

Factors Affecting Utilisation of Insecticide Treated Net among Household with Children Less than Five Years in Hodan District, Mogadishu, Somalia

Mohamed Hassan Mohamed¹, Hafsa Mohamed², Anisa Hassan³

¹Public and Environmental Health, Somali International University, Mogadishu, Somalia

²EPI Program, Health Center, Mogadishu, Somalia

³Health Center, Mogadishu, Somalia

Email: tacshiiir@gmail.com, Mhafsa235@gmail.com, Anisahassan156@gmail.com

How to cite this paper: Mohamed, M.H., Mohamed, H. and Hassan, A. (2020) Factors Affecting Utilisation of Insecticide Treated Net among Household with Children Less than Five Years in Hodan District, Mogadishu, Somalia. *Journal of Biosciences and Medicines*, 8, 194-204.

<https://doi.org/10.4236/jbm.2020.88017>

Received: June 29, 2020

Accepted: August 24, 2020

Published: August 27, 2020

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Abstract

Malaria is hyper-endemic in Somalia and remains one of the leading causes of morbidity and mortality, especially vulnerable groups such as old people, pregnant women, and children under five years. The prevalence of the disease is the highest along the rivers, settlements in southern Somalia, with artificial water reservoirs, where there is a year-round transmission. About 80% of malaria cases in Somalia occur in the Shebelle and Juba river basins. Outside of the malaria-endemic areas, it is estimated that 87% of Somalia is at risk of being exposed to malaria epidemics. According to a recent KAP (knowledge, attitude, and practices) survey, less than 10% of the households have Insecticide-treated mosquito net. This cross-sectional study was conducted to describe the factors affecting utilization of Insecticide-treated net among households with children under 5 years in Hodan district. The study was all adult households (more than 18 yrs.) with five years. A total of 50 respondents were interviewed during the period of data collection. A structured questionnaire dealing with socio-demographic characteristics, household's knowledge about the Insecticide-treated net and availability and ownership and uses of Insecticide-treated net were used as data collection instrument. Results were presented in frequency tables and graphics. The majority of respondents indicated that 30 out of 50 (60%) have Insecticide-treated mosquito net while 20 out of 50 (40%) do not have it. The main reason for those who do not have Insecticide-treated mosquito net they did not able to afford it. Knowledge about malaria and Insecticide-treated mosquito net importance, the majority of respondents (92%) believe that there is a great benefit to use Insecticide-treated mosquito net for a reason to protect them mosquito bites.

20 (40%) were primary education and they didn't know the causes of malaria (38 out of 50, 76%). The households of the Hodan district need special attention to the utilization of Insecticide-treated mosquito net. Free provision of Insecticide-treated net awareness creation on the utilization of Insecticide-treated mosquito nets and participated in an income generates supremely important activities. This study demonstrated a wide gap between knowledge, Insecticide-treated mosquito net ownership, and Utilization among the household with children less than 5 years. Therefore, the suggested recommendations arising from this study are for effective case management and control efforts of malaria. One of the strongest weapons in the fight against malaria is the use of insecticide-treated mosquito net while sleeping.

Keywords

Malaria, Insecticide Treated Bed Nets, Household, A Mosquito Net

1. Introduction

Malaria is an infectious disease that infects millions of people on the global annually. The disease may be a global ill health, which affects mainly young children especially those but five years aged. Everybody [1] [2] especially the non-immune is at risk of getting the disease [3] [4]. Malaria is caused by any of the human parasites including; plasmodium falciparum, plasmodium malaria, plasmodium varix, and plasmodium ovale. The most dangerous and common malaria parasite is the plasmodium falciparum [5] [6].

It is believed that the Anopheles mosquito feeds in the night and mainly between 10.00 pm and 4.00 a.m. and this is peculiar to Africa [7]. It could be the reforest aid that if people are made aware of the eating habit of the Anopheles mosquito and the use of the insecticide-treated net is promoted; the rate of malaria infection will reduce to an appreciable level [8].

Insecticide-treated mosquito net (ITN) used for cover against mosquito bites has proven to be a practical, highly effective, and cost-effective intervention against malaria. Community-based randomized controlled trials (RCT) in these regions have documented average reductions of 20% altogether causes of mortality in children under 5 years old within 2 years of accelerating ITN use from 0 to 50% - 70% [9]. Scaling up ITN coverage and use by young children and pregnant women have been made a consensus target of the Millennium Development Goals (MDGs), the Roll Back Malaria Partnership (RBM), and thus the US President's Malaria Initiative (PMI). Targeting individual protection to those vulnerable groups could also be a well-founded and explicitly accepted priority of all three initiatives because these groups absolute the best risk of morbidity and mortality from malaria [10].

