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www.advancelrf.org**The Societal Economic Burden of Dengue and Awareness Impact****Muhammad Ismail Nasir**Co-Principle Investigator and Lecturer of FMS
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FUSST, FUI Islamabad, Pakistan.Email: Iftikhar.hussain@fui.edu.pk**Abstract**

This study intended to interrogate the impact of societal economic expression of dengue and awareness campaigns specifically in Pakistan whereas, in the literature various impact of dengue in the aspects of biological and education sciences, art and humanities, management sciences, engineering and technology and education and human resources has been discussed in the literature review section. This paper reviewed that dengue has drastically damaged the major tropical region all around the globe in the last three decades. It was reported back in 2019 that Pakistan was affected with more than 47,000 cases contemplated as the highest number of dengue cases since 2005 dengue epidemic. This paper compared the facts and figures on dengue disease in respect on societal economic burden and awareness impacts specifically in Pakistan as well as international journals. This study took 1500 sample size of dengue patient from the hospitals and institutions of medical sciences. At the end, it is seen that results are found valid and significant which was analyzed through the statistical tool; SPSS by running correlation and regression model. Moreover, the outcomes of the study imply that factors of societal economic expression of dengue assisted in understanding the figures of diseases.

Keywords: Dengue Epidemic, Societal Economic Impact, Awareness Campaign**Introduction**

Pakistan appears to be one of the exploited countries in which the arise of the Dengue disease has been cemented clasped out like other developed countries all around the globe. Discussing about this disease, dengue is the pandemic problem which belongs to family of mosquitoes (Flaviviridae) and look like with HCV (yellow fever virus and Hepatitis-C virus). This research paper interrogates the influence of societal economic burden of dengue and awareness impacts by exploring the assorted influences related to societal economic conditions as well as behavioral amendments of patients with

500 of sample size. Dengue is now of the most spread viral diseases and has been impacting life on a massive scale especially when it comes to the less developing countries and the sub-tropical or tropical regions in the world. Historically the virus was not paid much attention to due to less deaths and few epidemics but after World War 2, a lot of work was done to control it and many other vector-borne diseases and a war against them was won in late 1960's (Henderson, 1993). Dengue itself is a vector-borne disease which is often transmitted by two mosquitoes which are "Aedes Aegypti" and "Aedes Albopictus". There are many symptoms that are attached with Dengue like Fever, Muscle and Bone Pain and a wide range of symptoms. A study shows that there are almost 96 million visible/apparent and 294 million inapparent infection worldwide yearly (Bhatt, Gething, Brady, Messina and Farlow, 2013). Dengue in itself can be "threatening to life" disease (World Health Organization, 2009) and is the reason for many deaths over the globe, yet there is still no established vaccines or cure for dengue itself which is why it spreads globally and has a very strong emergence (Tatem, Hay and Rogers, 2006).

The rise of Dengue disease has put considerable threats to people's health and have caused considerable costs (Kyle & Harris, 2008; Suaya et al. 2009; Singhasivanon & Jacobson, 2009). At present, no medication or any vaccination is available to treat Dengue virus (Farrar et al., 2007; WHO, 2006). The only treatment, for minor or simply dengue fever cases, is a complete rest and suitable hydration. However, as the disease may develop into Dengue hemorrhagic fever, a great care needed which sometimes ends at hospitalization. It requires continuous monitoring and urine examination. In case of dengue shock syndrome, the third classification of dengue, intensive care unit hospitalization needed (Guha-Sapir & Schimmer, 2015; WHO, 2009).

In Pakistan dengue out-breaks at Karachi in 2005 but in 2010 an epidemic of dengue was declared in three provinces i.e. Punjab, KPK and Sindh which severely hits Lahore with 16580 confirmed cases and 257 deaths and around 5000 cases, and 60 deaths reported from the rest of Pakistan. In 2011, it hits again, and 21685 cases were reported along with around 350 deaths (Saboor et al. 2017). In 2019, Pakistan faces another epidemic of dengue, more than 47000 cases are reported which is the highest number since the dengue out-break in 2005. Since the mild cases are more often not reported, the incidence in these years may be higher than above mentioned numbers. So, this disease is still growing gradually all over the Pakistan starting from Karachi in 2005 (WHO, 2019).

