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Integrating the ICF Model to Study Health Satisfaction and the Long-Term Effects of Leisure Activity Limitation after Road Traffic Crashes

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ABSTRACT

This research study was conducted in District Malakand to find out the long-term effect of leisure activities limitation on the health satisfaction of road traffic crash victims. For this purpose, a sampling procedure (Multistage Stratified Random Sampling) was selected to choose a sample from the study university that represents the whole universe. Hence, 274 Road Traffic Injuries (RTI) victims were interviewed to obtain the study objectives from twelve Union Councils of District Malakand. For testing the association of leisure activities limitation and health satisfaction status at bivariate level the Chi-square and Kendall's Tau-b statistical tests were applied however, the same was repeated at multivariate level by controlling the four background variables (age, gender, education and income). The study found that most respondents were from 21 to 30 years of age who were involved in Traffic Crashes (TC). Male (95%) were the dominant group of RTI victims. In terms of education, primary to high grade respondents were the highest group. The low-income group of the victims (33.2%) had the highest ratio of reported injury. The results at bivariate level further investigated that the health satisfaction status was significantly influenced by leisure activities limitation of RTI victims. Age, gender, education, and income levels explained the association between independent and dependent variables at multivariate level. The study suggests an immediate action on the enforcement of traffic laws and regulations equally in rural areas. An effective post-crash response is needed to support crash survivors and reintegrate into society by providing social, economic, recreational facilities as per their disability needs.

INTRODUCTION

The definitions of health obviously reflect socially and culturally constructed and tentative categories. The relation between an individual and society is implied in most concepts of health. In the digital environment, critical analysis of health concepts helps us to understand better health policies and their consequences. (Svalastog et al., 2017). The definition of health is vast and stated by many organizations and institutions but the most authentic and acceptable definition is presented by World Health Organization "a state of complete physical, mental and social well-being, not merely the absence of a disease or infirmity" (WHO, 2023). Health status can better be understood in nexus with life satisfaction particularly when it comes in terms of subjective wellbeing which itself a product of effective wellbeing and life satisfaction (Reyes et al., 2016). Over the past few decades, the empirical understanding of subjective wellbeing and life satisfaction has increased (Diener, 2013). However, the same trends in terms of traffic crashes remain lacking almost unavailable in Pakistan. If remain unsolved, the situation would be resulted more in drastic position because a wide range of literature shows that people victimized in road traffic crashes were more likely to survive in poor health conditions (Rissanen et al., 2020).

In social context, health status of RTI victims may be

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determined by studying activity limitations, along with demographic and socioeconomic as controlling factors. The current literature focuses more on the impact of Road Traffic Crashes (RTCs) on health in terms of deaths and direct consequences, but long-term health consequences are scarcely studied from a social perspective. The secondary data of traffic crashes in the many associated organizations like police department (Malakand Levis), the hospitals and District Health Office reflect the direct consequences of health concern. It provides the short-term details of the victims' overall health which was unable to comprehend the trends. Long-term health-related issues may be studied in terms of health satisfaction status which is subjective and self-reported encompassing multi-dimensional constructs like physical health, activity limitations, participation restriction, accessibility, and economic problems.

Justification of the Study

RTIs have a devastating effect on the overall fabric of society. More than a million people lost their lives on the road, and up to 50 million became seriously injured. The consequences of road collisions affect people according to vehicle or injury type or under such social conditions that boost or knock down the victims' health status. The individual and family members bear the brunt of such incidents due to which the family barely cope with these challenges, taking the family to various social and psychological complexities. Some physical injuries have long-term consequences while making most victims disabled for the rest of life. The study strived to integrate the International Classification of Functioning, Disability and Health model by focusing on health satisfaction in relations to leisure activity limitation after traffic crashes. The findings of the study are a helpful guide for policy makers during policies implications for the effective mainstreaming of the victims into society. If they were supported in true meaning, they will have positive contribution in the national objectives

Research Questions

- Whether leisure activities have a positive influence on the satisfaction of health status in crash survivors
- How satisfaction of health status of RTI victim vary concerning leisure activities among members of different age, gender, occupation, and income groups

Objectives of the Study

- To examine the effect of leisure activity limitation on health satisfaction status of RTI victims
- To measure the influence of demographic (age, gender, education and income) on the association if variables
- To advise policy recommendations for policymakers to minimize the RTI

