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Assessment of knowledge of pharmacies and drug stores workers toward dengue and its management at Al-Mukalla district – Hadhramout-Yemen

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Abstract: Dengue fever (DF) is a mosquito borne disease that has spread rapidly in Al-Mukalla city in the last ten years, so a necessary requirement is to analyze the knowledge of healthcare providers, including pharmacists, toward dengue management and control in the country. This paper aims to assess the knowledge of pharmacies and drug stores workers toward dengue management at Al-Mukalla district. A descriptive cross-sectional study was conducted among 384 pharmacies and drug store workers in Al-Mukalla district in 2020. A random sampling method was used to select the pharmacies and drug stores and data was collected by using pretest questionnaires. All statistical analyses were performed by using SPSS software, version 24. A total of 384 workers of pharmacies and drug stores, were enrolled. 361 were male (94%), and 23 were female (6%). The pharmacy diploma was the most qualified of the participants (58.1%). The majority of participants had 1–5 years' experience (45.3%). The result showed that most workers of pharmacies and drug stores had knowledge of dengue fever disease (82.1%). Medical consultation was the most common choice of participating regarding dealing with warning signs of dengue fever (red spots or patches on the skin (59.1%) , nasal or gingival bleeding(66.9%), vaginal bleeding(74.2%), hematemesis (72.7%), and severe abdominal pain (46.4%). The larger proportion of participants did not have knowledge of the WHO clinical management of dengue guideline (75.5%). This study showed that more than half of pharmacies and drug stores workers had knowledge toward management of dengue fever (57 %). This study revealed that the knowledge of pharmacy and drug store workers in Al-Mukalla district toward dengue fever management was not satisfactory. This result highlights the need for extensive scientific programs to increase the knowledge of pharmacies and drug stores workers toward dengue management so this gap will be plugged.

Keywords: Dengue disease; Drug stores; Management Pharmacies; Workers

1. Introduction

Dengue is one of the most important arthropod-borne viral diseases in terms of human morbidity and mortality. Dengue has become an important public health problem. It affects tropical and subtropical regions around the world, predominantly in urban and semi urban areas [1]. Dengue infection is caused by dengue virus, which is a mosquito-borne flavivirus. It does not transmitted directly from human to human. It transmitted by Aedes aegypti and Aedes albopictus [2, 4, 6, 7]. Dengue is a self-limiting febrile illness, with symptoms ranging from asymptomatic to mild, and severe. Symptoms of dengue may be observed about 4-10 days after the bite of an infected mosquito. Common symptoms are like that of the flu, with patients experiencing fever, headaches, pain behind the eyes, muscle and joint pain, Nausea/vomiting, Rash and Fatigue [8]. Warning signs of dengue are red spots on skin, severe abdominal pain, mucosal bleeding and Hematemesis [2].

The most frequently used serologic tests for the diagnosis of acute dengue virus infection are the hemagglutination inhibition (HI) assay and IgG or IgM enzyme immunoassays [9]. Clinical guide uses three categories for dengue management (A, B, C), group A these are patients who are dengue patients without warning sing and they may be sent home .These patients are able to tolerate adequate volumes of oral fluids pass urine at least once every six hours, whereas group B which include patients with warning sings. These patients should be admitted for in hospital management for close observation, rapid fluid replacement in patients with warning sings is the key to prevent progression to the shock state. Patient group C are patients with severe dengue who required treatment and urgent referral because they are in critical phase of the disease. Among of all these groups' pharmacies and drug stores workers are only considered with group A, however in the presence of warning signs pharmacies and drug stores workers refer such cases for medical consultation [7].

DF only treated by supportive therapies including bed rest, fluids and symptomatic relief using analgesics [5]. In recent years, DF becomes international global public health due to its dramatic increase in tropical and subtropical regions. It is reporting that 128 countries all over the world are endemic by dengue fever [8]. The World Health Organization (WHO) estimated there might be 50 million cases of dengue infection worldwide every year [1].

