DOI: https://doi.org/10.53350/pjmhs22163405

ORIGINAL ARTICLE

Socio-Economic and Psychological Effects of Dengue upon the Patients in Faisalabad

ZIA MAHMOOD[1], MUNAZZAH MANZOOR[2], SHABBIR AHMAD[3,4], SAIRA AKHTAR[5], USMAN HABIB[6], ZAIGHUM AQEEL ATIF[7]
[1]*Department of Sociology, Govt. Associate College 170/J.B Jhang*
[2]*Department of sociology, Virtual University of Pakistan*
[3]*College of Humanities and Development Studies, China Agricultural University, No 17, Qinghua Donglu, Haidian District, 100083, Beijing P. R. China.*
[4]*University of Agriculture, Faisalabad, Sub-Campus, Burewala-Vehari, Punjab, Pakistan*
[5]*Department of Rural Sociology, University of Agriculture, Faisalabad, Punjab, Pakistan*
[6,7]*Department of Sociology, Government College University Faisalabad*
Corresponding author: Zia Mahmood, Email: z.m.kashmire@gmail.com

ABSTRACT

The rise in the incidence of dengue in Pakistan has adversely affected the country's developing economy and also its health planning. Dengue is an illness with profound social, economic, and health effects and costs to the Pakistani society. In many developing countries dengue outbreaks are a source of huge economic burden. Dengue has important economic consequences because of the burden to hospitals, work absenteeism and risk of death of symptomatic cases. The causal relationship between a physical illness and the psychological symptoms is a well-known phenomenon. A cross-sectional research was carried out in Faisalabad involving patients who were diagnosed to have dengue fever. Face to face interviews using interview schedule were carried out. 150 respondents were selected using simple random sampling from the sampling frame of the patients' list. 36.7 % of the respondents were of the view that low income to adopt preventive measure was the major cause of dengue. 51.3 % of the patients felt psychological issues like depression, anxiety and post traumatic disorder. In bivariate analysis, a non-significant relationship was found between income and tendency of preventive measure which reflected that people from all income groups were prone to be affected. However, significant relationship between education and preventive measure was observed. The government should make a holistic approach to consider the social, economic and psychological effects of dengue upon the patients.

Keywords: Dengue, Preventive measures, Psychological, Socio-economic

INTRODUCTION

Dengue is a mosquito-borne viral disease endemic in tropical and subtropical countries of the world, where the majority of the population resides and is escalating most rapidly. Infect, most of these nations are economically not too strong and are facing with multiple public health problems. This has arisen as a serious international public health hazard with almost half of the world's population at risk of infection (Guzman and Kouri, 2002).

Dengue has become an epidemic in Pakistan, because of many over crowded cities, unsafe drinking water, inadequate sanitation etc. It has engrossed the attention of the Pakistani Government, especially the Punjab Government since it is widespread in the country. It has killed over 300 people in the last several months and over 14,000 are infected by dengue (Jahan, 2011).

About two billion population living in tropical and subtropical areas of the world, and an additional approximately 120 million people every year travelling to these regions, a huge share of the world's population is at the risk of dengue. According to two estimates 50 and 100 million cases of dengue fever (DF) occur per annum, corresponding to an incidence rate of 2.5–5.0% of the two billion people at risk. These cases result in hundreds of thousands of hospitalizations, and about 20 000 deaths annually (Porter, 2005).

There are two types of cost, 'direct' and 'indirect' costs. Direct costs are within the health-care system. They consist of the cost of diagnosis, treatment and preventive measures of dengue. Prevention costs take account of activities to prevent dengue, such as vector control. Indirect costs are the economic value lost by households of the patient and society owing to illness and mortality of dengue patients and productivity losses of family members and friends affected (Shepard et al., 2001).

Work productivity losses and school absenteeism as a result of dengue infections have not been accurately evaluated in many of countries in the world. Similarly, care-seeking behavior, family out-of-pocket spending on treatment for dengue, caregiver's time, and family and psychological disruption have not been systematically or consistently measured (Okanurak , 1997).

A study done in Pakistan has reported a significant prevalence of anxiety and depressive symptoms in patients diagnosed with dengue fever (Hashmi et al., 2012). Further studies indicate that patients suffering from dengue fever had developed conditions such as phobic disorders and post-traumatic stress disorder (Mushtaq and Zahir, 2016).