Insecticide-treated bed net (ITN) is shown to significantly reduce malaria-related morbidity and all-cause child mortality across a variety of transmission settings in Africa, especially children 5 years old and pregnant women [11].

The Roll Back Malaria Partnership has recently set the target of protecting 80% of youngsters and pregnant in danger for malaria with ITNs by 2015. However, preventing malaria morbidity and malaria-related mortality could also be minimized if ITN isn't properly and consistently employed by vulnerable populations [12]. Although ITN is increasingly accessible in many Sub-Saharan Africa countries, getting people to properly and consistently use ITN has proven difficult. A previous multi-country assessment in SSA using national and sub-national household surveys between 1991 and 2001 found a substantial gap between use and possession among children. Within households possessing a minimum of one ITN, only 55% of youngsters were found to possess slept under an ITN the previous night [13] [14].

Within each country, we present factors related to ITN use among children younger than 5 within ITN-owning households to isolate factors aside from access to an ITN influencing use. Although we recognize that information on the utilization of bed nets, treated or untreated, is beneficial for investigating factors associated with their use, this analysis focused on ITN only because [15]. ITN are according to international targets. ITNs, especially long-lasting ITNs, are increasingly more prevalent in SSA than untreated net; and ITN have a bigger impact on preventing malaria and thus their use is probably going different from older untreated net [16].

Some demographic factors are identified as important predictors of ITN use including gender, wealth, access to health care, education, and ethnicity [17]. This study was aimed toward determining the factors affecting utilization of insecticide treated net among household with children under five years [18].

Malaria may be a major health concern in Somalia. The prevalence of the disease is highest along the rivers, settlements in southern Somalia, with artificial water reservoirs, where there's year-round transmission. About 80% of malaria cases in Somalia occur within the Shabelle and juba river basins. Outside of the malaria endemic areas, it's estimated that 87% of Somalia are in danger of being exposed to malaria epidemics. consistent with a recently KAP (knowledge, attitude and practices) survey, but 10% of the households have ITN [19] [20].

Malaria may be a major public ill health in Somalia. the present strategy of the National Malaria Control Programmers absent, there's no effective case management and therefore the use of insecticide treated bed net among vulnerable groups like children under-five years aged and pregnant women are very low [21].

One recommended intervention from the planet Health Organization (WHO) that has been implemented to make sure successful malaria prevention and control is that the use of Insecticide-Treated Net (ITN) [22] [23] [24] [25]. Evidence from the literature has shown that the utilization of ITN reduces malaria incidence in endemic areas by 50% compared to areas where there's no net use, and it's also cost-effective. However, despite known evidence that these interventions significantly reduce malaria incidence and associated morbidity and mortality, there's still a coffee rate of implementation and usage [26] [27] [28].

2. General Objective of the Study

The main objective of this study is to assess the factors affecting utilization of insecticide-treated nets among household with children five years in Hodan District.

Specific objectives

- To assess the knowledge of malaria among households with children under five years.
- To identify barrier the use of ITN as prevention and control tools against malaria.
- To identify ownership and usage of ITN among the household.

3. Methodology

This study employed a cross-sectional study design. Cross-sectional studies are use questionnaires for data collection with the view of generalizing from a sample to a population. The area of this study is Hodan District, the study populace was representative 50 household with children under five years in hodan district, **Sample** size is **50** representatives was conveniently selected randomly from the population live in Hodan district. Data was be reviewed, edited and entered into computer and to be analyzed by software program statistical package for social sciences (SPSS) version 16.0.

4. Ethical Consideration

The written ethical approval and clearance was obtained from research ethics committee in Somali International University (SIU). Participation is voluntary. Orally informed voluntary consent was being taken from each participant after explaining the benefits of the study in improving the quality of health services. Confidentiality of the data obtained was being assured.

5. Result

5.1. Socio-Demographic Data

A total of 50 respondents participated in the study. Each respondent represented a household. The majority of respondents by gender shows that 33 (66%) of respondents were female, while 17 (34%) were male the mean age twenty-four, (48%) respondents were aged 26 - 35 years; and 33 (66%) were married. About 21 (42%) had at least a primary level of education. Regarding the occupational status of the participants, housewife and students were the highest 25 (50%) were housewife's while 11 (22%) are students (**Table 1**) the paragraph is to describe the content of the table.