At present, the strategies available to control dengue are reduction of mosquito abundance and lifespan along with mosquito-human prevention (WHO, 2012). These may be achieved by focusing three areas of vector control, dengue surveillance, case management and awareness (WHO, 2019). In this essence, Government of Pakistan is doing some measures; spraying the expected dengue affected areas and making the dengue wards in all big cities and hospitals and media campaign but still this disease is growing.

Outlays for the treatment of dengue is not only incurred by the Government but also by the patients and their relatives. Averagely around Rs.36000/- was the direct cost borne by the individual patient of dengue in 2011 (Rafique et al. 2015) and epidemic cost around 735 million rupees. Along with this direct cost, the indirect cost which was estimated as 133.76 disability adjusted life years per million population (Rafique et al. 2015). However, as there is a substantial variation in number of dengue cases along the years, more research describing the factors and cost of treatment is needed to get the complete picture which helps policy makers to devise the appropriate measures.

To discuss the variability of dengue cases along the cost, this research will estimate the average economic cost borne by the patients of dengue fever as well as the overall cost of dengue fever. It will include direct (medical and non-medical cost) cost as well as indirect cost in shape of disability adjusted life years (DALYs).

Literature Review

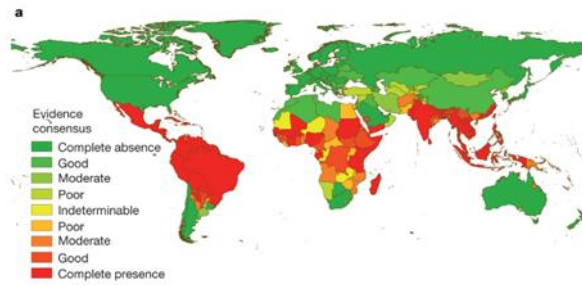
In order to tackle or counter it, it is necessary to know the geographical spread of the virus and the location where it is spreading and what are the environmental factors that could be a cause for that. Also, the demographics of the people that are getting affected like their age and their medical history. To eliminate the Dengue virus, it is necessary to know the internal condition of the people who are being affected the virus. In the past there have been some use for historical records combined with expert opinions which were used to track down the affected areas (Beatty, Letson and Margolis, 2009), (Van Kleef, Bambrick and Hales, 2009), (World Health Organization, 2012). However, these days, or in the more technologically advanced era, more modified and effective mapping techniques have been using which can help in identifying geographic locations where dengue is at its peak and where it is lowest as well (Hales, de. Wet, Maindonald and Woodward, 2002), (Rogers, Wilson, Hay and Graham, 2006).

All this tracking of the virus has been done to defeat it once and for all and also because it has been affecting people's lives all over the globe in different regions and there needs to be a lot of work on research and medicine for the "Dengue" and prevention must be taken so that people can stay safe and there is one less virus in this world. The resources of a developed country vary from the resources of underdeveloped country, which is why in the developing nations Dengue is a priority but there is absence of specific treatments and pricey vector control intervention has caused them to not be able to do much about the cure for it (Beaut and Wong, 2010).

There is absence of human resources and capital and so it is the United Nations and the International Institutions in the developed nations are the ones who are working for this cause. It is necessary that these nations educated the health policy makers to set health policy priorities and to cater to the diseases so that the deaths can be minimized while they are able to share resources to find a solution or a cure for the disease (Stahl, Butenschoen, Tran, Gozzer and Skewes et al, 2013).

There surely is a life-threatening impact when it comes to Dengue virus, but it has also been affecting many other aspects of the macro or the external environment which includes the society and the economic impact. The resources that are being used to cater to eradicating dengue permanently can also be used to improve massive scale economic issues like the rising and peaked inflation with uncertainty in the economic environment that has been existing and how economies have started raising boundaries and import Tariffs. Resources that could have been utilized on social issues and literacy and education and infrastructure are being utilized on Dengue virus prevention. Some of the impacts were directly on many functions/fields or elements that take place in a society like Biological and health Sciences, Engineering and technology, Arts and Humanities, Social, Behavioral and Economic Sciences and Mathematical and Physical Sciences.

As mentioned previously it was seen places with high impact of Dengue can be mapped by the scientists and researchers and then these places can be aided accordingly. Hence it was seen that it was the sub-tropical and tropical regions that were affected highly by Dengue in respect to their lives as well as economic and social elements. Through mapping it was observed that most places near the ocean or closer to the equator line were affected. This was made through BRT (Boosted Regression Tree) stats model of dengue risk. This addresses the previous limitations to old methods and is an updated version which helps in getting an estimate of the most affected regions.



