

Assessment of Work Exposure, Barriers In Health Care Utilization And Perception Causing Treatment Delay Among Male Inguinal Hernia Patients In A Rural Area (Chunian) of Punjab, (Pakistan)

¹Dr. Ahmed Saud*, ²Naseem Sarfraz, ³Dr. Unsa Athar, ⁴Dr.Saba Mahmood

*Corresponding Author

ABSTRACT

The protrusion from the abdominal cavity through the inguinal canal is called inguinal hernia. This study was intended for the assessment of work exposure, barriers in health care utilization and perception causing treatment delay among male inguinal hernia patients in a rural area (Chunian) of Punjab. This study will prove to be a significant addition in raising awareness among vulnerable population regarding importance of getting inguinal hernia treatment on time, and to inform them regarding possible risks involved in treatment delay and steps that can be taken to prevent further delay in health care utilization, so that complications can be avoided. The targeted factors were age, gender, education level, income, ownership and working exposure of individuals.

Index Terms: Work Exposure, Health Care Utilization, Perception, Inguinal Hernia

1. INTRODUCTION

Hernia can be defined as the displacement of an organ or part(s) of the gut outside the body cavity in which these organs normally reside. The most common are abdominal hernias. Abdominal hernia arises within the abdominal wall in the so-called places of reduced strength, for example, inguinal regions, the umbilicus, or scars after surgery. (Ahmed, 2017) referred that direct factor causing the occurrence of hernia is the pressure prevailing in the abdominal cavity. It should be noted here that it increases during the contraction of the abdominal muscles (physical activity and cough) which increases the pressure in the abdomen, leading to out pouching of abdominal contents through the weak and defective areas (Kockerling, 2018).

A hernia is a defect in the abdominal fascia, or the strong connective tissue upon which muscles sit. While many types of hernias exist and everyone's hernia can be different, there are common factors that put some people more at risk than the others for developing hernias. It's important to know that hernias can occur at any age, from birth to late adulthood (Fatima, 2014).

There are several risk factors that lead to the formation of inguinal hernia. Anything that strains (constipation) the abdominal wall can predispose a person to hernia. Heavy lifting can increase intra-abdominal pressure and can cause hernia. Chronic coughing can lead to increased strain on the abdominal wall and hernia formation. Abdominal weight gain leads to stretching of the abdominal wall and the formation of hernia. During pregnancy, the body releases hormones that allow the abdominal wall to stretch. However, the hormones don't completely counteract the strain on the abdominal wall and hernia can develop. Any surgical procedure on the abdominal wall weakens it and can lead to possible hernia. The risk is greatly increased if a surgical site infection occurs as this inhibits normal healing of the surgical wound. Some people are genetically more prone to hernia development. They have connective tissue/fascia that is inherently weaker than the general population.

2. Problem Statement

In developing countries like Pakistan, inguinal hernia is stigmatized among rural residents due to which people do not seek treatment until there is an emergency. Previous researchers have explored factors involving their own regions. Due to the ignored study area of delay in seeking inguinal hernia treatment among village dwellers, management of health department and clinical practitioners are unaware of the significant factors that can play essential role in the prevention and treatment of inguinal hernia in rural population on time by which further complications can be avoided.