REVIEW LITERATURE

Satisfaction of Status

The health status of a person depends on a set of conditions like spiritual, social, mental, and physical, enabling a person to live and work to meet their realistic and biological possibilities (Raudenská, 2011). Health is neither a state of complete physical, mental, or social well-being nor merely the absence of disease or infirmity. This definition has two parts, the former part which describes the denying fact of health that is complete wellbeing while the latter part describes the absence of infirmity which is also not a sole state of health (Books, 2009). Nevertheless, health is the absence of any disease or impairment, health allows a person to complete cope all challenges of daily life and a state of balance, an equilibrium that an individual has established within himself, his social and physical environment (Sartorius, 2006). One of essential considerations in the realm of health is higher socioeconomic status (SES) of people. A higher SES is conducive to health and healthy ageing as the study of Sanderson and Scherbov, (2014) and Eikemo et al., (2008) clearly elaborated that either the high educational and occupational status or even the significant financial resources tend to experience better health facilities all the time. However, a complete set of health is not related to SES which can merely provide better health facilities and medications at proper time but not the wellbeing.

Leisure Activities Limitation

Leisure activities are defined as a high level of happiness in free time. These are happy moments particularly in the free times however, depending on the type of activity and on the type of a person performing that activity. If suppose an activity which involves risk and likeliness to harm the performer those are not considered leisure activities. (Kuykendall, Boemerman & Zhu, 2018). Leisure has been defined by Kinetics (2010) that leisure activities also termed as recreational activities are considered those activities which can be performed in free time. Entertainment activities are to be fulfilled by virtue of the performance of such activity. Leisure is often used in the context of social and cultural life. Most people's general perception regarding leisure activities as "doing nothing" is wrong. Neither the concept has not been adequately understood by people nor is limited to a single definition. During the 20th century, the concept has been studied in three perspectives; time, activity, and state of mind. In this way, the last one denotes the leisure activities accurately that it is a state of mind in nexus of spiritual and psychological apprehension. Based on the prior established notion, leisure activities are more "mental and spiritual attitude" rather than physical involvement in recreational activities. In a nutshell, leisure as a state of mind can be expressed as freedom, satisfaction and pleasure to a larger extent.

According to Jeong (2016), leisure activities are free times in the evening or on weekends. These activities are neither work-oriented nor involve any task such as housework or sleeping, for example, bicycling, horseback riding, curling, bowling, skiing, swimming, hiking, skating, and walking. However, some people spend their free time other than sports like reading, painting, listening, drawing, meditating or listening to music. For various reasons, people have taken up leisure activities and are happier and healthier than those who do not. Like leisure activities, people can reduce their levels of stress created from workload or family's responsibilities or any other external sources. Second, participating in leisure activities helps the person find people of the same interest and choices, making new friends and extending their social network.

ICF Model

The model considers the best model interpreting health and health-related disability. ICF presents functioning at

three perspectives: body, person, and societal. However, the health status of injured people in traffic collision has studied the socioeconomic effect. The ICF model's activities and participation were used as a domain under which several other independent variables were analyzed to determine the research questions' answers (ICF-WHO, 2015).

METHODOLOGY

Study Design

Cross-sectional study design was used in this study, also known as one-shot studies. The characteristic of the design is best for this study as it involves collecting data on various variables. It also allows to make association between the study variables simultaneously, it is quick, cost-effective, and often used in public heath or epidemiological research to snapshot the population's health (Babie, 2004).

Study Universe

The universe for the current study was District Malakand Khyber Pakhtunkhwa, Pakistan, formerly known as the North-West Frontier Province (NWFP), one of the four provinces of Pakistan: the northwestern region of the country. There are 35 districts in the province. District Malakand is one of amongst those districts. District Malakand contains two big tehsils one is known Sama Ranizai while the other is Swat Ranizai. Sama Ranizai Tehsil was selected for this study because of several factors. There are 28 Union Councils, 15 Neighborhood Councils and 67 Village Councils in the Sama Ranizai Tehsil. Sama Ranizai Tehsil is surrounded by mountains having an intensive road network. The geographical location of this area is imperative because of a transit route to various tourists' spots. Therefore, the tourist's influx is high during summer and winter vacations, hence the traffic is bustling. Likewise, the road traffic crashes and injuries in this area are spiking because of increased road mobility and narrow meandering roads.

Furthermore, the basic health facilities are barely available in the rural and remote area of Sama Ranizai. Subsequently, the rehabilitation of traffic cash victims is taking longer than usual because of meager health and recreational facilities. The injury emerges with further associated onsets of psychological distress and complications. Therefore, it is deemed necessary to study the victimized people in traffic crashes by integrating the ICF model by focusing to study health satisfaction with leisure activities limitations.