As mentioned before subtropical and tropical regions are highly affected by Dengue in terms of lives as well as economic and social conditions. Some of these countries that can be discussed are Vietnam, Thailand, Columbia and Honduras and Puerto Rico in comparison to Pakistan and impacts of Dengue.

Biological and Health Sciences

The impact of Dengue (A mosquito borne) virus has been massive on the biological and health sciences. This has become a wide scale issue which is why global organizations like WHO have been researching for a cure and there has been a progression in health sciences. Globally almost 2,5 billion individuals get affected by this virus which is why it has become a major cause of concern (Khursheed et al., 2013; Caraballo and King, 2014).

There have been researches in the field of human biology and how this virus affects the biology and health and the research on symptoms allowed researchers to study further on the impacts caused by dengue (Anderson and Rico-Hesse, 2006, Tuiskunen-B and Lundkvist, 2012, Bhatt et al., 2013, Basurko et al., 2018). Through this research the symptoms that were researched were the basic symptoms which were fever, headache, gums, nose and eyes bleeding. The Skin related symptoms were Rashes, Bruising, Petechiae and Purpura.

Pakistan is also affected by Dengue and according to the UN WHO (World health Organization, 2022) it can be seen that between 1st January and September 27, 2022 there were almost 26000 cases with 62 deaths but 74% of these cases alone were reported in September which means that Dengue mosquito is most active in such months due to the weather conditions and the changing/ transitioning weather allows the hatching to start early and hence the dengue season begins. The highest number of cases were in Sindh province, while second highest number of cases were in Punjab, the least cases were in Baluchistan.

If we look at all these stats and how Dengue affected the lives of the people but also the biological and health sciences and how it was impacted by Dengue, we can see that there were many developments and advances. In research due to this topic as it directly affected the health sciences and biology. In Brazil (Caprara, Wellington de Oliveira, Correia Pequeno Marinho, Gondim Calvasina, Paes Landim, Sommerfeld, 2009) and Colombia (Quintero, Carrasquilla, Suárez, González, and Olano, 2009) many researches related to dengue vector development were done, while later comprehensive studies in six Asian countries was done (Arunachalam, Tana, Espino, Kittayapong, Abeyewickreme, Wai, Tyagi, Kroeger, Sommerfeld, Petzold, 2010). WHO is also working hard on Dengue virus and even researches occurred which helped in mapping the dengue outbreaks and how they can be stopped while there is still work going on for the cure. This shows that they have worked immensely in order to make developments and then it shows that there has been a progressive impact on biological and health sciences as it is likely that there can be other cures that can come from this research which may help tackle other illnesses.

Engineering & Technology

Engineering and technology play a big role as it was also one of the most impacted fields by the Dengue and it was because of the outbreaks and constant spread of viral that engineering and technology is helping in a cure development. Engineers study and make equipment that can help develop the cure as well. Researchers from Singapore-MIT allied together and are currently using biotechnology and using treatment (Singapore-MIT Alliance for Research and Technology, 2015), hence whenever problems or issues arise, there is a rise in employment in such sectors and alliances form which allows more developments in such sectors. Using technologically advanced systems developed in SMART (Singapore-MIT Alliance for Research and Technology) laboratories in the Campus for Research Excellence and Technological Enterprise (CREATE) (e.g., the SMART humanized mouse model), the team developed an anti-body and then showed that this novel antibody has the potential to neutralize dengue virus and prevent signs of disease.

Also, researchers in University of Bath have developed ways using advanced technology and specialized engineering that can allow them to detect Dengue virus early (University of Bath, 2019). This technology through engineering innovation and its low cost can be sold to countries with high rate and percentages of Dengue virus infected and are developing or underdeveloped countries. Hence the impact of Dengue Virus on technology and engineering has brought and is bringing innovations which allows engineering revolution and advancement in technology to occur. It is known that difficulty is the mother of new inventions, just like that Dengue Virus is a difficulty and so new engineering machines and technology can help solve this global problem.

In tropical countries the rate of dengue infection is higher than other regions, often where the climate is warmer, which is close to the equator line. Such regions require higher technology and more engineering innovations that can help end the problem of Dengue in the first place.