There is need to address the socio-economic and psychological effects of dengue upon the patients. As there are lot of research on physical consequences of dengue, but social and psychological implications are not well documented. Hence, the main objective of the present research to explore these effects of dengue.

Literature Review: Clark et al., (2005) found that dengue fever and dengue hemorrhagic fever constitute a substantial health burden on the population in Thailand. They examined the direct cost of hospitalization, indirect costs due to loss of productivity, and the average number of persons infected per family, they observed a financial loss of approximately US$61 per family, which is more than the average monthly income in Thailand.

WHO (2007) estimated that 40% of the world's population live in areas endemic for dengue fever, and that there are approximately 50 million cases of dengue infection worldwide every year. Estimating the economic impact of dengue fever/dengue hemorrhagic fever is important in order to prioritize resources for research, prevention, and control. The study shows that the average family cost of treating one child is approximately 61 USD including direct and indirect costs. On average, the largest expenses were those related to the initial visit at a local general practitioner, the hospital bill from Children's Hospital No1 and lost income for the parents.

Garg et al., (2008) found that dengue infections are a significant cause of morbidity and mortality and lead to adverse economic effects in many developing tropical countries. They estimated the economic burden faced by India during the 2006 dengue epidemic. Costs incurred in managing a cohort of serologically confirmed dengue patients at a tertiary-level private hospital in north India were calculated. Variables with potentially large variations, including the ratio of unreported to reported cases and of hospitalized to ambulatory cases, the proportion requiring transfusions, loss of economic activities due to loss of workdays and deaths, were used. Costs in the private health sector were estimated to be almost four times public sector expenditures.

Huy et al., (2009) discovered dengue and other febrile illnesses pose a financial burden to households in Cambodia. A

possible reason for a lower rate of hospitalization among children from poor households could be the burden of higher illness-related costs and debts.

Shepard et al., (2011) stressed that the growing burden of dengue in endemic countries and outbreaks in previously unaffected countries stress the need to assess the economic impact of this disease. Dengue illness in the Americas was estimated to cost $2.1 billion per year on average (in 2010 US dollars), with a range of $1–4 billion in sensitivity analyses and substantial year to year variation. The results highlight the substantial economic burden from dengue in the America. The burden for dengue exceeds that from other viral illnesses, such as human papillomavirus (HPV) or rotavirus.

A study conducted by Jhanjee et al., (2013) has reported that the most of the patients suffering from dengue fever demonstrated significant psychiatric morbidities. The psychiatric symptoms encountered in the acute phase of dengue fever were fear of death followed by anxiety and associated symptoms.

DATA SOURCE AND METHODOLOGY

This cross-sectional research has been carried out in district Faisalabad. For the purpose of data collection, a list of Dengue patient was taken from the Allied as well as from the District head Quarter (Civil) hospital Faisalabad .There were 1509 patient in the list of allied hospital from all over the Punjab, After the short listing of patients belonging to Faisalabad, there were 912 patients in Allied hospital. And there were 323 patients in civil hospital among 202 patient were from Faisalabad. After submerging the both the lists in to one list there was a sampling frame of 1114 patient. A total of 150 respondents were selected from the main sampling frame of 1114 patients which is almost the 13.5 % of the population. Simple random sampling technique was used to select the sample from the sampling framework. An interview schedule consisted of closed ended was prepared for face to face data collection.

RESULTS

Table 1 elaborates that 36.7 % of the respondents agreed with the perception that dengue fever is the result of low income due to which the victims failed to adopt preventive measures and 30 % respondent's opinion was opposite to this perception. And 33.3 % respondents had no opinion or didn't reply. Barrera et al., (1995) elaborated that though dengue affects all sectors, it may affect the poorest sector the more. Local vector ecosystem is mainly determined by respective community socio-cultural setting, practices as well as infrastructure, and growing urbanization attracts the poor to per urban peripheral areas and settlements with poor water supplies and ill drainage system.

Table 1: Distribution of respondents according to their perception of low income to practice preventive measures

Low income to practice Preventive measures		Frequency	Percentage
	Agree	55	36.7
	No Opinion	45	30.0
	Disagree	50	33.3
	Total	150	100.0

Table no 2 shows that 71.3 % of the respondents believed that people were hesitated during the interaction with the patient and 20 % respondent didn't think so. And 8.7 % people didn't answer and had no idea.