Sample Size and Sampling

The sample population was studied and discussed with the officials of the local government and the native people of the area. After thorough discussion and search, the Stratified Multistage Random Sampling was used to select a representative sample from the targeted population. For achieving the desire objectives of a representative sample, the following procedures were carried out:

Sample size

For this purpose, a sampling procedure (Multistage Stratified Random Sampling) was selected to choose a sample from the study university that represents the whole universe. The 12 RU were Dargai, Karkhai, Wartir, Sakhakot, Palay, Koper, Herosha, Dheri, Malakand, Gari Usmani Khel, Batkhela and Thana Bandajat.

The details of the fatal crashes were not recorded properly in any government organizations like District Health Office, District Headquarters Hospitals (DHQs), the Tehsil Headquarters Hospital (THQs), the Police Department (Malakand Levis) etc. Therefore, the hospital data was considered a bit reliable and was recorded daily. However, all types of injuries were recorded in single register which was extremely time consuming. The year 2018 registers were reproduced and thoroughly checked for Road Traffic Accidents (RTA). A total of 807 fatal accidents were reported and registered in 2018. The following formula was used for known population as suggested by Chaudhry, (1968):

$$n = \frac{N\hat{p}\hat{q}Z^2}{\hat{p}\hat{q}Z^2+Ne^2-e^2}$$ ... Chaudhry, 1996)

Where

n = Total Road Traffic Crashes = 807,

p = Population Portion = 0.50,

q = 0.50,

z = Confidence Level = 1.96 and

e = Margin of Error = 0.043,

Based on the above formula used for known population, the sample size for the current study was found to be 274 which means that 274 random victims of traffic crash survivors will be selected for interview. The victims would have borne the brunt of traffic injury either physical or psychological, or having impairment with functional limitation or even functional defect after traffic crash. The sample size based on the procedure of proportional allocation was designated to each Union Council (UC). Again, the simple random sampling procedure was adopted here to allocate a biased free number of UC. The following formula of proportion allocation was used

The sample size required for each stratum:

$$n_h = (N_h / N)^*n$$

Where n_h is the required sample size for stratum h,

N_h is the population size for stratum h,

N is the total population size, and

n is the total sample size

The details of the population size and sample size is given here as UC Batkhela population size was 139 and sample size was 47, Dargai was 120 and 41, Thana 56 and 19, Dheri 36 and 12, Malakand 69 and 23, Wartir 65 and 22, Kharkay 81 and 28, Sakhakot 62 and 21, Palay 73 and 25, Koper 35 and 12, Herosha 34 and 12, Gari Usmani Khel 37 and 13 respectively.

Source: Office record of DHQ Hospital Batkhela and THQ Hospital Dargai 2018

Characteristics of respondents

Traffic injury has been defined by (Peden et al., 2004) as fatal or non-fatal injuries incurred because of a road traffic crash. In this study, all respondents will be included who have the following characteristics:

- Person whether man or woman got injury or have been

hurt while the cause of the injury would have been at least one mechanical transportation. Such means of transportation must be between vehicles, person with vehicles, animals or buildings.

- The crash victims must be the residents of the Sama Ranizai.
- The injury level of the victim must be moderate to untreatable and after the crash tragedy, he or she must be shifted to hospital.
- The crash survivor should have pain of severe injury for several days, months, years or for the rest of their life after traffic crash.

RESULTS & DISCUSSION

Bivariate Analysis

Keeping in view the utmost importance of leisure activities in life particularly for a patient confronted with traffic injury, the respondents were asked about their leisure activities and their coping strategies during the morbidity period. The results listed in Table1 exhibit that the majority of 63% of respondents could not give time to their leisure activities after the crash while 71% felt a reduction in leisure activities, followed by 68% changed the pattern of their leisure activities. For instance, some respondents were the cricket/football/volleyball best players, while after the crash, they became merely spectators. In response to the role of leisure activities in the recovery of morbidity, 77% of responded positively that leisure activities helped them in the early recovery and saved them from further psychological miseries. Furthermore, 68% of respondents reported their health condition less enjoyable during leisure time due to which they often avoid leisure activities. In addition, 59% recorded stress increased because of the current health status and reduction in leisure activities. Several research studies found a considerable reduction in leisure time activities after the crash, ultimately pushed the victims to the realm of stress. (Hours, et al., 2013).