The transmission of dengue virus has increased dramatically in recent years and spreading in urban and semi-urban endemic settings, especially in Americas, Western Pacific, South and south-east Asia [6]. Dengue has been a significant health problem especially in the coastal areas. According to the National Institute of Health of Pakistan, in 2018, approximately 15,500 cases with 17 deaths had reported just because of dengue infection [3].

In 2010, several areas in Yemen experienced dengue outbreaks, the most devastating of which occurred in Hadhramout coastal districts in southeastern Yemen [10]. DF was first reported and confirmed in Shabwah Governorate, and it is widely distributed in nautical governorates such as Aden and Alhodeidah. Al-Mukalla is the highest governorate affected by dengue fever in 2014 [3, 7, 11, 14]. During the year 2015, two dengue outbreaks occurred in Hadhramout. The first one was expected within the seasonal patterns of March-June period with a peak in May similar to the recurrent outbreaks occurred since 2005. The last outbreak is unexpected; it is occurred in the period of November-December 2015 after occurrence of Chapala cyclone storm that hit Hadhramout in late October to the beginning of November 2015. The last outbreak in November-December 2015 is a fatal outbreak resulting of 14 deaths out of 623 dengue cases (both confirmed and suspected) giving the case fatality rate (CFR) of 3%. In this outbreak 56% of cases reported from Al-Mukalla city. This outbreak is still continuous up to January 2016 when 280 cases were reported in the first week of January 2016 [12, 15, 16].

Healthcare professionals could play their professional role in educating the general public in the control and management of dengue [3, 14, 17]. Pharmacists are among the primary source of information for the public to combat dengue infection. Besides, different people, even those who are not motivated to use health services until they feel signs and symptoms of infection, daily visit pharmacists. Therefore, Pharmacists should have complete and comprehensive knowledge about dengue control and management so they could better counsel and help their customers/patients in preventing dengue infections [3, 4, 14, 17, 18].

Data on the assessment of knowledge of pharmacies and drug stores workers toward dengue and its management are not published yet in Hadhramout as all including Al-Mukalla city. On the other hand, dengue outbreaks in the last ten years in the country and because of pharmacists and other health care providers are considered as the first point of dengue patient contacts.

Study done to assess the knowledge of pharmacies and drug stores workers towards dengue have obtained different result such as study that are done in Saudi Arabia (86.3%) (12) Therefore, the current study assessed the knowledge of pharmacies and drug stores workers toward dengue and its management in Al Mukalla district.

2. Methodology

Descriptive cross-sectional study was conducted in pharmacies and drug stores at Al-Mukalla district during 2020.

2.1 Sample size

The total sample size was 384 workers of pharmacies and drug stores at Al-Mukalla district, which is calculated by using the following formula [20].

$$n = \frac{Z^2\,(pq)}{d^2}$$

n = Sample size required. z = confident level (for 95% z = 1.96).
p = Proportional of characteristic in population (P = 50%) q = (1-p) = 1 - 0.50 = 0.5.
d = precision or error allowable (d = 0.05).
The sample size required = 384
NB: We added 10% (38) to sample size to avoid any miss leading results. So final sample size = 422 of pharmacies and drug stores workers.

There are 87 pharmacies and 124 drug stores at Al-Mukalla district, pharmacies and drug stores are selected randomly by using lottery (Mean of pharmacists at any pharmacy was between 2-5). The members of the group were divided into subgroups and visited the pharmacies and drug stores of Al-Mukalla district.

2.2 Data collection instrument

Personal data of pharmacies and drug store workers (age, gender, scientific qualification, kind of pharmacy, and experience number). Disease related factors (Causes, Symptoms and warning signs) Management related factors (Drugs, Lifestyle, and Familiar with WHO guideline about DF management and prevention). All pharmacies and drug store workers who were in the pharmacies and drug stores of Al-Mukalla district during the period of data collection were included in this study. Pharmacies and drug store workers who refused interviewing for any reason. Students who were

found in those pharmacies for training are excluded from this study. Data was collected via interviewing the pharmacies and drug stores workers in Al-Mukalla district during the study period by using structured questionnaires which prepared for the purpose of this study.

2.3 Data Analysis:

The data was entered and analyzed by using Statically Package for Social Science (SPSS version 24) Software program.