Table 2: Distribution of the perception regarding the interaction of people with patient

Perception about People Hesitation		Frequency	Percentage
	Yes	107	71.3
	No	30	20.0
	Don't Know	13	8.7
	Total	150	100.0

Table 3 describes that 3.3 % respondents observed symptom of depression, 27.3 % respondents observed signs of anxiety, 2.7 % respondents observed post traumatic disorder in the patients, 15.3 % respondents observed the physical weakness and 51.3 % respondents observed all these symptoms of depression, anxiety, post traumatic disorder and physical weakness in the patients.

It was also observed during a research that in dengue fever a very high percentage i.e. (90%) of patients developed intense fear of death. Because of this phobia about 60% developed sever anxiety and panic attacks (Post traumatic disorder). Most of them settled with reassurance but some needed extra care and psychological treatment (Gill, 2011). In a cross-sectional descriptive study in the ward for dengue combined military hospital (CMH), more than half of the patients (66%) in this study were suffering from anxiety and more than three fourth (81.5%) of the patients were suffering from depression (Khan et al., 2012).

Table 3: Distribution of the respondents according to their observation of other symptoms after dengue

Other Symptoms	Frequency	Percentage
Depression	5	3.3
Anxiety	41	27.3
Post Traumatic Disorder	4	2.7
Physical weakness	23	15.3
All above	77	51.3
Total	150	100.0

According to table 4, the chi-square value (10.587) shows an independence (P=.102) between the independent variable income of the respondents and the dependent variable, practice of the preventive measures against dengue. So the hypothesis "Low income to practice preventive measures is the cause of dengue fever" is rejected because P value is greater than 0.05. it is concluded that higher income groups within society are also at the risk of dengue if preventive measures are not observed.

Table 4: Association between income and tendency of preventive measures

	Agree	Disagree	Don't Know	
5000-10000	14	6	5	25
	56%	24%	20%	100%
10001-20000	18	15	11	44
	36.4%	34%	25%	100%
20001-30000	15	15	26	56
	26.7%	26.7%	46.6%	100%
30001+	8	9	8	25
	32%	36%	32%	100%
Total	55	45	50	150
	36.7%	30%	33.3%	100%

Chi-Square = 10.6 d.f = 4 P value = 0.102

Table 5: Association between education and tendency of preventive measures

	Agree	Disagree	Don't know	
Elementary Level	7	7	10	24
	29.2%	29.2%	41.6%	100%
Secondary level	33	7	12	52
	63.5%	13.5%	23%	100%
Metric Level	33	7	7	47
	70.2%	14.9%	14.9%	100%
Graduation and above	15	6	6	27
	55.6%	22.2%	22.2%	100%
Total	88	27	35	150
	58.7%	18%	23.3%	100%

Chi-Square = 12.6 d.f = 6 P value= 0.051

According to table 5, the chi-square value (12.6) shows an association (P=0.051) between the independent variable education of the respondents and the dependent variable, tendency to increase the preventive measures against dengue. So it can be hypothesized that an increase in education stimulates the tendency to increase the preventive measures. It shows that

education increases awareness among the people to adopt necessary measures and precautions to save themselves from the dengue.

CONCLUSION

During the past few years, there is significant morbidity, and increasing numbers of deaths due to dengue. Dengue is present in urban and suburban areas of the Pakistan. The high frequency of dengue fever and the presence of the low awareness in the general public regarding its cure and treatment, emphasize the need to prevent and control dengue infection through proper measures and research. The study revealed that due to low income people were unable to adopt necessary preventive measure. The attitude of the people and visitors towards patient was also not good, as most of them hesitated to interact with the patient thinking it might be transmitted from the physical contact or intimacy. Dengue fever had caused deep stress and leads to serious psychological distress among patients. Most of the patients had observed anxiety, depression, physical weakness and serious symptoms like post traumatic disorder. There is always a strong possibility of occurrence this epidemic every year, so it is the responsibility of the policy makers and physicians to pay consideration towards the mental health as well along with the socio-economic wellbeing of the patients. And it can only be battled by taking appropriate measures on proper time, as there is a famous proverb, “Prevention is better than cure”.

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