Research Article

A Community Based Research Study on the Association of Risks Factors of Behavioral Nature to Dengue Spread Infections

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ABSTRACT

Objective: Research was aimed at the determination of the associated factors of risk (Behavioral) in the dengue spread infections specifically in the rural setting of Pakistani community.

Method: Research was cross-sectional and it was based on the questionnaire. Research was completed in the time span of six months as it started from Sep, 2013 and culminated on Feb, 2014.Research included a total of 350 participants through systematic random sampling for every household unit. A total of 3225 houses were surveyed for the selection of this sample. SPSS-21 was used for the data entry and analysis and the presentation of the categorical data was completed through proportions and numerical variables including Mean and SD. Chi-square testwas carried out for the observation of the association of the risk factors of behavioral nature in terms of the dengue spread in the rural societies of Karachi, Pakistan.

Results: Dengue infection is diagnosed clinically in the 203 cases (58%), they were admitted in the hospital in the period of Aug, 2012 to Feb, 2013. In the total research sample, the higher frequency was observed in the age group of 37 – 54 years that is 44 percent (Number =154).Self-mosquito bite protection behavior had a significant p-value of (<0.01), breeding mosquito'sself-preventionhad a significant p-value (<0.01), vegetation density with a significant p-value (<0.01), behaviors in terms of the self-efficacy lack was observed in the vector control with significant p-value as (<0.01) and preventive measure lack in the rural community was significant as (<0.01)and it had a significant association with the infection spread of the dengue.

Conclusion: There is an association of the risk factors of behavioral nature with the infection spread of dengue in rural settings includes the lack ofpreventive measures in a society, understanding of the models of health belief system, awareness,self-prevention in mosquito breading, high vegetation densityand control factor self-efficacy.

Keywords: Risk factors, Dengue Transmission, Behavior, Infection Control and Community-Based Research.

INTRODUCTION

In the worldwide scenario of Dengue,it is considered as the principle problem in the health sector. At present the infection of Dengue is an endemic in the under-developed tropical countries [1]. Its count of the out-breaks is increasing and its infection is endemic in more than hundred countries. America and Africa are considered as the endemic countries including Western Pacific and Southeast Asian countries [2]. Multifactorial origin is displayed by the Dengue infection which includes an enhanced rate of the uncontrolled vectors,urbanization, repellent non-use, self-mosquito protection from the bite, self-prevention in the mosquitos breading, vegetation density, self-efficacy controlling vector lack,community preventive measure lack, belief of health model, awareness lack, household water container non-covered [3 – 7]. In few of the geographical locations infections of the virus are unapparent and subclinical. The rate of the Seroprevalence in the settings of a community can be high instead of the low detectable cases. An increased incidence

of the disease in the secondary cases of the infection is severe and serious threat to the general public and for the healthcare department [3].

Behavior of the community including health of the individual and believes are the representation of the involved factors of risk for the dengue infection transmission. Surveillancetypes are dependent on the dengue infection variability in the society and the factor of self-efficacy at the level of a community and individual for the dengue prevention also becomes important. The measurement of the self-efficacy was carried out through a questionnaire distributed in the society [4]. Behavior of the health behaviors is known as methodologies and beliefs of general population in terms of their maintenance of the health, disease prevention and an in-time diagnosis of the behavior and healthcare standard deviation. There is a wide cultural variation and risk factors are involved in the behavior modificationof the human.The risk factor which can be modified are reasoning, perception, skills and habitsfor theexecution of disease control programs [5, 6, 7]. The community and individualbehaviors about the treatment and illness againstdisease symptoms are available with variations.The model of the human belief for disease avoidance through an individual also includes as the part of their belief; diseasesusceptibility of an individual, disease occurrences with severity on one's life, a specific action will definitely benefit with decreased disease susceptibility, overcoming pain and cost factors are not involved in the disease development [8, 9]. Research was aimed at the determination of the associated factors of risk (Behavioral) in the dengue spread infections specifically in the rural setting of Pakistani community (Gulshan-e-Iqbal Town). Research was cross-sectional and it was based on the questionnaire. Research was completed in the time span of six months as it started from Sep, 2013 and culminated on Feb, 2014.