2.4 Ethical Approval

Approval litters obtained from department of community medicine in collage of medicine and Health Sciences in Hadhramout University, also from the mangers of pharmacies and drug stores that included in this study. Enough information about this study and its objectives was submitted to the participants, and then the information was collected from pharmacies and drug stores workers after their agreement, insuring that the information will be only used for scientific purpose and with respect the privacy and secrecy.

3. Result

Among 384 pharmacies and drug stores workers, most of the participants (74.7%) were in the age group of (20-30) years. The mean age was 1.34 years (SD+-.625).

Table 1. Socio-demographic profile of pharmacies and drug stores workers

Demographic data	Characteristics	No.	%
Age (years)	20-30	287	74.7
	30-40	65	16.9
	>40	32	8.3
Gender	Male	361	94.0
	Female	23	6.0
Scientific qualification	Pharmacy diploma	223	58.1
	Pharmacy bachelor	116	30.2
	Pharmacy master	13	3.4
	Other qualification	32	8.3
Experience years	Less than 1 year	80	20.8
	1-5 years	174	45.3
	More than 5 years	130	33.9
Type of pharmacy	Hospital pharmacy	84	21.9
	Community pharmacy	176	45.8
	Drug store	124	32.3

Most of pharmacies and drugs stores workers who participate in this study were males (94%). Pharmacy diploma was the most Scientific qualification of the participants (58.1%) followed by Pharmacy bachelor(30.2%).Number of Experience years of most participants was (1-5)years (45.3%) while 33.9% of pharmacies and drug stores were works for more than five years as shown in table(1). The majority of participants worked in community pharmacies (45.8%) followed by drug stores (32.3%) while minority of them worked in hospital pharmacies (21.9%). See table (1).

Table 2. Knowledge of pharmacies and drug stores workers toward Dengue and dealing with warning signs of dengue

Variables		No.	%
Do you have an idea about dengue fever?	Yes	351	91.4
	No	33	8.6
What is the main cause of dengue fever?	Viral	340	88.5
	Bacterial	11	2.9
	I do not know	33	8.6
Is there any elevation in body temperature in dengue fever?	Yes	360	93.8
	No	4	1.0
	I do not know	20	5.2
Can you deal with red spots or patches on the skin?	Yes	101	26.3
	No	56	14.6
	Medical consultation	227	59.1
Can you deal with nasal or gingival bleeding?	Yes	57	14.8
	No	70	18.2
	Medical consultation	257	66.9
Can you deal with vaginal bleeding?	Yes	17	4.4
	No	82	21.4
	Medical consultation	285	74.2
Can you deal with hematemesis?	Yes	21	5.5
	No	84	21.9
	Medical consultation	279	72.7
Can you deal with severe abdominal pain?	Yes	172	44.8
	No	34	8.9
	Medical consultation	178	46.4

Table 2 showed that 91.4% of pharmacies and drug stores workers had an idea about dengue fever as a disease. Most of participants (88.5%) revealed that virus is the main cause of dengue followed by 8.65 those who did not know the main cause of dengue, while 2.9 % said bacteria is the main cause of dengue. The majority of participants (93.8%) answered that dengue is associated with elevation in body temperature. Analysis showed that Medical consultation is the most common answer of participants regarding appearance of warning signs in dengue patient such as (red spots or patches on skin (59.1%) ,nasal or gingival bleeding(66.9%), vaginal bleeding (74.2%), hematemesis (72.7%) and severe abdominal pain (46.4%). See table number (2).

That most of pharmacies and drug stores(59.1%) referred patients for medical consultation in case of warning signs appearance.

