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RESEARCH ARTICLE

KNOWLEDGE, ATTITUDE, AND PRACTICE REGARDING DENGUE FEVER AMONG PRIMARY HEALTH CARE WORKERS (PHCWS) IN JAZAN REGION, SAUDI ARABIA

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ABSTRACT

Objective: This study was conducted in Jazan region the South- Western part of the Kingdom of Saudi Arabia with the objective of determining the current state of Knowledge, Attitude and Practices of the Primary Health Care Workers in Jazan regarding Dengue fever. **Methodology** : Across sectional study was conducted in January 2019 among doctors, nurses, lab technicians, health inspectors and pharmacists in three sectors of Jazan region .Data was collected through was pretested pre, constructed, self- administered questionnaire, Frequencies of the answers to each question and scores were calculated. **Result**: A total of 500 PHCWs shared in the survey, 264 male and 236 female. The age group of the Participants were (20-30yrs) 45.4%, (31-44yrs) 36.2% and (45-60yrs) 18.4% years. Leaflets were the Most Common Source of Information of the Primary Health Care Workers. The respondents had in general Moderate level of knowledge in the areas explored with the high score of knowledge and positive attitude was for Doctors. Regarding The attitude the respondents had Neutral Attitude. (84.2%) of the respondents had fair practice among dengue fever. More than (75%) of doctors know the common signs and symptoms of DF. This Study also revealed out that participants lack knowledge regarding mode of transmission of DF and Warning Signs of DF. Significant associations were found between Knowledge and Practice ($p<0.000$) and Attitude and Practice ($p=0.001$). **Conclusion**: The findings of the study indicate that if PHCWs are supplied with accurate knowledge through appropriate ways, they may eventually have good practices toward dengue fever. Primary Health Care Workers education is necessary to address the knowledge gap revealed in the study. There for educational programs should be organized for improving knowledge about dengue fever, ensure that PHCWs are receptive to the messages and make it easier for them to adopt desired Improvement in Dengue Fever Management, Control and Prevention.

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INTRODUCTION

Dengue fever is one of the most common viral illness that caused by mosquito born worldwide and has reached hyper endemic proportions in the urban tropics and subtropics over the last 2 decades. It is caused by a mosquito-borne human viral pathogen that belongs to the genus Flavivirus of the family Flaviviridae (single-strand, non-segmented RNA viruses) dengue fever and dengue hemorrhagic fever are viral diseases transmitted by Aedes mosquitoes (Aegypti).

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The viruses (DEN-1, DEN-2, DEN-3, and DEN-4) are immunologically related, but don't provide cross-protective immunity against each other. The Infection with any of the four serotypes can produce a broad range of clinical manifestations including asymptomatic infection, mild flu-like symptoms, and the more severe hemorrhagic fever.[1] In Jazan cases are regularly reported from the region with 2-3outbreaks in between. The disease has attained the status of being endemic now and as such health administration has taken serious steps for controlling the disease in the region while Epidemiology of dengue fever changing dramatically. Thus, our study is aimed to know the effect of PHCWs knowledge and attitude towards the practice adopted in the control of the disease which will contribute to dengue surveillance

program already existing in the region and to improve the quality with better understanding of the epidemiology of this disease in the region which will surely have impact on the control measures.

Global burden of dengue fever: Dengue fever has recently emerged as a major international health problem with an expanded geographic distribution and potential to cause major epidemics .[2,3] The disease is now endemic in more than hundred countries in Africa, Mediterranean region, South America and South East Asia. [4,5] Around the world in recent decades. Over 2.5 billion people over 40% of the world's population – are now at risk from dengue. The worldwide incidence is rising and clinical symptoms are worsening. Reports describing forms associated with hemorrhages or shock syndrome involving both children and adults are increasingly frequent in many regions. WHO currently estimates there may be 50–100 million dengue infections worldwide every year. In 2010, 1.6 million cases of dengue were reported in the Americas alone, of which 49 000 cases were severe dengue. In Asia, Singapore has reported an increase in cases after a lapse of several years and outbreaks have also been reported in Laos. [6]