Method

Research was cross-sectional and it included a total of 350 cases in the survey conducted in the population of the Gulshan-e-Iqbal (Karachi). The size of the research sample was calculated through software (OpenEpi software). Escobar-Mesa reflects 70% case concentration among the localities with an involvement of the risk factors and dengue infection spread. To calculate the size of the research sample risk was taken as seventy percent in the non-exposed and exposed community groups. Significance level as (5%) andlevel of confidence (95%)having research power as (80%) in the total sample of 323 cases. Therefore, included research sample was 350 and further addition refusal marked as the final sample size.

Subjects were selected through random sampling that was random consideration was one unit as each household. The probability systematic samplingtechnique was used in this study. A total of 3225 houses were surveyed for the selection of this sample. SPSS-21 was used for the data entry and analysis and the presentation of the categorical data was completed through proportions and numerical variables including Mean and SD. Chi-square test was carried out for the observation of the association of the risk factors of behavioral nature in terms of the dengue spread in the rural societies of Karachi, Pakistan.
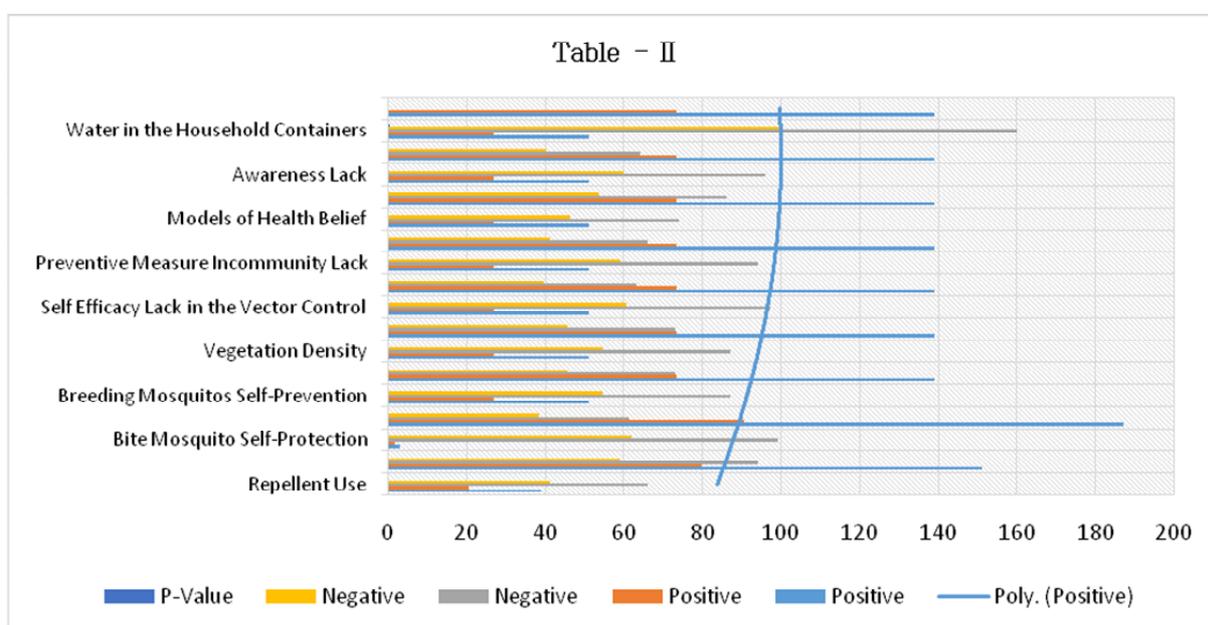
RESULTS

Table 1. Demographic Characteristics (n= 350)

Disease	Detail	Number	Percentage
Dengue Fever	Negative	147	42
	Positive	203	58
Age Group	18 – 36	119	34
	37 – 54	154	44
	55 – 72	77	22
Sex	Male	161	46
	Female	189	54