Table 3. Knowledge of pharmacies and drug stores workers toward management of dengue

Variables		Frequency	%
Are you familiar with WHO clinical management of dengue guideline?	Yes	94	24.5
	No	290	75.5
Do you think that patient with dengue should take more rest?	Yes	374	97.4
	No	4	1
	I don't know	6	1.6
Do you prefer using of antipyretic drugs?	Yes	283	73.7
	No	81	21.1
	I don't know	20	5.2
Which one of antipyretics is preferred for dengue patient?	Paracetamol	263	68.5
	Diclofenac, Ibuprofen	22	5.7
	I don't know	99	25.8
What's the preferred route 0f administration of antipyretic for dengue patient?	PO	9	2.3
	IV	83	21.6
	PO and IV	159	41.4
	IM	35	9.1
	I don't know	98	25.5
Do you prefer using of an antibiotic for dengue patient?	Yes	99	25.8
	No	257	66.9
	I don't know	26	7.3
Do you prefer using fluids for dengue patient?	Yes	356	92.7
	No	6	1.6
	I don't know	22	5.7
What's the preferred rout of administration of fluids?	PO	83	21.9
	IV	133	34.6
	PO and IV	144	37.5
	I don't know	23	6.0
Which type of oral drinks is preferred for dengue patient?	Fresh juice	204	53.1
	Tamarind	17	4.4
	I don't know	163	42.4

IV.: Intravenous, PO: per oral, IM: Intramuscular

Table 3 showed that higher proportion of pharmacies and drug stores workers did not know WHO clinical management of dengue guideline (75.5%) while the rest (24.5%) are familiar with WHO clinical management of dengue guideline. Regarding management of dengue ,most of participants showed that taking an enough rest is preferred to dengue patient (97.4%). 73.7% of participants answered that antipyretic drugs must be given for dengue patient and the most preferred antipyretic is paracetamol (68.5%), the most common route of administration of antipyretic is orally and by intravenous route (41.4%) as the participants answered. It was found out that most of pharmacies and drug stores works do not prefer antibiotics

for management of dengue (66.9%) while 25.8% prefer using antibiotics for management of dengue patient.

Analysis shows that higher proportion of participants prefer using fluids as one of choices for management of dengue patient (92.9%) ,orally and intravenous routes were the most common routes for administration of fluids (37.5%) . the majority of participants answered that the preferred type of fluids for dengue patient is a fresh juice (53.1%). Analysis showed that lower proportion of participants had a knowledge toward WHO clinical management of dengue guideline (23.7%), while their knowledge that dengue patient is required more rest was high (97.4%). Regarding their knowledge toward using of antipyretics for dengue patient, type of antipyretic and the preferred route of administration of antipyretic were variable (73.7% ,67.4% ,2.3%) respectively as shown in figure (5). higher proportion of participants were preferred using of antibiotics for dengue patients (66.9%). The knowledge of pharmacies and drug stores workers toward using of fluids for dengue patient was very high (92.7%), however their knowledge toward the preferred route of administration of fluids was very low (21.9%). participants had a knowledge toward the importance of oral drinks for dengue patient in percentage of (53.1%). It was found out that 57% of participants had a knowledge toward management of dengue while 43% did not have a knowledge toward management of dengue.

Table 4. Relation between knowledge of pharmacies and drug stores

Variables	factors	Scientific qualification								P value
		diploma		Bachelor		Master		Another qualification		
		No.	%	No.	%	No.	%	No.	%	
Familiar with WHO	Yes No	41 182	10.7 47.4	37 79	9.6 20.6	5 8	1.3 2.1	8 24	2.1 6.3	0.025*
Rest	Yes No Unknown	218 2 3	56.8 0.5 0.8	113 2 1	29.4 0.5 0.3	13 0 0	3.4 0 0	30 0 2	7.8 0 0.5	0.399
Antipyretic	Yes No Unknown	168 46 9	43.8 11.1 2.3	88 22 6	22.9 5.7 1.6	10 3 5	2.6 0.8 1.3	17 10 5	4.4 2.6 1.3	0.066
Type of antipyretic	Paracetamol Diclofenac Unknown	150 19 54	39.1 4.9 14.1	79 10 27	20.6 2.6 7.0	13 0 0	3.4 0 0	17 0 15	4.4 0 3.9	0.012*
Rout of Administration	PO IV PO and IV IM Unknown	6 48 92 23 54	1.6 12.5 24.0 6.0 14.1	2 30 48 10 26	0.5 7.8 12.5 2.6 6.8	0 1 7 2 3	0 0.3 1.8 0.5 0.8	1 4 12 0 15	0.3 1.0 3.1 0 3.9	0.249
Fluids	Yes No Unknown	204 6 13	53.1 1.6 3.4	111 0 5	28.9 0 1.3	13 0 0	3.4 0 0	28 0 4	7.3 0 1.0	0.213
Rout of administration of fluids	PO IV PO and IV Unknown	52 77 81 13	13.5 20.1 21.1 3.4	24 41 46 5	6.3 10.7 11.1 1.3	2 4 7 0	0.5 1.0 1.8 0	6 11 10 5	1.6 2.9 2.6 1.3	0.481
Type of oral drinks	Fresh juice tamarind Unknown	122 5 96	3.1 1.3 25.0	62 8 62	16.1 2.1 16.1	9 0 4	2.3 0 1.0	11 4 17	2.9 1.0 4.4	0.034*