Dengue in Saudi Arabia: In kingdom of Saudi Arabia [7] Dengue fever was initially reported form Jeddah in 1994. Since then reports of sporadic cases continue to be published in national media. In 2009, the Saudi Ministry of Health reported a total of 3526 cases in the Kingdom; among those, there were only 15 cases from Jazan and none from Aseer region.[8] At the end of April 2010 dengue fever cases in Jazan region reach 156 cases, which were distributed equally between the 2 sectors Samtah and Jizan.[9] The disease has attained the status of being endemic now and as such health administration has taken serious steps for controlling the disease in the region while Epidemiology of dengue fever (DF) is changing dramatically. Therefore, As Dengue fever is an important public health problem in jazan and it has become endemic throughout the region. and the Primary healthcare workers serve as the first-line healthcare providers of dengue case diagnosis, notification, treatment and also they educate people. So, The present study aimed to evaluate the Knowledge, attitude, and practice (KAP) regarding dengue infections among primary HCWs in Jazan, Kingdom of Saudi Arabia (KSA).

MATERIALS AND METHODS

The study was a Cross sectional study design among PHCWS in PHC Centers in Jazan region southern of Saudi Arabia in January 2019. Aiming to assess the knowledge, attitudes and practices regarding DF among PHCWS. As the total number of jazan PHCWs is 2550 worker distributed through all sectors in the region. The subjects for study selected from these health units by simple systemic random sampling method. distributed among the Sectors using proportional allocation methods. So, we selected 200 workers from Jazan sector, 200 workers from Sabya sector and 100 workers from Samtah sector. Within each sector the participants selected by using random sampling. Data was collected via pre structured and pre tested questionnaire directed towards gaining information regarding the PHCWs socio-demographic information, knowledge, attitude and practice on dengue fever.

RESULTS AND DISCUSSION

A total of Fifty hundred respondents (500) completed the survey questionnaire. The majority of the respondents were female (52.8%) and male (47.2%). (45.4%) were in the age range of 20 – 30 years. (78.6%) were married, most of them were graduated (64.2%). According to the nature of job (16.2%) were doctors, (48.2%) were nurses, (10%) were lab. Technicians, (14.4%) were health inspectors and (11.2%) were pharmacists. (59%) of the respondents had duration of work more than 5 years. We found The demographic characteristics investigated in this study were not significantly associated with level of practice. This study was not consistent with the study of Sami abdo Radman al-Dubai Et al:(2013) that practice was associated significantly with age, marital status and geographic areas. As shown in (Figure 1). Respondents allowed to select more than one source for received information about dengue fever. Among the 93.4% who received the information, were from leaflets (70%) followed by television (T.V) (30%) and scientific journals (28%). Smaller percentages reported receiving from Radio, newspaper, family or friends as shown in (Figure 1). In (Table3) above, more than 65% of the respondents knew the common cause and symptoms of dengue fever, for the questions regarding that dengue can be transmitted by blood transfusion or by needle stick respectively .which is consistent with study of Risa T, et al:(April 2012)

Table 1. Socio-demographic characteristics of the respondents Jazan 2019 (N=500)

Characteristics	Frequancy	Percentage
Gender		
Male	264	47.2
Female	236	52.8
Age (years)		
20-30 yrs	227	45.4
31-44 yrs	181	36.2
45-60 yrs	92	18.4
Marital Status		
Single	107	21.4
Married	393	78.6
Education		
Secondary	12	2.4
Tertiary	148	29.6
Graduate	321	64.2
Postgraduate	19	3.8
Type of work		
Doctor	81	16.2
Nurse	241	48.2
Lab technician	50	10
Health inspector	73	14.4
Pharmacist	56	11.2
Duration of work		
Less than 1 year	61	12
2-5 yrs	145	29
5-10 yrs	150	30
More than 10 yrs	145	29
Sectors		
Jazan sector	200	40
Sabia sector	200	40
Samtah sector	100	20