In Pakistan the equipment for Dengue response is poor and the infrastructure is also lacking that can help in countering the Dengue Virus hence Pakistan is one of those countries that has the opportunity to work on innovative technology and give chances to electrical engineers or other engineering fields that bring in revolutionary technology which will create a good impact on the international forums and also it will give Pakistan power to tackle with such a disease without any international help.

Arts and Humanities

The field of arts and humanities have also been affected but inversely by Dengue Virus. Even though there may be a far-fetched connection but often it is noticed that there is an impact on the social trends because of viruses which in turn impact the field of arts and humanities. Arts can involve many elements like fine arts, theatre, arts of performance, music and visual arts while humanities involve the field of psychology, philosophy and the study of the human culture and its elements. Art is also a part of humanities.

Dengue Virus as mentioned before has taken a lot of lives and caused severe distress to people who were affected by it and caused such people many symptoms which could have caused them to not their art any more like muscle pain, pain in bones, fever, red spots and many more. While many people have been affected by Dengue viral symptoms adversely in terms of physical health, their art has also been affected. If we talk about street theatre or open-door concerts, they halt in the Dengue season and do not take place because most people are affected by it and hence due to their symptoms, they cannot go to see concerts and performances which adversely affects the musicians who create music for the sole purpose of concerts and also the artists who display their art in a gallery but no one is really there to see it. At times of any epidemic or viral, people prefer to stay home which disrupts the social system or the way society functions and brings changes in trends. These trends and the way

people feel about something also changes the music and the performances that are displayed and the modes of showing art changes. If we recently see the events that followed 2019-2021, there was Covid which took many lives, even though it as a pandemic situation, many forms of art emerged and many new ways of connecting with each other showed up, hence technology contributed to continuance of art and humanities so this way the society evolved which can also show that there is a positive impact of Dengue Viral for people doing art.

The culture and art forms in Thailand has also evolved massively and they allowed their traditional forms of art which were influenced by the Indian culture and the Hindu Gods to have more western elements, in particular their theatre, their music and elements of art are now westernized, and as western artists add the impact of pandemics and sicknesses and the losses to a society by a force of nature, the Thai arts and humanities were also affected because they too add these elements as the western culture does. Similar is the case in Columbia, Honduras and Puerto Rico as they are bringing more advancements in their culture and music and art and their humanities. Pakistan on the other hand does not acknowledge sickness or societal impact in their art and that is very rare in Pakistani culture because they are still working on the perfect balance between the infusion of the western art with their traditional eastern art forms and the biggest example is Coke Studio's latest season for that

Social, Behavioral and Economic Sciences

Due to severe Dengue conditions like dengue fever and many other symptoms people are hospitalized which has affected the economic expenditure on health care which could have been utilized in development and infrastructure. According to World Health Organization it was stated that there are 36 million cases of dengue annually with 2 million cases of fever which causes hospitals to be full of patients (World Health Organization, 2011). There was a cost analysis of 144 patients who were serologically confirmed for having dengue and were admitted in the "Can Tho" and "Can Tho" Children's hospital in southern Vietnam and the cost of being admitted there (Both direct and indirect) were USD \$61.36 and it increased to USD \$126.80 due to dengue fever and severity of disease which shows a direct economic impact. There are also changes in behavioral and social system of Vietnam society as they prefer to stay away from each other even though they have a conservative Asian culture which is welcoming but the virus has caused them to be distant and precautionary as a society (Van Damme, Van Leemput, Hardeman and Meesen, 2004).

In Pakistan, there was not much impact but instead people visited outside more and the social patterns of friends hanging out stayed the same, but everyone made sure that they took precautions like wearing long sleeved clothes and using mosquito repellants and avoiding too much greenery. The behavioral and social patterns did not change much but the economic costs increased, Pakistan is already suffering high inflation, and this increased the costs of getting treatment and hospital cost.

Mathematical and Physical Sciences

Mathematical models and physical sciences which include physics, Chemistry and Biology have significantly been impacted by Dengue Virus. There has been a close link between epidemiology and mathematical modelling since 1970's (Fischer and Halstead, 1970). These models allow the mathematicians and the researchers to focus on the different aspects that can be researched upon and then later important elements can be reverse engineered for a cure to be formed and then the role of physical sciences compliment in making these models. Chemistry allows scientists to study the elements involved in the virus structure, while biology helps to study the effects that the virus would have on the human body. Physics would help in the model structuring which directly compliments the mathematical equations.