*P<0.05 was considered as significant

Analysis using Chi-square indicated that knowledge of participants with WHO guideline for clinical management of dengue; type of antipyretic used for dengue patient and type of oral fluids that are used for management of dengue were significantly associated with the scientific qualification of the participants. However, other variables of dengue management failed to be significantly associated with scientific qualification of the participants. See table number (4).

Table 5. Relation between knowledge of pharmacies and drug stores workers toward Dengue management and number of experience years

Variable	Factors	Experience years						P-value
		< 1 year		1-5 years		> 5 year		
		No.	%	No.	%	No.	%	
Familiar with WHO	Yes	14	3.7	39	10.2	38	9.9	0.131
	No	66	17.2	135	35.2	92	24.0	
Rest	Yes	79	20.6	168	43.8	127	44.8	0.415
	No	1	0.3	3	0.8	0	0	
	Unknown	0	0	3	0.8	3	0.8	
Antipyretic	Yes	52	13.5	128	33.3	103	26.8	0.117
	No	24	6.3	34	8.9	23	6.0	
	Unknown	4	1.1	12	3.1	4	1.1	
Type of antipyretic	Paracetamol	49	12.8	113	29.4	97	25.3	0.093
	Diclofenac	4	1.1	17	4.4	8	2.1	
	Unknown	27	7.0	44	11.5	25	6.5	
Rout of administration	PO	0	0	7	1.8	2	0.5	0.001
	IV	28	7.3	32	8.3	23	6.0	
	PO and IV	19	4.9	77	20.1	63	16.4	
	IM	5	1.3	15	3.9	15	3.9	
	Unknown	28	7.3	43	11.2	27	7.0	
Fluids	Yes	65	17.0	165	34.0	126	32.9	0.00*
	No	3	0.8	1	0.3	2	0.5	
	Unknown	12	3.1	8	2.1	2	0.5	
Rout of administration of fluids	PO	18	4.7	35	9.1	31	8.1	0.017*
	IV	30	7.8	64	16.7	39	0.23	
	PO and IV	21	5.5	68	17.7	55	14.3	
	Unknown	11	2.9	7	1.8	5	1.3	
Type of oral drinks	Fresh juice	33	8.6	95	24.7	76	19.8	0.005*
	Tamarind	1	0.3	6	1.6	10	2.6	
	Unknown	46	12.0	73	19.0	44	11.5	

*P<0.05 was considered as significant

A statistical significant relation was found between knowledge of pharmacies and drug stores workers that fluids is required for dengue patients, route of administration of fluids and the preferred type of oral drinks and number of experience years. However, other variables of dengue management failed to be significantly associated with number of experience years. See table (5).

4. Discussion

Dengue fever was spreading in different region in Yemen with high distribution in Al-Hodeidah, Taiz, Aden and Al-Mukalla. (14) In the end of 2015, Al-Mukalla, the capital of Hadhramout Governorate Yemen, faced an unprecedented outbreak of dengue.

Pharmacists as health-care professionals, play an important role in educating the public about dengue infection and its control and management. (3). so pharmacists should have abundant knowledge towards dengue and its management so they could better counsel and help their patients in preventing dengue infections [3].