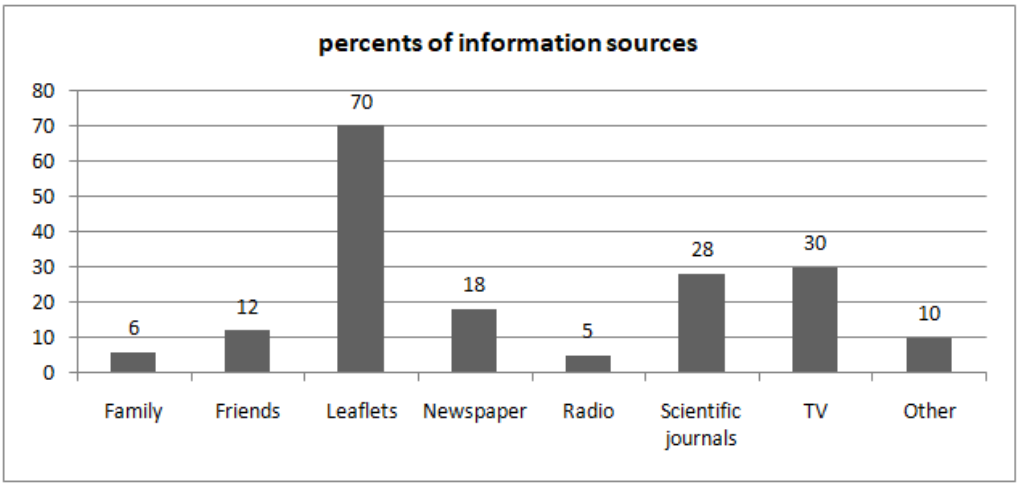

Figure 1. PHCWs percentages of sources of receiving information about dengue fever in Jazan region 2019

Table 2. PHCWs Distribution of knowledge level on dengue fever in Jazan 2019

level	Frequency	Percentage
High level (14 – 17 scores)	137	27.4 %
Moderate level (10 – 13 scores)	192	38.4 %
Low level (0 – 9 scores)	171	34.2 %
Total	500	100 %

* Minimum = 0 Maximum = 17 Mean = 10.8880 SD = 3.59

Table 3 : Number and percentages of the items on the knowledge of dengue fever answered correctly by the PHCWs in Jazan region 2019 (n = 500)

n	Items	Frequency	Percentage
1	The most common cause of dengue fever	440	88.0
2	symptoms of dengue fever	330	66.0
3	Have you heard of 'warning signs' in dengue?	294	58.8
4	Abdominal pain or tenderness considered as warning sign.	233	46.6
5	Persistent vomiting is a warning sign of dengue fever	233	46.6
6	Liver enlargement >2 cm is not consider as a warning sign of DF.	166	33.2
7	Aedsegypti is vector for dengue fever	405	81
8	Dengue can spread as a droplet infection by coughing or sneezing.	284	56.8
9	Dengue transmit by flies	374	74.8
10	Dengue fever can be transmitted by a blood transfusion.	141	28.2
11	Dengue fever can be transmitted by a needle stick	191	38.2
12	Does person to person contact transmit Dengue fever	267	53.4
13	Window screens reduce mosquitoes	449	89.8
14	Insecticide sprays reduce mosquitoes and prevent dengue.	471	94.2
15	Use Mosquito repellents prevent the bite by dengue mosquitoes.	443	88.6
16	Only method to control the dengue infection is to control the Aedesegypti.	397	79.4
17	There is no specific treatment for dengue and drug of choice is paracetamol end fluid intake.	326	65.2

Table 4 : Distribution of Knowledge of PHCWs on Dengue Fever According to their type of work in Jazan 2019.

knowledge										
Type of work	High		Moderate		Low		Mean	SD	Chi square	P- value
	No.	%	No.	%	No.	%				
1- Doctors (n=81)	47	58	28	35	6	7	13.47	2.92	53.74	0.000
2- Nurse (n=241)	55	23	92	38	94	39	10.49	3.6	6.71	0.04
3- Lab Technician (n= 50)	7	14	20	40	23	46	9.96	2.62	5.94	0.05
4- Health inspector (n=73)	14	19	34	47	25	34	10.41	3.7	3.59	0.165
5- Pharmacist (n=56)	14	25	19	34	23	41	10.32	3.5	1.33	0.513

Table 5. PHCWs Distribution of attitude levels towards dengue fever in Jazan region 2019

Level	Frequency	Percentage
Positive Attitude (9 - 11 scores)	245	49 %
Natural Attitude (6 - 8 scores)	140	28 %
Negative Attitude (0 - 5 scores)	115	23 %
Total	500	100 %

Table 6. Number and percentages of the items on the attitude of dengue fever Answered correctly by the PHCWs in Jazan region 2019 (n = 500).