3. Research Objectives

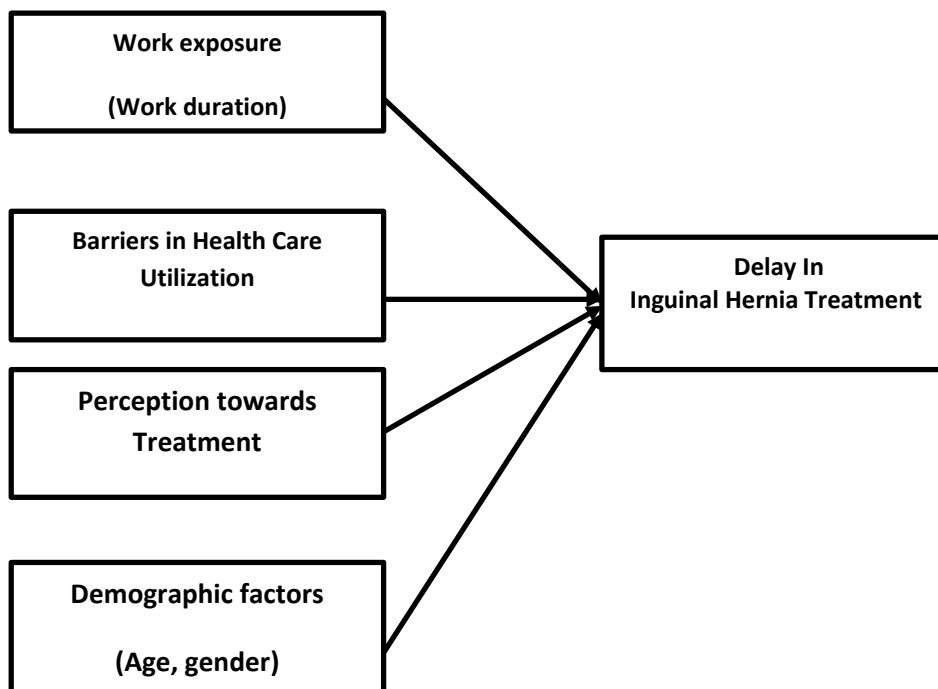
1. To assess the role of work exposure in delaying the treatment of inguinal hernia.
2. To ascertain the factors that act as a barrier in health care utilization among inguinal hernia patients.
3. To find out the patient's perception towards the inguinal hernia treatment.

4. Significance of the Study

This study will prove to be a significant addition to the knowledge, not only about further exploration of the associated factors, but also for raising awareness among the vulnerable population regarding importance of getting inguinal hernia treatment on time. The findings of present study further aimed to draw the attention of health sector management, general practitioners and medical faculty to take hints from the results and recommendations of this research work and raise public awareness regarding possible risk factors in inguinal hernia treatment delay and steps that can be taken to prevent further delay in the treatment so that complications can be avoided. Some basic and practical ideas have been suggested for taking the required steps in health care sector for preventing and treating inguinal hernia on time in particular population. The findings of this study may motivate other interested researchers to further conduct the studies regarding prevention and control of this avoidable surgical disease among the susceptible rural population. This research is proposed to contribute survey-based, practical experience and knowledge in the academic perspective.

5. Literature Review

Hernia can be described as the out-pouching or projection of a certain organ through a defect in the wall of body cavity that surrounds it. The most common type is inguinal hernia that constitutes approximately 75% of overall abdominal wall hernias. Hernia usually occurs by pushing of an organ or its coverings through a muscular layer (Ahmed, 2017). Such a type of hernia mostly occurs in the abdominal region. In the wall of abdomen, occurrence of hernia is seen in certain areas where the muscular attachments and muscular layers are relatively weak to physical strain. There areas include groin, umbilicus and the linea alba. Inguinal hernia is the main type of hernia affecting the male population. Inguinal hernia is known to occur due to aging effect and special strain on abdominal muscles. There are several risk factors that cause the development of inguinal hernia like increased intra-abdominal pressure, weakness of abdominal muscles, straining during coughing and defecation, lifting of heavy weights, obesity and pregnancy etc. Cumulative working exposure also causes the hernia (Balram, 2016).



Research Framework

IJSER

6. RESEARCH METHODOLOGY

6.1 Study Design

This is cross sectional study with quantitative technique. This research was based on descriptive design and was survey based. It was aimed to collect the data, analyze and evaluate the association of independent variables with dependent variable. It has employed the questionnaire as a survey instrument for collecting the data from targeted population. Before conducting the complete survey, there was a pilot test of 20 respondents. In this pilot test, the reliability of survey tool was confirmed. After verifying the internal consistency of survey tool, complete survey was conducted. In SPSS 22, different tests were processed to analyze the data. First of all, there was a reliability test to check the consistency of scale used in this research. After verifying the reliability of scale, the frequency distribution test against demographic information of participants was done.