Among 384 workers of pharmacies and drug stores, 361(94.0%) were males and only 23(6.0%) were females this probably because those who have educational qualification other than pharmacists such as nurses as example that may leads to reduce the need for pharmacist women to work in the pharmacy. This finding disagrees with a study done by Iqbal et al in 2020 in Saudi Arabia where (37.6%) were male and (62.4%) female. Most participants (74.7%) were at age group (20-30) years [3].this finding was similar to the study done in Aden with proportion of (58%) [19].

The most scientific qualification of participants was Pharmacy diploma (58.1%) that is problem because there is no college of pharmacy in Hadhramout in recent years, but only health institutes whose students hold a diploma in pharmacy. this finding is similar to the study done in Aden (51%) [19].

The present study were revealed that the Most experience years of participants were (1-5) years (45. 3%).this results are comparable with findings of Aden study which revealed that most experience years of participants were (more than 5 years) (49%) [19].This study showed that (82.1%) of pharmacies and drug stores workers have a knowledge

towards dengue disease. this finding is comparable with a study done in Saudi Arabia (86.3%).(3) The results of the present study showed that most of participants know that viruses are the main cause of dengue (88.5%). similarly, the study done in Saudi Arabia showed proportion of (86.9%).[3]. Among the symptoms of dengue, most of participants revealed that dengue is associated with an elevation in body temperature (93.8%). This finding is comparable with study done in Aden (93%) [19].

The present study showed that (57%) of participants had a knowledge towards management of dengue, However, a higher proportion was reported in the study conducted in Saudi Arabia (86.3%). this variation in percentages might be due to most of participants hold a low educational qualification (pharmacy diploma). The results of this study revealed that antipyretics are preferred for dengue patient (73.7%). Another study was obtained in Aden (76%) [5].

Related to the knowledge of participants towards management of dengue the study present that the following rest (97.4%), using of paracetamol as antipyretic (68.5%), drink plenty of fluids and using of intravenous fluids (37.5%) which are similar to the findings of world health organization (WHO) [4].

Regarding dengue management, type of antipyretic used for dengue patient and type of oral fluids that are used for management of dengue were significantly associated with the scientific qualification of the participants. However, other variables of dengue management failed to be significantly associated with scientific qualification of the participants. A statistically significant relation was found between knowledge of pharmacies and drug stores workers that fluids is required for dengue patients, route of administration of fluids and the preferred type of oral drinks and number of experience years. However, other variables of dengue management failed to be significantly associated with number of experience years. But data of similar studies are not published yet[3].

Regarding dealing of pharmacies and drug stores workers with warning signs, this study reported that most of participant referred patient to medical consultation in case of appearance of warning signs. Proportions of pharmacies and drug stores workers who are referred dengue patient for medical consultation according to appearance of warring signs (red spots on the skin (59.1%), nasal bleeding (66.9%), vaginal bleeding (74.2%), hematemesis (72.7%) and severe abdominal pain (46.4%) [2].

5 Conclusion and Recommendations

A highly level of knowledge towards dengue fever was reported among pharmacies and drug stores workers in this study he larger proportion of pharmacies and drug stores workers demonstrated no satisfactory level of knowledge towards dengue fever. However, there is a lack of Knowledge about WHO clinical management of dengue guideline.

The results of this study showed that the proportion of pharmacies and drug stores workers with good knowledge toward management of dengue fever was moderate. Finally, there is a need for similar studies to be done in Al-Mukalla and elsewhere in the world to better understanding the gaps [16].

Based on the findings of this study, the following recommendations are suggested for improving the knowledge of pharmacies and drug stores workers toward dengue and its management:

1-The ministry of health should provide a Continuous education and training activities about dengue fever and its management for health care providers including pharmacists.

2- Continuous workshops regarding dengue fever and its management should be done for pharmacies and drug stores workers.

3-Setting limits by the Pharmacists Syndicate to limit the work of non-pharmacists in pharmacies, in order to reduce the consequences.

4-Similar studies should be done to assess the knowledge of pharmacies and drug stores workers toward dengue and its management in Hadhramout governorate and in Yemen as all.

References

[1] J. Antony and T. Celine, "A descriptive study on dengue fever reported in a Medical College Hospital," *Sahel Medical Journal*, vol. 17, no. 3, p. 83, 2014, doi: 10.4103/1118-8561.140285.