In case Pakistan it can be seen that such technology rarely exists and mostly past figures and researches are used rather than efficient techniques and mathematical modelling and rather people often know that when there is a weather change the virus becomes active and people rely on past experiences or on the specialist doctors' words which are often broadcasted on television and dengue awareness campaigns that can help in figuring out when the virus will begin to spread and how to tackle with it.

Human Resources and Management

To get the knowledge of how the transmission of dengue virus is as imperative as its cure and policy implementation. For this reason, later is mentioned the discussion related to virus dispersion. The dengue infection spread through the bite of female *Aedes* mosquitoes. The infected mosquito will move the dengue infection straightforwardly through the bite while sucking blood from the individual whose being its victim. When the victim was chomped by the infected mosquito, the dengue infection will enter and course in the victim's blood circulation system. The dengue infection transmission can likewise happen at the point when the non-infected *Aedes* mosquitoes suck in blood from the infected individual and move the dengue infection to other victim through its bite during bloodsucking. All *Aedes* mosquitoes are the dengue infection vector once they got infected, prior to moving it to other victim. In any case, the dengue virus transmission can likewise be moved by female *Ades* mosquito to its own eggs also, this is known as trans-ovary, subsequently the infected eggs will become adults and free into the atmosphere as well as infecting the other victim (Zul-'Izzat Ikhwan, Z., 2013). The dengue-infected people are the principal transporter and infection multiplier, and these people are the infection source for the non-infected mosquitoes (Choy, E. A., & Abdullah, W., 2016)

Economic Burden

Outpatient cases and the indirect cost incurred are the notable drivers in the estimation of total cost incurred by illness. According to the study of (Shepard, D.S. et al., 2016), costs of nonfatal cases are lower than fatal cases. The economic burden carried by fatal cases is estimated through approach called human capital approach. This approach subjected to criticism due to overestimation of indirect costs. As critiques suggested that labor can be replaced, and this approach can be made more authentic. On the other hand, deaths caused by dengue are low in number, and it is perceived that the total cost of fatal cases have low contribution in economic burden. Therefore, it is advised to use a different approach so that the economic burden estimations can be made more appropriate. Dengue interventions are presently of significant interest to policymakers all over the world, and in the coming years cost-effectiveness analyses will play a crucial part in formulating and implementing dengue strategy. Precise cost estimations of the health as well as economic burden of dengue will be of critical value in making the analysis.

Pakistan has been facing the epidemic of dengue fever for many years. In recent years, dengue fever (DF) has become the second most prevalent mosquito-borne contagion after malaria (Ummar Raheel 1, 2011). The rising cases cause an economic strain on the country. The economic burden of the disease has a substantial economic impact on families and societies.

In a developing country like Pakistan, the cost of disease puts a stress on the families and the Government alike. Socio-economic status of the patients gets affected and for the Government, it becomes increasingly difficult to manage the disease outbreak in limited budget allotted to the healthcare. During the global epidemic COVID-19, the outbreak of dengue resulted in more stress on the already struggling economy. The 2020 outbreak was amidst COVID-19 pandemic that lead to 3,442 cases of Dengue fever, posing a significant threat to Pakistan's healthcare and economic system. The outbreak of 2 diseases caused a burden on public and private hospitals. It resulted in lesser productivity and more economic stress among the population.

In order to combat the prevailing disease, we first have to tackle the challenges like lack of awareness, education, healthcare facilities and ineffective reporting systems.

Awareness campaigns can prove to be effective in combating the disease. Through these campaigns, people can be informed about the precautionary and preventive measures which would result in lesser cases. It would also introduce sense of responsibility among the people to keep their environment safe and clean. This can be done through TV ads, print media, seminars etc. Citizens should be aware of the cause, symptoms and treatment of the disease. Through awareness the disease outbreak can be controlled lifting the economic pressure on the country. Dengue awareness campaign contributes in:

- Controlling the spread of disease
- Vector control
- Reducing the morbidity and mortality rates of dengue infection
- Better disease management

Perceived Risk as a Mediator

It has been cited by Dowling in 1994 that risk is considered as the perception of the consumers in order to check the problems of getting involved in any activity. Moreover, it has been defined by Sweeney et al 1999 that perceived risk is defined as subjective expectations of consumers for their loss. Discussing about the risk perception of the patients, the factor of risk appears to have a significant impact on awareness. Risk perception can decrease the degree of dengue risk perception. A raised likelihood of patients can lead to highest likelihood of patients limiting the risk through aversion. Risk perception is a mediator in this model which is mediating the relationship amongst societal economic and awareness impact. Therefore, it is recommended to increase the awareness activities which eventually helps in order to improve the risk perception of every individual by health activities and awareness campaigns which shows the risk of dengue.