Table 1

Association between Leisure Activities Limitations with Health Satisfaction Status (HSS)

Statement	Attitude	HSS of RTI victim			Chi-square value	Kendall Tau–b value
		High HSS (%)	Low HSS (%)	Total (%)		
You cannot take time for leisure activities like exercise, playing, walking, meeting friends etc.	Yes	48 (27.7)	125 (72.3)	173 (100)	$x^2 = 25.203$	Tau–b = –.303
	No	59 (48.4)	42 (41.6)	101 (100)	p=0.000	
Your health status limits you to meet your friends or relatives where you feel happier than elsewhere	Yes	26 (20.2)	103 (79.8)	129 (100)	$x^2 = 36.569$	Tau–b = –.365
	No	81 (55.9)	64 (44.1)	145 (100)	p=0.000	
You changed the pattern of your leisure activities	Yes	47 (25.3)	139 (74.7)	186 (100)	$x^2 = 46.219$	Tau–b = –.411
	No	60 (68.2)	28 (31.8)	88 (100)	p=0.000	
You feel leisure activities expedite the recovery of your injury/illness	Yes	79 (37.3)	133 (62.7)	212 (100%)	$x^2 = 1.257$	Tau–b = –.068
	No	28 (45.2)	34 (54.8)	62 (100%)	p = 0.165	
You feel your current health condition is less enjoyable during leisure time	Yes	58 (31.2)	128 (68.8)	186 (100%)	$x^2 = 15.064$	Tau–b = –.234
	No	49 (55.7)	39 (44.3)	88 (100)	p=0.000	
Your leisure activities reduced because of your health condition	Yes	58 (29.2)	138 (70.8)	195 (100%)	$x^2 = 27.404$	Tau–b = –.316
	No	50 (63.3)	29 (29.7)	79 (100%)	p=0.000	
You feel the stress level increased due to your health status	Yes	49 (30.4)	112 (69.6)	161 (100%)	$x^2 = 12.117$	Tau–b = –.211
	No	58 (51.3)	55 (48.7)	113 (100%)	p = 0.001	

Multivariate Analysis

At multivariate analysis, the association between the dependent variable and independent variable was made by controlling age, gender, education, and income as controlling factors.

Association between Leisure Activities Limitation and Health Satisfaction Status while Controlling Age

Table2 shows the association between Leisure Activities Limitation (LAL) and Health Satisfaction Status (HSS) while controlling age as a background variable. LAL's influence on the HSS in the context of 1st and 3rd age-groups was significant where p values equal to 0.040 and 0.001, respectively. Tau-b values for both mentioned groups were recorded as moderate negative where T^b like –.310 and –.323, respectively. More likely, a highly significant association (p=0.001) was recorded while the association as per Tau -b value (T^b = –0.358) indicates a moderate negative effect. On the other hand, the above-stated influence of the variables mentioned above was noted as non-significant, where the p-value = 0.165; however, the strength of association was recorded, negative where T^b = –.272. The values of the entire table's level of significance show highly significant and negative (p=0.000 & T^b = –.363) association between the independent and dependent variables. Fewer similarities in chi-square values show a spuriousness of the relationship between LAL and the HSS based on age. It can be said that age explained variations between the mentioned variables. More precisely, the 2nd and 3rd age-groups (21 – 60 years) were more likely to report LAL after the crash.

The above-noted results concord with the study of Zijlstra & Vlaskamp (2005), who asserted that participation in leisure activities of all kinds was affected by age. Subsequent consequences of low satisfaction with health status were also accounted, in agreement with the result found by Ekegren et al., (2020) that restriction in physical activity increased distress and frustration which eventually

impacts on their enjoyment of life and social life. As far as the limitations in leisure activities are concerned, the finding of Badia et al., (2011) provides insight into personal factors that accounted for different participation levels in activities at home and social life. Age is one of among those personal factors which are significantly noted for participation in leisure activities. The youngsters are more likely to participate in recreational activities at home than adult and older participants.