[2] K. S. Koonisetty *et al.*, Assessment of Knowledge, Attitudes, and Practices Regarding Dengue among Physicians: A Web-Based Cross-Sectional Survey, *MDPI*, Jul. 21, 2021. https://www.mdpi.com/2076-328X/11/8/10

[3] M. S. Iqbal, M. Z. Iqbal, and N. J. Ahmed, "Evaluation of Community Pharmacists Practices towards Dengue Control and Management," *Journal of Young Pharmacists*, vol. 12, no. 1, pp. 90–93, Apr. 2020, doi: 10.5530/jyp.2020.12.18.

[4] World Health Organization. Dengue and Severe Dengue; 2013. Available from: http://www.who.int/mediacentre/ factsheets/fs117/en/index.html. [Last accessed on 2020 Oct 24].

[5] S. A. Alemad, A. M. Halboup, K. Aladeeb, M. Al-Saleh, and N. Al-Kufiley, "Coinfection with dengue and hepatitis A complicated with infective endocarditis in a Yemeni patient: a case report," *Journal of Medical Case Reports*, vol. 15, no. 1, Sep. 2021, doi: 10.1186/s13256-021-03069-w.

[6] N. Ahmad, T. Khan, and S. M. Jamal, "A Comprehensive Study of Dengue Epidemics and Persistence of Anti-Dengue Virus Antibodies in District Swat, Pakistan," *Intervirology*, vol. 63, no. 1–6, pp. 46–56, 2020, doi: 10.1159/000510347.

[7] B. Ahmed, Introduction and Epidemiology of Dengue. In: National Guideline for Clinical Management of Dengue Syndrome, 4th ed. Page 3. Bangladesh. Government of the Peoples' Republic of Bangladesh. 2018.

[8] M. Shueai Al Awfi, B. A. AL Sharabi, A. Al Alimi, and M. Abdo Abkar, "Knowledge, Attitudes and Practices Regarding Dengue Fever in a Cohort of Nursing Students," *Journal of Advances in Medicine and Medical Research*, pp. 1–9, Mar. 2019, doi: 10.9734/jammr/2019/v29i330073.

[9] M. S .Ahmed, R Zeb, J Zeb et al, Outcome of dengue fever admitted at District head quarter Hospital Kohat, Pakistan, Rawal Medical Journal Vol.43. No 3. July-Sep 2018.

[10] A. S. B. Ghouth, A. Amarasinghe, and G. W. Letson, "Dengue Outbreak in Hadramout, Yemen, 2010: An Epidemiological Perspective," *The American Journal of*

Tropical Medicine and Hygiene, vol. 86, no. 6, pp. 1072–1076, Jun. 2012, doi: 10.4269/ajtmh.2012.11-0723
[11] K. M. Al-Jamrah, A. Nassar, I. Mohathab, and M. Al Amad, "Dengue Fever Outbreak in Al-Garrahi District, Al-Hudaydah Governorate, Yemen, 2019," *Iproceedings*, vol. 8, no. 1, p. e36466, Feb. 2022, doi: 10.2196/36466.
[12] A. A. Bahashwan, A. M. Daakeek, H. S Alghasali , Fatal Dengue Cases in Mukalla - Hadhramout : Causes and Alarming Signals, Hadhramout University Journal of Natural & Applied Sciences, Volume 15, Issue 1, June 2018.
[13] K. A. Alghazali *et al.*, "Dengue Outbreak during Ongoing Civil War, Taiz, Yemen," *Emerging Infectious Diseases*, vol. 25, no. 7, pp. 1397–1400, Jul. 2019, doi: 10.3201/eid2507.180046.
[14] MoPHP. Reporting system of infectious diseases. . Ministry of public health and population, Republic of Yemen. 2020.
[15] MOP&H (Hadhramout office). 2018. The epidemiological situation of dengue outbreak. Unpublished report.
[16] WHO (Sana'a office), MOPHP. Volume 03. The weekly epidemiological Bulletin. Volume 03, Issue 53, Epi week 53, 28 Dec 2015 - 3 Jan 2019.
[17] Nur Z M Zamri, Nor A A Rahman, Mainul Haque , Knowledge, Attitude, and Practice Regarding Dengue among Students in a Public University in Malaysia , Bangladesh Journal of Medical Science Vol. 19 No. 02 April'2020.
[18] C. J. Daly, B. Quinn, A. Mak, and D. M. Jacobs, "Community Pharmacists' Perceptions of Patient Care Services within an Enhanced Service Network," *Pharmacy*, vol. 8, no. 3, p. 172, Sep. 2020, doi: 10.3390/pharmacy8030172.
[19] S. S. Abdullah, Knowledge and attitude of workers in pharmacies of government hospitals and private pharmacies in districts of Aden about dengue fever management. Republic of Yemen. 2017.
[20] S. Bush, "Sample Size Determination for Logistic Regression: A Simulation Study," *Communications in Statistics - Simulation and Computation*, vol. 44, no. 2, pp. 360–373, Aug. 2014, doi: 10.1080/03610918.2013.777458.