Age of children less than five years The majority of respondents by children less than five years shows that 48 (96%) of respondents between 1 - 5 years, while 2 (4%) of respondents between 6 to 10 and 44 (88%) had several bedrooms between 1 to 6 (**Table 2**).

Table 1. Socio demographic characteristics of respondents.

Characteristic		Frequency	Percent %
Gender	Female	33	66
	Male	17	34
Age	18 - 25	12	24
	26 - 35	24	48
	36 - 45	10	20
	Above 50	4	8
Marital status	Single	16	32
	Marriage	33	66
	Divorced	1	2
Education level	Primary school	21	42
	Secondary	12	24
	University	13	26
	Others	4	8
Employment status	Housewife	25	50
	Jobless	6	12
	Self-employment	7	14
	Students	11	22
	Others	1	2

Table 2. Age of children less than five years.

Variables		Frequency	Percent %
children less than five years	1 - 5	48	96
	6 - 10	2	4
number of bedrooms in your household	1 - 6	44	88
	7 - 12	6	12

5.2. Household's Knowledge of ITN

this table shows that all of a respondent are heard about mosquito net treated with insecticide and 20 (40%) of respondent were hear in health workers while 17 (34%) of the respondent are hear in family members and “The majority of respondents remember that 24 (48%) said they use of ITNS protect against malaria infection 11 (22%) said children under five years must sleep under ITNs everyday **Table 2**”.

The majority of the respondents believed there is a clear benefit of ITNs uses shows that 46 (92%) said yes, 2 (4%) said no and 2 (4%) said don't know. the reasons 26 (52%) said do not get bitten by mosquitoes and the respondent are said the main causes of malaria is being in the rain, near collected water and plasmodium. The means of transmission reported including: mosquito bite 47 (94%), presence of lack hygiene 3 (6%) (**Table 3**). The main preventive measure of malaria was reported by the majority, 23 (46%) said use INT while 12 (24%) of respondents said environmental cleanliness (**Table 3**).

5.3. Ownership and Use of ITN

The majority of 30 (60%) of respondents have INT while 20 (40%) of respondents

Table 3. Household's knowledge of ITN.

Variables		Frequency	Percent %
Do you Heard about mosquito net treated with insecticide	Yes	50	100
	No		
where did you first hear or seen it	Family member	17	34
	Community	4	8
	Radio	5	10
	Television	3	6
	Health facility	20	40
	Other	1	2
what do you remember best about ITN health message	ITNs is safe to use for the whole family	10	20
	must sleep under ITN everyday	11	22
	use of ITN protect against malaria	24	48
	I do not remember anything	5	10
Do you think ITN have any benefits?	Yes	46	92
	No	2	4
	I do not know	2	4
if yes what do you think are the benefits of ITN	do not get bitten by mosquitoes	26	52
	do not get malaria	21	42
	other insects	3	6
the main cause for malaria you knows	being in the rain	15	30
	Drinking dirty water	8	16
	Living near collected water	15	30
	Plasmodium	12	24
transmits malaria	mosquito bite	47	94
	lack of hygiene	3	6
preventive measures of malaria	use ITNs	23	46
	environmental clean	12	24
	destroying breeding sites	5	10
	uses of antimalarial	1	2
	use insecticide sprays	8	16
	using repellents	1	2

have not INT all households. The reasons for unavailable INT include: is too expensive 10 (20%) of respondents are said. And respondents 10 (20%) get two or more INT by households. The majority of respondents who got ITNs indicated that 18 out 30 (36%) got purchase system 7 out of 30 (14%) 7 (14%) got free from local NGO while 5 out of 30 (10%) got free from government sources and Most respondents used ITN 12 (24%) said during rainy season 12 (24%) said when sees mosquitoes 11 (22%) always (**Table 4**). Most respondents asked if net treated with insecticide 25 (50) said no 17 (34%) said yes while 8 (16%) said do not know. And this table indicated that the majority of the respondents said no 35 (70%) while said yes 15 (30%).

6. Discussion

The socio-demographic characteristics identified to be influencing ITN use in hodan district include age, educational level, occupation and marital status.

Table 4. Ownership and use of ITN.