Table 2

Association of leisure activities limitation with health satisfaction status when age is controlled

Age-Group	STATISTICS (Chi–square-x^2, P-value, Kendall-T^b)	
1st Age Group (below 20 years)	$x^2 = 4.227$ p=0.040 $T^b = –0.310$	$x^2 = 36.061$ p=0.000 $T^b = –.363$
2nd Age Group (21 – 30 years)	$x^2 = 13.605$ p=0.000 $T^b = –0.358$	
3rd Age Group (31 – 60 years)	$x^2 = 10.234$ p=0.001 $T^b = –0.323$	
4th Age Group (above 60 years)	$x^2 = 1.930$ p=0.165 $T^b = –0.272$	

Association between Leisure Activities Limitation and Health Satisfaction Status controlling gender

Table 3 explained the association of Leisure Activities Limitation (LAL) and Health Satisfaction Status (HSS) based on respondents' gender. The results explore that the association of LAL with HSS of male respondents had a highly significant association where the p values is equal to 0.000. The association revealed negative effect as per Tau -b value ($T^b = –0.355$). In contrast, the same association in the context of female was non-significant (p=0.052) however, strong negative ($T^b = –0.519$). In addition, the level of significance of the entire table revealed a highly significant and negative (p=0.000 & $T^b = –0.363$) association between the mentioned variables. The variations in the chi-square and Kendall's T^b values show that gender explains the variation between the LAL and the HSS; therefore, the said variables' relationship was spurious.

The above findings conclude that after a traffic collision, the victims confronted with the number of difficulties which vary from male to female. As of the recorded findings, the female was more likely to report low health satisfaction because of their weak disposition in society. Similarly, their social status in the existing society also pushes them to low health satisfaction. There is an ample difference between the leisure activities of male and female in the study area. Men enjoyed more leisure and recreational time and could entertain family and friends by meeting with them and getting involved in sports. They are also mostly found in activities like partake in charitable, philanthropic and political events. Most poorer and middle-class women utilize their leisure times in domestic skills for commercial enterprises, such as embroidery or carpet-making. This type of economic activity not only enriched their finances but also became a source of leisure to spend their free time. This view coincides with Badia et al., (2011) findings suggest that male subjects were participating more in leisure activities than female subjects.

In this way, when a female being victimized of traffic injuries and become permanent disable or survive with functional limitations; her subjective well-being gradually worsens and ultimately threatened her health with low satisfaction. According to the Oliveira, et al., (2014) study findings, the roles of various social support dimensions differ between male and female. These roles are quite necessary for certain aspects of Leisure-Time Physical Activities. However, effective support directly influences the female Leisure-Time Physical Activities. The study further noted that higher levels of support from friends or family members are indispensable in Leisure-Time Physical Activities, and such involvement might be an essential consideration for a recommendation on women practice in these activities.

Table 3

Association between LAL and HSS controlling gender

Gender of the Respondents	STATISTICS (Chi–square-x^2, P-value, Kendall-T^b)	
Male	$x^2 = 32.769$ p=0.000 $T^b = –0.355$	$x^2 = 36.061$ p=0.000 $T^b = –.363$
Female	$x^2 = 3.764$ p=0.052 $T^b = –0.519$	

Association between Leisure Activities Limitation and Health Satisfaction Status in the Context of Education

Table 4 shows the results of the association of leisure activities limitation with health satisfaction status that illustrates an influence between the variables as highly significant p value (0.001) is revealed. In contrast, the strength and direction of the influence mentioned above were recorded through Kendall's T^b as moderate negative ($T^b = –0.486$). Similar results have been obtained regarding respondents having secondary education which was highly significant and negative (p=0.000 & $T^b = –0.292$). In contrast, such an association with higher education was significant and negative (p=0.016 & $T^b = –.324$). The entire table's level

of significance was noted as highly significant and negative (p=0.000 & T^b = –0.363). The result shows that all education categories were observed with a moderate negative relationship by cross tabulating the LAL with the HSS. Based on differences noted amongst the Tau-b values, a spurious association had been noted between the variables from the results which depicted that when education as background variables is controlled, it did not explain variation between the independent variable i.e. leisure activities limitation with dependent variables i.e. health satisfaction status. In contrast, illiterate subjects were less likely to participate in leisure activities and reported low HSS.

Leisure activities helped the victims return to everyday life. The leisure activities decreased after the crash, but the victims' personal characteristics and adaptation skills were effective in accepting the situation. Eventually, they changed the pattern of leisure activities (Sabet, et al., 2016). Failure to cope with this situation and accept a new way of leisure activities trapped the victims to numerous difficulties and eventually pushed him/her towards the poor state of health satisfaction. Education plays a pivotal role in shaping leisure activities and helping the victims dig themselves out from their poor health conditions. Badia et al., (2011) findings provide insight into that role of education suggesting that victims who were educating at ordinary centers participated more in leisure activities than those who were educated in special education centers. It can be better understood by explaining the actual difference of education here that ordinary education centers provide a choice for selecting leisure activities while special education provides specific leisure activities.