Social Distancing as Moderator

It is believed that mobility in the humans transmits the viruses and among the residential locations which can result into transmission of dengue virus as well. It is recently shown that individuals with dengue symptoms exhibit drastic changes in their mobility patterns and spending extra time at their homes during illness. This can result in increase of risk of transmission of virus for those who are living with patients and those are visiting them. For this, social distancing as well as isolation in the hospital is the best way to get cured. In this study, social distancing is playing the key role of moderator which is moderating the relationship between societal economic burden and awareness impact.

Material and Methods

The author has conducted the study in health-care facility which is based on the disease burden as well as the cost of illness by dengue in the vicinity of Islamabad and Muzaffarabad. The writer has decided to take the sample of 1500 patients of dengue which will be calculated by using the formula. The population study is collected from the big hospitals of Pakistan such as PIMS, Mayo Hospital in Lahore, Lady hospital Peshawar, CMH Muzaffarabad, NIH and Benazir Bhutto, Rawalpindi.

During the data analysis portion, number of different statistical tools were employed. Since it is related to societal economic burden of dengue and awareness impact, SPSS was used. This test used correlation and linear regression. Moreover, the research design is descriptive in nature and the research is quantitative type. Last, the approach used is deductive in nature since it studies the existing theory in the perspective of Pakistan.

The unit of analysis in this study is individual and sampling technique used for this study is non-probability convenient sampling technique. Discussing about the type of study, it is the relationship with societal economic burden and awareness impact contemplating it as descriptive and causal. The research instrument is based on five-point Likert-scale in order to measure the scales. Highlighting the time horizon, the research study is based on cross-sectional primary data in order to elucidate the data at once.

Analysis

In this portion of study, the writer has focused on the analysis for correlation and regression analysis. The correlation analysis measures the strength of the variables and adhere the association.

Correlation Analysis

		Awareness_Impact	SEB	Perceived_Risk	Social_Distancing
Awareness_Impact	Pearson Correlation	1	.597 ^{**}	.481 ^{**}	.465 ^{**}
	Sig. (2-tailed)		0	0	0
	N	308	308	308	308
SEB	Pearson Correlation	.597 ^{**}	1	.624 ^{**}	.559 ^{**}
	Sig. (2-tailed)	0		0	0
	N	308	308	308	308
Perceived_Risk	Pearson Correlation	.481 ^{**}	.624 ^{**}	1	.554 ^{**}
	Sig. (2-tailed)	0	0		0
	N	308	308	308	308
Social_Distancing	Pearson Correlation	.465 ^{**}	.559 ^{**}	.554 ^{**}	1
	Sig. (2-tailed)	0	0	0	
	N	308	308	308	308

** . Correlation is significant at the 0.01 level (2-tailed).

In table given above, the correlation of awareness impact with SEB is .597, the correlation amongst awareness impact and perceived risk is .481, and so. which at the end shows that values are significant and acceptable. P-value for all the values is found to be 0.

Since the value of p is less than 0.5, it can be said that hypothesis that was developed in this study is based on reality and concluded as significant and valid.

Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.624 ^a	0.39	0.384	0.67149

a. Predictors: (Constant), AwarenessImpact, PerceivedRisk, SocialDistancing

Table of model summary shows the summary which highlights the values of R and R². The value of R represents the correlation and value is 0.624 which shows relation of correlation. Whereas, R² shows that how much of variation in societal economic burden which can be elaborated by awareness impact, perceived risk and social distancing. In above given scenario 39% can be elaborated that is very large.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	87.589	3	29.196	64.753	.000 ^b
¹ Residual	137.071	304	0.451		
Total	224.661	307			

a. Dependent Variable: SocietalEconomicBurden
 b. Predictors: (Constant), AwarenessImpact, PerceivedRisk, SocialDistancing