6.2 Population

The targeted population of this study was the diagnosed inguinal hernia patients, particularly working class of Tehsil, Chunian. The survey was conducted from the patients visiting rural health facilities mentioned below:

1. Tehsil Headquarters (THQ) Hospital, Chunian
2. Rural Health Center (RHC), Ellahabad
3. Rural Health Center (RHC), Changa Manga

6.3 Sample Selection

This survey was done over the course of 6 months from February to July 2019 Inclusion criteria include diagnosed male inguinal hernia patients visiting outdoor patient department of these three rural health facilities. Patients who delayed their treatment for more than one year are included. Exclusion criteria include female population as no female patient with inguinal hernia was seen during the course of this study. Patients aged above 40 are also excluded as young population was studied. Recurrent inguinal hernia patients were also excluded from the study. This study selected the sample size of 229 patients at the targeted rural health facilities. These patients were from the different locations of this area. All respondents had varied education levels and had different perception towards disease (Hernia) and treatment. These survey participants responded according to their best of awareness, working exposures and attitudes toward the treatment of hernia. These participants were asked whether they had ever undergone the treatment process of hernia or currently suffering from hernia and came to seek the treatment. If the answer was yes then details were taken, which also included occupational exposure, socio-demographic information, monthly income, ownership status and their perception towards the treatment. 225 correct responses were collected as 4 respondents didn't return the questionnaire.

Sample size was calculated via online sample size calculator,

<https://www.calculator.net/sample-size-calculator.html?type=1&cl=90&ci=5&pp=70&ps=&x=56&y=13>

Sample Size Calculator

Find Out The Sample Size

This calculator computes the minimum number of necessary samples to meet the desired statistical constraints.

Result

Sample size: **229**

This means 229 or more measurements/surveys are needed to have a confidence level of 90% that the real value is within $\pm 5\%$ of the measured/surveyed value.

Confidence Level: ?	<input type="text" value="90%"/>	
Margin of Error: ?	<input type="text" value="5%"/>	
Population Proportion: ?	<input type="text" value="70%"/>	Use 50% if not sure
Population Size: ?	<input type="text"/>	Leave blank if unlimited population size.
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6.4 Sampling Technique

In order to collect the response of this study survey, this research implements the purposive sampling technique, this techniques of sampling is selected based on the characteristics of the population. This type of sampling is also called judgmental sampling.

6.5 Instrument Development

Questionnaire as a survey tool has been presented as an effective instrument for gathering the data form targeted respondents (Balcescu, 2016). Current study aimed to develop a newly modified questionnaire as a survey tool to collect data. After collecting the desired data from survey, collected replies were recorded in Smart PLS for testing the internal consistency and other statistical analysis.. This questionnaire includes demographic information and other relevant questions which were presented in five point Likert scale, starting from strongly disagree to strongly agree opinions.

6.6 Data Collection Procedures

Survey participants visiting selected rural health facilities of Tehsil Chunian were directed to respond to research survey along with personal information after taking verbal consent i.e. age, gender, education, income, ownership and experience of hernia treatment along with working exposure, barriers in seeking treatment and personal perception of patients. Survey forms were circulated amongst directed personnel with explained understanding to fill out. After identified time, questionnaires were collected back and gathered responses were entered in SPSS for further implementation of research related statistical tests.

6.7 Data analysis Technique

Survey replies were logged in SPSS version 22. After entering the gathered data in SPSS, it underwent reliability test to confirm the internal consistency of the tool processed in pilot testing of survey. After confirming the consistency, complete survey was conducted. A test of frequency distribution was processed for quantifying the respondent's information

7. DATA ANALYSIS AND DISCUSSION

7.1 Reliability Test

Reliability analysis aimed to verify the internal consistency of survey instrument used in this study. The resulted value of reliability as Cron Bach's Alpha indicated the level of consistency of the scales. This test is intended to run against each variable scale in the study, table below shows the result summary of all scale values against all items processed for reliability.