No:	Items	Frequency	Percentage
1	Do you believe that Dengue is a serious illness	417	83.4
2	Do you believe that Dengue fever is endemic in Jazan region.	252	50.4
3	Do you think that You are at risk of getting Dengue	341	68.2
4	Do you think that DF is a disease that cannot be prevented.	330	66.0
5	Do you prefer to do full blood counts to monitor patients with suspected or confirmed dengue on a daily basis	395	79.0
6	Do you agree with that "Low white blood cell counts are observed after the third day of dengue fever"	224	44.8
7	Do you think that Dengue patients need for Treatment and hospitalization	415	83.0
8	Do you think that Only the government is the responsible side for controlling the mosquito breeding	311	62.2
9	Do you think that the Elimination of breeding places is a waste of time, resources and complicated.	369	73.4
10	Do you believe that Strong and healthy persons will not get infected with dengue virus.	365	73.0
	Do you think that Active surveillance for the infected patient is wastage of time.	401	80.2

Table 7. PHCWs Distribution of attitude levels According to their type of work in Jazan region 2019

	Attitude									
Type of work	positive		neutral		negative		Mean	SD	Chi square	P-value
	No.	%	No.	%	No.	%				
1- Doctors (n=81)	63	77,8	14	17.3	4	4.9	9.39	1.55	34.01	0.000
2- Nurses (n=241)	111	46.1	74	30.7	56	23.2	7.44	2.74	2.05	0.358
3- Lab. Tech (n= 50)	24	48	19	38.0	7	14	7.84	2.18	3.95	0.138
4- Health Inspector (n=73)	28	38.4	19	26.0	26	35.6	6.97	2.75	8.01	0.018
5-Pharmacists (n=56)	19	33.9	15	26.8	22	39.3	6.63	2.83	10.23	0.006

Table 8 : PHCWs Distribution of practice levels towards dengue fever in Jazan region 2019.

Level	Frequency	Percentage
Good level (8 - 10 scores)	48	9.6 %
Fair level (5 - 7 scores)	421	84.2 %
Poor level (0 - 4 scores)	31	6.2 %
Total	500	100 %

Table 9. Number and percentages of the items on the practice of dengue fever Answered correctly by the PHCWs in Jazan region 2019 (n = 500)

NO:	Items	Frequency	percentage
1	Is it good to describe the aspirin to patient with dengue fever	368	73.6
2	Do Your advice plenty of rest for Dengue fever patients.	479	95.8
3	do you recommend dengue patient to drink a lot of fluids	471	94.2
4	A suspected dengue case should be reported to the Responsible side (preventive medicine centre) in jazan within 72 hours.	71	14.2
5	Do you find monitoring haematocrit important in patients with suspected or confirmed dengue?	406	81.2
6	Do you refer the dengue patient immediately to a hospital If there is any evidence of bleeding.	484	96.8
7	should you isolate the patient with dengue fever until he recover	119	23.8
8	Do you find monitoring of platelet count is important in dengue case	449	89.8
9	Have you ever participated in health conferences for dengue fever in the last two years	56	11.2
10	Do you hold discussion with DF program leaders in your area about the dengue fever infection in jazan region?	82	16.4

Table 10 : PHCWs Distribution of practice According to their type of work in Jazan region 2019

Practice										
Type of work	Good		Fair		Poor		Mean	SD	Chi square	P-value
	No.	%	No.	%	No.	%				
1- Doctors (n=81)	15	18.5	63	77.8	3	3.7	6.37	1.21	9.45	0.008
2- Nurses (n=241)	19	7.9	200	83.0	22	9.1	5.82	1.23	7.94	0.018
3- Lab. Tech (n= 50)	2	4.0	47	94.0	1	2.0	5.92	0.83	4.03	0.133
4- H. Inspector (n=73)	8	11.0	62	84.9	3	4.1	6.08	1.28	0.77	0.679
5- Pharmacists (n=56)	4	7.1	50	89.3	2	3.6	5.93	0.98	1.29	0.523

Table 13. Association between knowledge and level of practice behaviours against Dengue fever among PHCWs in Jazan 2019 (n = 500)

Knowledge				
Level of practice	high level (14-17scores)	moderate level (10-13scores)	low level (0-9scores)	TOTAL
Good level (8-10scores)	16 (11.7%)	25 (13.0%)	7 (4.1%)	48 (9.6%)
fair level (5-7scores)	118 (86.1%)	161 (83.9%)	142 (83.0%)	421 (84.2%)
poor level (0-4scores)	3 (2.2%)	6 (3.1%)	22 (12.9%)	31 (6.2%)
TOTAL	137 (100%)	192 (100%)	171 (100%)	500 (100%)