Regression method is used to analyze the relation and association of all the variables in the study. The above table refers to ANOVA table, which shows how good the regression equation fits in the data. The values from above table shows that regression model is predicting the significance of dependent variable well. It can be explained by looking at value of significance value which is 0.000. The value of $p < 0.005$ which is less than 0.05 indicating that this model significantly and statistically forecasts the output antecedent which is contemplated as good and fit for data.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.89	0.178		4.998	0
Awareness Impact	0.403	0.057	0.432	7.112	0
Perceived Risk	0.114	0.055	0.126	2.089	0.038
Social Distancing	0.165	0.061	0.154	2.702	0.007

a. Dependent Variable: SocietalEconomicBurden

Table of coefficient depicts the relevant significance of all the data that this study has collected. Thus, showing the significance of this study. In case of multiple independent variables (in this scenario, it has awareness impact and perceived risk as mediator), how much a dependent variable (awareness impact) will be increased when they are being increased by one variable and holding other variables constant. Moreover, t-value of each variable is greater than 2.0 and p-value is less than .05 showing the significance of data.

Reliability Test

		N	%
Cases	Valid	308	100
	Excluded ^a	0	0
	Total	308	100

a. Listwise deletion based on all variables in the procedure.

In above table, 308 units are said to be the number of valid data or N (valid for at process), however, in this test, there is no missing data which means that every data is included.

Cronbach's Alpha	N of Items
0.807	AI = 5
0.855	SEB = 5
0.821	PR = 5
0.793	SD = 5

In this paper, the Cronbach alpha of awareness impact is .807 which is closer to 0.9 and considered as acceptable. The Cronbach alpha for societal economic burden, perceived risk and social distancing is .855, .821 and .793 respectively. In all cases above, the Cronbach alpha is closer to 0.9 and they are acceptable in any cases depicting that the data is valid.

Discussion

The purpose of this research was to understand the influence of awareness impact on societal economic burden with moderating role of perceived risk. This research has hypothetically merged the main elements which derive the awareness impact of a disease by analyzing the role of social distancing and perceived risk. To conclude, by way of an inventive work, this paper, directed that awareness impact has a considerable impact on societal economic burden with mediating role of social distancing and moderating role of perceived risk. The survey is conducted to analyze the comparative analysis of diseases with respect to the difference in nature of these factors. The results drawn from the conducted survey, inferred that 90% respondents agree that individuals should consider the social distancing in order to be safe from any disease. One of the main reasons for such decision-makings is that it gives the capability to enhance more in the field. Consequently, the pleased/happy patients can extend the phenomenon of social distancing by demeaning their idea of awareness impact. The present literature has specified that awareness impact, social distancing and perceived risk enhance societal economic burden. Thus, it could be said that if the social distancing is controlled, then it can change the influence of dengue fever in a productive way.

Conclusion

In future perspective, further variables could be added to this current study which can be related to behavioral finance and its impact on investment decision making. Not only this, addition of the mediating and moderating variable can be done here also, interpreted and observed in depth details. Due to limited variables present in this study, it opens up many avenues to research on for further researchers. Secondly, the quantitative approach used in this study give rise to another route of research, in which potential researcher can use quantitative as well as qualitative approach. For that, one should concentrate on conducting the sessions and use questionnaire as an instrument to collect the data. Along with that, large sample would help the data to be more generalizable.

Limitation of the Research

Since, the researcher has used non-probability convenient sampling technique due to which it could be considered as fairer however, it cannot guarantee the representativeness of all characteristics. Few other researchers can use other sampling techniques in order to validate the results drawn in this study. In this research, the data is collected from patients' point of view. It does not present extensive data on the doctor's point of view. Due to quantitative research and limited span of time, this study has taken limited number of sample size and if could be taken more than this, the results might have been better. Because of short span of time and budget constraint, other variables could be added.

Recommendation

In every research, there occurs to have some recommendations so has this paper. It can be suggested that the few of the other factors could be added in order to enhance the study for the future scholars and researchers. Data produced from this study can be used as the starting of other researches. Furthermore, the addition of mediating and moderating variables can be helpful in conducting this research and the addition of supporting theory could be used by the future scholars. As there are very limited variables being studied in the literature, it opens many ways for the other scholars in conducting the research. As there is quantitative approach, which is descriptive in nature, it has become easier for the researcher to conduct qualitative as well as quantitative approach in their study. Last but not the least, one ought to focus and concentrate on conducting the sessions and utilize the questionnaire as a research instrument in order to collect the data and gathering the large number of sample size would be more generalizable.

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