Ethnicity	Sindi	140	40
	Punjabi	63	18
	Pushto	63	18
	Baluchi	63	18
	Muhajir	21	6
Marital Status	Unmarried	160	46
	Married	161	46
	Divorced or Widow	29	8
Per Month Family Income	10000	269	77
	> 10000	81	23
Education	Illiterate	63	18
	Primary or Less	140	40
	Matric	56	16
	Graduate	35	10
	Post-Graduate	56	16
Occupation	Yes	203	58
	No	147	42
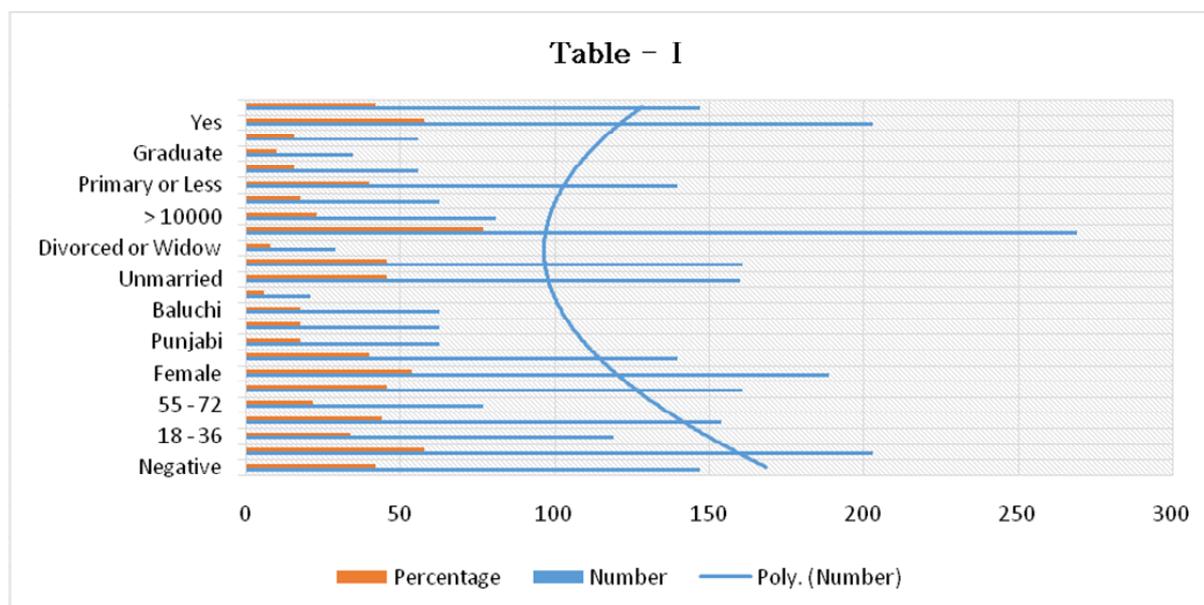
Table – I

Table 2. Association of behavioral risk factors associated with transmission of dengue infections (n = 350)

Characteristics	Response	Positive		Negative		P-Value
		Number	**Percentage**	**Number**	**Percentage**	
Repellent Use	Agree	39	20.5	66	41.2	< 0.01
	Disagree	151	79.5	94	58.8	
Bite Mosquito Self-Protection	Agree	3	1.6	99	61.9	< 0.01
	Disagree	187	90.4	61	38.1	
Breeding Mosquitos Self-	Agree	51	26.8	87	54.4	< 0.01

Prevention	Disagree	139	73.2	73	45.6	
Vegetation Density	Agree	51	26.8	87	54.4	< 0.01
	Disagree	139	73.2	73	45.6	
Self Efficacy Lack in the Vector Control	Agree	51	26.8	97	60.6	< 0.01
	Disagree	139	73.2	63	39.4	
Preventive Measure Incommunity Lack	Agree	51	26.8	94	58.8	< 0.01
	Disagree	139	73.2	66	41.2	
Models of Health Belief	Agree	51	26.8	74	46.2	< 0.01
	Disagree	139	73.2	86	53.6	
Awareness Lack	Agree	51	26.8	96	60	< 0.01
	Disagree	139	73.2	64	40	
Water in the Household Containers	Agree	51	26.8	160	100	0.05
	Disagree	139	73.2	0	0	