Table 4

Association between LAL and HSS in the context of education as a controlled variable

Education	STATISTICS (Chi–square-x^2 – P-value & Kendall's-T^b)	
Illiterate	x^2 =10.616 p=0.001 T^b = –.486	x^2 = 36.061 p=0.000 T^b = –0.363
Secondary Education Level (Matric/Intermediate)	x^2 = 14.845 p=0.000 T^b = –.292	
Higher Education Level (Graduation above)	x^2 = 5.770 p=0.016 T^b = –.324	

Association between Leisure Activities Limitation and Health Satisfaction Status controlling income

The results in Table 5 demonstrates that the Association between Leisure Activities Limitation (LAL) and Health Satisfaction Status (HSS) while controlling income as a control variable. It is evident from that highly significant association is found between the leisure activities limitations and health satisfaction while controlling low-income group (LIG). The p value for this association was highly significant (p=0.000) while the association is moderate negative because of Tau b value is equal to (–0.373) while such influence in respect of High-Income Group (HIG) was significant (p=0.002), however, the T^b values show moderate negative association where the T^b is equal to –.367. The entire table's level of significance revealed highly significant (p=0.000) and negative (T^b = –.363). The less variation amongst the T^b values determines the non-spuriousness of the relationship between the variables as mentioned above. It has been concluded that income did not explain any variation between the variables (leisure activities limitation and health satisfaction status) which delineate a universal effect on the LAL influencing the victims' health satisfaction status after the confrontation with the traffic injuries.

Recreational activities are very limited in the rural areas of District Malakand. The same has been studied by Steinhardt et al., (2020) that living in rural areas was also often perceived as a barrier to leisure activities. However, a notion could further be established by keeping the chi-square values into consideration by which highly significant value of LIG prevails more likeness of limitations in leisure activities. Result coincides with Steinhardt et al., (2020) that low family income could hinder participation in leisure activities, especially in activities requiring cost-intensive equipment or was bound to high fees for participation.

Table 5

Association of LAL and HSS controlling income

Family Income	STATISTICS (Chi–square-x^2, P-value, Kendall's-T^b)	
Less than PKR16500 Low Income Group (LIG)	x^2 = 28.094 p=0.000 T^b = –.373	x^2 = 36.061 p=0.000 T^b = –.363
Equal or more than PKR16500 High Income Group (HIG)	x^2 = 9.687 p=0.002 T^b = –.367	

Summary

Leisure Activities Limitations were excessively reduced amongst the RTI victims (63.1%) who could not take time for leisure activities, and 71.2% reported reduction while 67% change of pattern in leisure activities. Though, 77.4% opined that leisure activities play a vital role in the fast recovery of injury while simultaneously 67.9% reported their health an obstacle to enjoy during leisure time. This sort of reduction and less enjoyable status of leisure activities created psychological distress amongst 58.8%.

CONCLUSION

A research study was conducted to investigate the effects of road traffic crashes with reference to health satisfaction status. The dependent variable (health satisfaction status) was cross tabulated with independent variable (leisure activities limitation) to achieve the desirable objectives. The results of this study concluded that the ratio of traffic injury reported mostly in young adults with a disproportionate number of males. Approximately 80% of victims had leisure activities limitations, which further affect their health status. At multivariate level, age did not explain variation in leisure activities limitation with health satisfaction status. Moreover, education did not explain the variation between the participation restriction at community and HSS, while the rest of the independent variables had considerable influence. Furthermore, income explains variation in the association of major life activities, professional activities limitations, and problems in accessing health facilities, CHE, and loss of working abilities with HSS.

Recommendation

- The government should update and implement laws regarding over-speeding, use of seatbelts/helmets, use of mobile and child restrain while driving, and drunk driving to reduce the frequency of road collisions and its related injuries/fatalities.
- Road safety must be a political priority for the government to appoint a leading agency and provide adequate resources on road infrastructure, road safety, and emergency crash response equally in rural communities
- An effective post-crash response is needed to support the crash survivors through immediate medical treatment and helping them reintegrate into society by providing recreational services and facilities as per their disability needs.
- Policies about rehabilitation and reintegration into society must be intervened by improving RTI victims' access to health facilities that contribute to their health satisfaction status.

Conflict of Interests

The authors has declared that no competing interests exist.

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