Table 5.1 Results of reliability test

Serial No.	Variable Name	No of Items	Cron Bach's Alpha
1.	Perception towards treatment	4	.799
2.	Barriers in health care utilization	4	.833
3.	Working exposure	3	.849
4.	Hernia treatment delay	4	.700

In first independent scale of treatment perception, by keeping the 4 items in it, this scale has result the Cron Bach's Alpha value as .799 that has been declared as reliable because it is significantly above 70% for internal consistency of the scale. Barriers in health care utilization keep the 4 items for processing, the resulted Cron Bach's Alpha value is .833 this scale also verifies the reliability standards. The next independent variable is working exposure, this scale keeps 3 questions and indicated value of Cron Bach's Alpha value is .849 that has been verified and declared as internally consistent.

The last scale of dependent variable (Hernia treatment) shows the value of Cron Bach's Alpha value as .700 in the result, this value has also been declared as reliable because it is significantly proved above 70%. Hence all the scales in the model has been assured as internally consistent and approved for further processing.

7.2 Results

Age of respondents,

Table 5.2 Age of the respondents

Age	Frequency	Percent
25-30	96	42.7
30-35	64	28.4
35-40	39	17.3
Total	225	100.0

In this study, survey of total 225 correct responses were collected, respondents have been categorized into four age groups. Higher response age group in this study is age group of 25-30 years, with response

frequency of 96 that is the 42.7% of total study response. These responses have been conducted as per ease of accessibility. In the next large response age group of 30-35 years, there are 64 respondents in response frequency which participated in this study with 28.4% share. In age group, ranging from 35 to 40 years, they have responded with frequency of 39 that is the 17.3% participation in total response. In the age category of less than 25 years, patients have responded with the frequency of 26 with the total percentage of 11.6% in overall study response. In this study, generally all these age groups have participated with different capacities of response frequencies; this has a healthy effect on study survey for having all these age ranges responses and opinions.

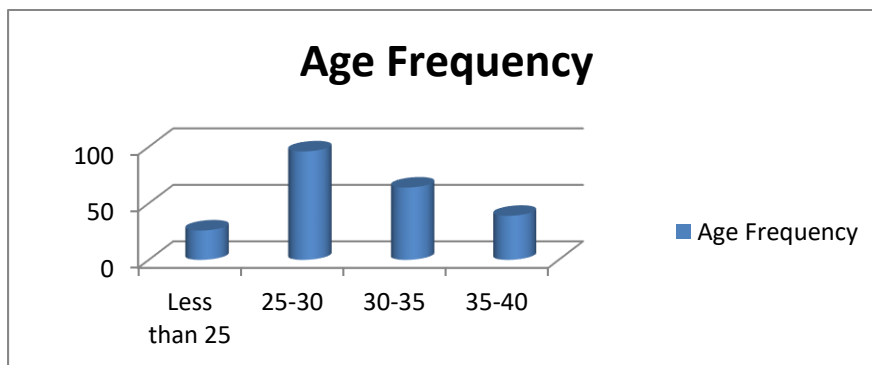


Figure1. Age of respondents

It has been noted that patients that fall in second and third category i.e. (25-30 years) and (30-35 years) constitutes about 71% of our total sample size, showed significant delay in seeking inguinal hernia treatment mostly due to the fear of surgical operation and its post-operative complications.

Gender of respondents,

Gender	Frequency	Percent
Male	225	100
Female	0	0
Total	225	100.0

Table 5.3 Gender of the respondents

This study survey only covers the male participants because no case of female inguinal hernia presented in these health facilities. Out of 225 study respondent's male respondents have responded with higher frequency of 225 that is 100 percent to the total survey response. This survey represents male gender participation that have an effective opinion building as per objective persuasion of current study.

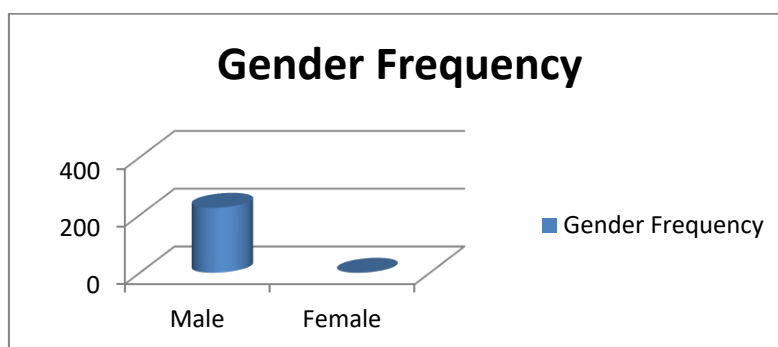


Figure2. Gender of respondents

From female side, no response is because of the reason that inguinal hernia is uncommon among female population. So, there are 100% male respondents in this study.

