for the question (Can poor hygiene be a cause of scabies?).

The overall awareness for all questions was higher for female students in this group. Possible reasons for lack of awareness in this group were due to the lack of educational courses, health campaigns. Moreover, they did not encounter cases of infection. However similar studies have been performed in Almadinah Almnwrah in KSA [12], among medical students, to estimate their level of awareness about scabies. Their results showed a higher level of awareness among the participants than ours, (58% of them believed that scabies is a parasitic disease. 39% knew that scabies cause skin itching, but 37% did not know the incubation period. 62% believed that children mostly affected. 13% claimed that scabies had no complications. 21% thought that avoiding people with itching, avoiding touching or using their tools or clothes have been the most effective preventive measure, and only 8% did not know about it.) Most of the study participants (67%) were academic in their education that was why they got a higher percentage [12]. Secondary student's awareness in the present study (20%) could be compared with the participants' awareness in their research, because they had the closest level of education.. While, in Nigeria at 2012 [13], reported a general lack of knowledge regarding various aspects of scabies among medical students (only 9.3% had satisfactory knowledge) [13].. They have a lower percentage of awareness than ours. The researchers attributed this lack of knowledge due to absence of contact with cases of scabies. Also, their ability to recall seeing a case of scabies might

have been subjected to bias [13]. Secondary student's awareness in the present study (20%) could be compared with the medical student's awareness in their research, because their age is very close.

Comparison between the mean of the percentage of awareness of the three groups of students in Hail region was carried out in the present work. The lowest awareness (0%) was for question 2 (do you have an idea of scabies infection) for middle and secondary students and 1% for primary schools. The highest one was for question 4 (Is poor hygiene a cause of scabies?) (23%, 19%, 33% for groups 1, 2, 3 respectively).

The total mean of awareness of the three groups indicated that the students of secondary schools had the highest awareness level (20%) because they have a scientific background about scabies and they have a higher education level than primary and middle students. followed by the primary level (12%) then middle students (10%). ALshehri et al. (2018) [14] and Bilal et al. (2018) [15] found a good knowledge about Scabies among medical students in Kingdom of Saudi Arabia and nursing students in Jazan University respectively. Secondary student's awareness in the present study (20%) could be compared with the nursing and medical student's awareness in their research, because their age is very close. They have a higher percentage of awareness than ours maybe due to their scientific background on diseases. Moreover, another similar studies carried out by Rathi et al in Pakistan (2001) ([16] and Halima et al (2015) [17], reported a general lack of knowledge regarding various aspects of scabies among medical students and general practitioners (36%). They showed that substantial numbers of GPs have inadequate knowledge regarding the causative parasite for scabies, the importance of scrapping the burrow and its examination in the diagnosis and health education for patients and family members. At the same time, however, there was reasonably good awareness about practical aspects such as mode of spread of the disease, clinical features and treatment of scabies. Although higher percentage of awareness than the present results, yet they attributed their lack of knowledge to be responsible for the alarming prevalence of scabies in their community. Therefore, they recommended that active intervention is required to improve their awareness. Also, Josefa et al (2015) [1] detected that lack of awareness was an important risk factor for spread of scabies in their community.

Conclusion:-

As the level of awareness of the three levels of education was low (20%, 12% and 10%), this necessitates that all health authorities in Hail region and its surrounding villages to increase their efforts, campaigns and health education programs either in different schools, molls, markets or in media and social media so as to raise the awareness level of our students. Health team workers should educate the parents about the mode of infection, symptoms, and methods of preventing such a very contagious disease.

Recommendations

Since the level of awareness was low, therefore further studies are required to be conducted to assess the prevalence of scabies among school students as well as in adults. Also programmed health education campaigns about the scabies and other infectious diseases are needed to raise the public awareness especially to school students.

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