Table – II

Dengue infection is diagnosed clinically in the 203 cases (58%), they were admitted in the hospital in the period of Aug, 2012 to Feb, 2013. In the total research sample, the higher frequency was observed in the age group of 37 – 54 years that is 44 percent (Number = 154). Self-mosquito bite protection behavior had a significant p-value of (< 0.01), breeding mosquito's self-prevention had a significant p-value (< 0.01), vegetation density with a significant p-value (< 0.01), behaviors in terms of the self-efficacy lack was observed in the vector control with significant p-value as (< 0.01) and preventive measure lack in the rural community was significant as (< 0.01) and it had a significant association with the infection spread of the dengue. Analysis through Chi-square reflects about the repellent behavior as related significantly with dengue transmission having significant p-value of (<0.01).

The method of percentage calculation depends on column percentagesfor the absence and confirmation of the infection. An individual's behavior about the belief of health was significant with a p-value of (<0.01), lack of awareness significant p-value as (<0.01) and uncovered households containing water with significant p-value as (<0.01) as reflected in Table-II.

DISCUSSION

Clinical diagnosis observed the infection of dengue in the total of 203 patients with a proportion of (58%), after the diagnosis the hospital admission of the patients was carried out. Research reflected that females were in dominance and low-paid circles were much involved in the dengue infection as people having less than ten thousand of the monthly income were excessively involved in the incidence of dengue infection. Involvement of literacy also had an association with the infection observed in total of 269 patients (77%).

Research survey also reflects about the repellent behavior had a significant relation with the transmission of the infection having significant p-value of (<0.01).Behaviors such as Dengue infection which includes an enhanced rate of the uncontrolled vectors, urbanization, repellent non-use, self-mosquito protection from the bite, self-prevention in the mosquitos breading, vegetation density, self-efficacy controlling vector lack, community preventive measure lack, belief of health model, awareness lack, household water container non-covered has significant association with the infection of dengue with a significant p-value as (<0.01) [12].

Dengue complexity has also a close relation with the risk factors, environmental characteristics and rural areas spatial heterogeneity. Survey also indicates that factors of the risk involve environmental, individual and community behaviorsfactors. *Aedesaegypti macro geographical level in rural* distribution is closely linked with the dengue spread, same has been observed in numerous other research studies. Research studies also reflect that at the level of meso-geographic house drinking and aggregations were the common rural areas involved risks. Breeding of *Aedesaegypti* was associated to the potable residual water reserves. The breeding of *Aedesaegypti* showed plastic drums prevalence in rural setting and survey shows that changing habits are also related to the factors of the risk [11].

Public awareness and healthcare programs are required for the rural area dengue vector control. As it is reflected through the sanitation environment that community is under threat because of the sanitation condition.Before rainy season the status of the health, sanitation and water supply needs attention in any society. Biological complicationsfor disease of vector-borne nature and primary health-care systemsare also significantly lowering the infection spread [12].Community participation and support is mandatory along with special skills of the professionals in terms of Dengue infection which includes an enhanced rate of the uncontrolled vectors, urbanization, repellent non-use, self-mosquito protection from the bite, self-prevention in the mosquitos breading, vegetation density, self-efficacy controlling vector lack, community preventive measure lack, belief of health model, awareness lack, household water container non-covered. Dengue transmission basis on the behavior of the individual in terms of their belief of the healthcare model, awareness lack about the household water container. Our research points out the societal interventions for monitoring and prioritizing the vector control.

CONCLUSION

There is an association of the risk factors of behavioral nature with the infection spread of dengue in rural settings includes the lack of preventive measures in a society, understanding of the models of health belief system, awareness, self-prevention in mosquito breading, high vegetation density and control factor self-efficacy.

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