Education level of respondents,

Table 5.4 Educational qualification of respondents

Qualification	Frequency	Percent
Illiterate	107	47.6
Primary	70	31.1
Secondary and Above	48	21.3
Total	225	100.0

It is very essential to ask for respondent’s qualification. It has been seen that, there are greater number of illiterate respondents, this group of survey participants have added value to the overall survey response with 47.6% share. In the next group, there are 70 participants who had primary level education; the percentage of these respondents was 31.1%.

In third educational category of participants, there is frequency of 48 individuals who keeps secondary and above educational qualification. This response group has valued the survey with 21.3% response addition. Present survey has presented three levels of their education for knowing the perception of 225 individuals against the inguinal hernia treatment.

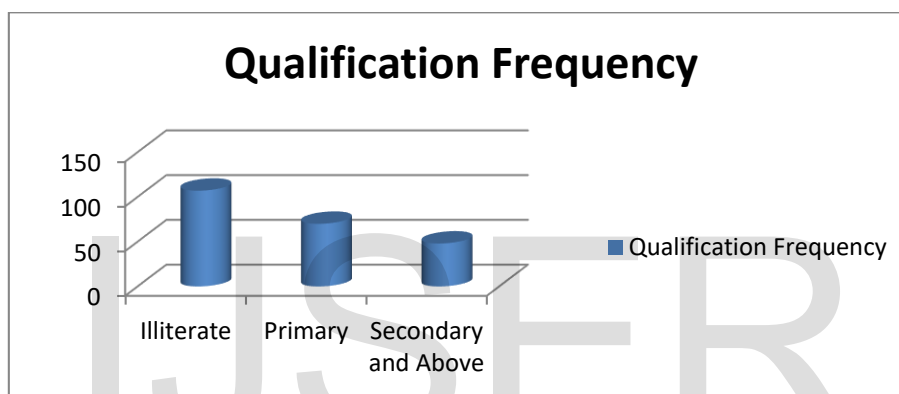


Figure.3 Qualification of the respondents

It was noted that almost all of the illiterate patients (47.6%) had negative perception towards the treatment as they tend to seek spiritual help and try home remedies first and when these things fail then they come to hospital to see a doctor for treatment after significant delay, whilst patients with education level of secondary or above (21.3%) had a better understanding towards the treatment and therefore they caused less delay in getting the treatment.

Monthly income level of respondents,

Table 5.5 Income of respondents

Income	Frequency	Percent
10000-15000	42	18.7
15000-20000	67	29.8
20000-30000	62	27.6
less than 10000	44	19.6
More than 30000	10	4.4
Total	225	100.0

In this survey, there were total 225 participants who gave correct response. These respondents were of different socio-economic status. As above table of response distribution against income level showed that survey participants were related to five income groups. In first category of income level ranging from 10000 to 15000 per month, there were total 42 participants, related to this response frequency has valued the survey by 18.7%. In next category of income level, ranging 15000 to 20000 per month, there were 67 participants who have replied survey questionnaire and their percentile score is 29.8%. Participants who keep their income level form 20000 to 30000 per month are 62 and their participation with respect to total survey response is 27.6%. Other two options include less than 10000/month and more

than 30000 per month, these participants in survey response are 44 and 10 respectively. The value of percentage related to these two income levels are 19.6% and 4.4% respectively.