Variable		frequency	Percent %
do you have ITN	Yes	30	60
	No	20	40
If no, reasons for unavailability of ITNs	it is not necessary	4	8
	it is too expensive	10	20
	old, then thrown away	1	2
	house structure affects net use	4	8
	afraid of its toxicity	1	2
	missing	20	40
If yes, how many ITN do you have in your household	One	10	20
	Two	10	20
	Three	7	14
	Four and above	3	6
	Missing	20	40
How did you get ITN?	free from the government	5	10
	local NGO	7	14
	purchase system	18	36
	missing	20	40
When should you use ITN?	Always	11	22
	during rainy season	12	24
	when sees mosquitoes	12	24
	some times	7	14
	don't know	8	16
Is your ITN treated with insecticides?	Yes	17	34
	No	25	50
	Do not know	8	16
Do you know the difference between ITN and non-treated nets?	Yes	15	30
	No	35	70

The majority respondents of age indicated that 24 (48%) were between 26 - 35, the majority of respondents of education indicated that 21 (42%) were primary, the most respondents of the employment status shows that 25 (50%) were housewives and the most respondents who participate answered for the questions of marital status 33 (66%) were married.

The all respondents have seen or heard the mosquito net treated with insecticide and said yes, shows that 50 (100%). Most respondents had heard or seen ITN include health facility and health workers, the family members, radio, the community meeting and television. The majority of the respondents believed there is a clear benefit of ITN uses shows that 46 (92%) said yes, 2 (4%) said no and 2 (4%) said don't know. the knowledge of respondent's main causes of malaria is very different 15 (30%) s) said malaria cause being in the rain 15 (30%) said near collected water 12 (24%) said plasmodium such as plasmodium falciparum, plasmodium vivax, plasmodium malaria and ovale while 8 (16%) said drinking dirty water. The majority of respondents indicated that 47 (94%) said

malaria transmitted by mosquito bite while 3 (6%) said malaria transmitted by lack of hygiene. Most respondent mention the main preventives measure of malaria these ways and indicated that 23 (46%) said use ITN. The majority of the respondents indicated that 30 (60%) said yes while 20 (40%) said no. The majority of respondents who got ITN indicated that 18 (36%) got purchase system 7 (14%) 7 (14%) got free from local NGO while 5 (10%) got free from government sources. the majority of the respondents did not known difference between insecticide treated net and non-treated net 35 (70%) said no while 15 (30%) said yes.

7. Conclusion

In conclusion, the usage of insecticide treated nets by under-fives was low despite the high level of awareness within the community about them. Besides, even some households with nets weren't using them consistently. Factors like knowledge of ITN, level of education, legal status and occupation of caregiver affected ITN utilization by under-fives in households. Thus, interventions to extend net ownership and use among fewer than five should take into thought these variables.

Recommendation

At last, although the govt with bolster from other partners has as lately began on huge scale distribution of nets in tall hazardous areas, more interventions from different partners are required to increase accessibility and availability of subsidized forever treated nets, counting mediations to deal with non-compliance to legitimate utilization of nets. Further efforts to extend IT coverage should be matched with efforts to extend their proper utilization. There's need also therefore, additionally to increasing ITN ownership, to teach caregivers on the importance of using ITN properly and consistently. Proper utilization of ITN, alongside other initiatives like indoor residual spraying might greatly contribute in reducing malaria. This belief illustrated a good hole between knowledge, ITN possession and Utilization among the household with children but 5 an extended time. Hence, the proposed suggestions emerging from this consider are to effective case managements and control efforts of malaria. One among the strongest weapons within the fight against malaria is that the use of insecticide-treated mosquito net (ITN) while sleeping. The utilization of Insecticide-Treated Net (ITN is one recommended intervention to make sure successful malaria prevention and control globally). Use of ITN improved the reduction of mortality and morbidity of malaria to market awareness of the behavioral change communication (BCC) intervention of the community in Hodan districts to use ITN. To strengthen the system and structural responses of the mosquito vector control programs including ITNs uses. ITN dissemination and BCC messages on malaria avoidance programmes should go parallel. Not only use of ITN but also use of other preventive methods like environmental cleanness, use insecticide sprays,

destroying breeding site of the vector, and using repellents. There's the necessity for a robust collaboration among major stakeholders including the govt, District Authority, and Non-Governmental Organizations to sensitize the communities on Malaria as a disease also as creating the all-encompassing and compelling strategies for anticipation and control.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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