Table 14. Association between attitude and level of practice behaviours against dengue among PHCWs in Jazan 2019 (n = 500)

Attitude				
Level of practice	Negative attitude (0-5scores)	Neutral attitude (6-8scores)	positive attitude (9-11scores)	TOTAL
Good level (8-10scores)	5 (4.3%)	14 (10%)	29 (11.8%)	48 (9.6%)
fair level (5-7scores)	95 (82.6%)	117 (83.6%)	209 (85.3%)	421(84.2%)
poor level (0-4scores)	15 (13.0%)	9 (6.4%)	7 (2.9%)	31 (6.2%)
TOTAL	115 (100%)	140 (100%)	245 (100%)	500 (100%)

Also more than (80%) were aware of the prevention procedures of DF vectors in addition to the common cause and the vector of DF was high which isn't consistent with study of SoodsadaNalongsack et al (2009) that found fair knowledge regarding vector of DF, (75%) of doctors know the common signs and symptoms of dengue fever and this result isn't consistent with study of A. Lakhani,H. (2001) which only (57%) of doctors knew the common signs and symptoms of dengue fever.Another very important area that more than half of the respondents lacked knowledge on warning signs of dengue fever and this is not consistent with the study of Linda K Lee,,Tun Linn Thein, Changa Kurukularatne, (April to June 2011). As shown from these means doctors had the highest knowledge about DF followed by nurses and others. Sothis study was consistent with the study ofA. Lakhani, (2001) and study of Huang HL, Chiu TY, Huang KC (2011) .This indicate significance association between knowledge and type of work from the (93.4%) who received information (70%) from leaflets, (30%) from TV, (28%) from scientific journals . So this study was not consistent with the studies of Sami abdo Radman al-Dubai Et al:(2013) andAmar T, and bhavna ,L.(2012-2013) in that the main source of knowledge was TV (97%)and (59.75%) respectively. (87%) of doctors know the important of laboratory diagnostic tests like platelet count, haematocrit and this consistent with study of Linda K Lee, Tun Linn Thein, Changa Kurukularatne, (April to June 2011). Ass in (Table 6). More than 80% of the respondents believe that dengue fever is a serious illness and dengue patients need for reatment and hospitalization. As shown in table 7 doctors have more positive attitude followed by pharmacist.

(Table 9) shows a summarized response for the practice items of DF. 90% percent ofthe respondents agree in giving DF patients a lot of fluid and rest and also in referring cases with bleeding immediately to the hospitals which is a very good practice. The doctors more experienced in reporting suspected dengue cases than nurses and this result consistent with the study of Tzong-Shiann Ho, Mei-Chih Huang, Shih-Min Wang,Hsian-Chou Hsu , Ching-Chuan Liu (2011) where they found physicians had more experienced than nurses in reporting suspected dengue cases. Among the PHCWs we found that knowledge had significant positive association with practice of dengue fever. This result was consistent with the study of Boonyong Keiwkarka Dr.p.h (2006). We found in this study significant association between attitude and practice of dengue fever management, so this study was significantly consistent with the study done by Sami abdoRadman al-Dubai Et al:(2013), who conducted a study on factors affecting dengue fever knowledge, attitude and practices among selected urban, semi urban and rural communities in Malaysia and found association between attitude and practice .Also this study was not consistent with the study of Risa T, et al:(April 2012) where it had Attitude towards dengue prevention were moderate but not significantly associated with any factor. Study concluded that about27.4 % ofrespondents have a high level ofknowledge , among the (70%) of them received their information from leaflets not from the health care workers followed by (30%) television (T.V),in spite of some gaps in knowledge doctors had the highest knowledge about DF followed by nurses,. Most of doctors and pharmacist have a good attitude and practice towards dengue fever, there for study suggested a

comprehensive evidence based Primary Health Care Workers educational programm is necessary to address the knowledge gap revealed in the study to ensure that PHCWs are receptive to the messages and make it easier for them to adopt desired Improvement in Dengue Fever Management, Control and Prevention. Then, eventually they will have good practices toward dengue fever.

Ethical consideration: Approvals was taken from the Research Ethics Committee. All selected participants were informed about the purpose and details of the study and asked to sign a consent form. Participants were informed that they have the right not to participate in the study or to withdraw from the study prior to completion without any consequences and that the data collected will be anonymous to protect their confidentiality. Then signed informed consent had been asked from all participants.

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