تقييم معرفة العاملين بالصيدليات ومخازن الأدوية تجاه حمى الضنك وإدارتها بمديرية المكلا حضرموت – اليمن

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الخلاصة: حمى الضنك (DF) هي مرض ينتقل عن طريق البعوض وانتشر بسرعة في مدينة المكلا في السنوات العشر الماضية ، لذلك فإن المطلب الضروري هو تحليل معرفة مقدم الرعاية الصحية بما في ذلك الصيادلة تجاه إدارة حمى الضنك ومكافحتها في البلاد. تهدف هذه الدراسة إلى تقييم معرفة العاملين في الصيدليات ومخازن الأدوية بإدارة حمى الضنك بمدينة المكلا. أجريت دراسة مقطعية وصفية على 384 صيدلية ومخازن أدوية في منطقة المكلا في عام 2020. تم استخدام طريقة أخذ العينات العشوائية لاختيار الصيدليات ومخازن الأدوية وتم جمع البيانات باستخدام استبيانات الاختبار القبلي. تم إجراء جميع التحليلات الإحصائية باستخدام برنامج SPSS، الإصدار 24. تم تسجيل مجموعه 384 عاملاً من الصيدليات ومخازن الأدوية. 361 من الذكور (94٪)، و23 من الإناث (6٪). وكانت دبلوم الصيدلة أكثر مؤهل للمشتركين (58.1٪). غالبية المشاركين كانت خبرة 1–5 سنوات (45.3٪)، وأظهرت النتائج أن معظم العاملين في الصيدليات ومخازن الأدوية لديهم معرفة بمرض حمى الضنك بنسبة (82.1٪). وكانت الاستشارة الطبية هي الخيار الأكثر مشاركة فيما يتعلق بالتعامل مع العلامات التحذيرية لحمى الضنك (بقع حمراء أو بقع على الجلد (59.1٪)، نزيف الأنف أو اللثة (66.9٪)، النزيف المهبلي (74.2٪)، القيء الدموي (72.7٪) وآلام البطن الشديدة (46.4٪). لم يكن لدى النسبة الأكبر من المشاركين أي معرفة تجاه التدبير الإكلينيكي لمنظمة الصحة العالمية للدليل الإرشادي لحمى الضنك (75.5٪). وأظهرت هذه الدراسة أن أكثر من نصف العاملين في الصيدليات ومخازن الأدوية لديهم معرفة بإدارة حمى الضنك (57٪) أظهرت هذه الدراسة أن معرفة العاملين في الصيدليات ومخازن الأدوية بمديرية المكلا بالتعامل مع حمى الضنك لم تكن مرضية، وهذه النتيجة تسلط الضوء على الحاجة إلى برامج علمية واسعة لزيادة معرفة العاملين في الصيدليات ومخازن الأدوية تجاه العاملين في الصيدليات. إدارة حمى الضنك لذلك سيتم سد هذه الفجوة.

الكلمات المفتاحية: مرض حمى الضنك. مخازن الأدوية، ادارة الصيدليات، العاملين