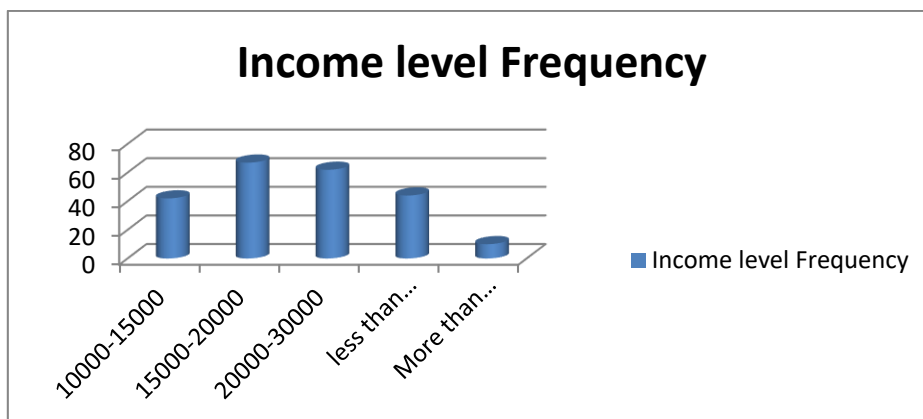


Figure.4 Income of respondents

Overall, patients who fall in the income bracket of (20000-30000) i.e. 27.6% and (above 30000) i.e. 4.4% were better able to get the inguinal hernia treatment on time. While other categories which come in the low income bracket (10000-150000), (15000-20000), (<10000) make up around 68.1% of total study respondents and this low income act as a barrier in healthcare utilization which ultimately leads to treatment delay.

Ownership of respondents,

Table 5.6 Ownership of respondents

Ownership	Frequency	Percent
Land	21	9.3
House	47	20.9
Cattle	62	27.6
Both 1&2	76	33.8
All of above	19	8.4
Total	225	100.0

This survey has asked the respondents to reply against their individual ownership so that their financial capacity of getting the hernia treatment could be assessed. In this survey, there are five options to declare their personal possessions. Out of total respondents 21 participants (9.3%) have replied that they own land for cultivation, whereas 47 participants (20.9%) have responded the possession of personal house for living. The participants who own cattle were 62 (27.6%) and those survey respondents who own both land and cattle were 76 (33.8%). In last option of ownership information, there are 19 participants who have declared that they keep all the things mentioned in the questionnaire; this response in total survey participation is only 8%.

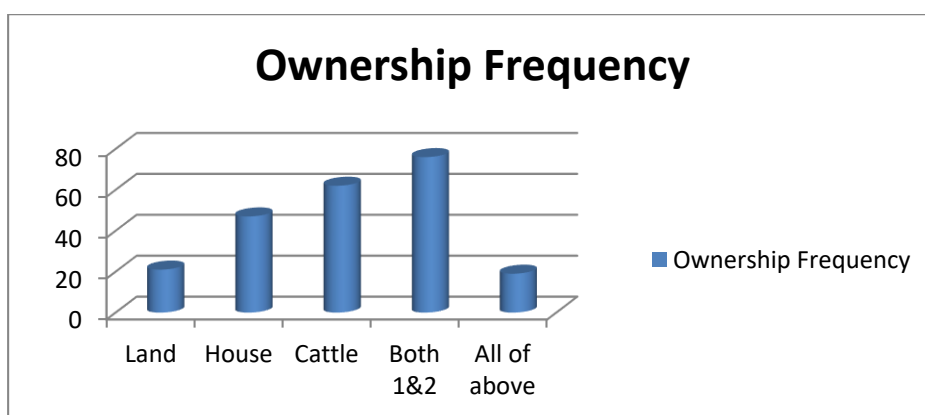


Figure.5 Ownership of respondents

It was noted that patients who own both house and land and those patients who own all the three things makes 33.8% and 8.4% respectively as mentioned in the survey and they were better able to afford the treatment on time. Patients with lesser ownership makes up around 57.8% and these patients showed significant delay in getting the treatment because of lesser affordability, which acted as a barrier in health care utilization. Work duration per day of respondents,

Table 5.7 work duration per day of respondents

	Frequency	Percent
>8hours/day	176	78.2
<8 hours/day	49	21.8
Total	225	100.0

Out of total 225 correct responses, 176 respondents work more than 8 hours per day i.e. 78.2 % while 49 patients were those who work less than 8 hours that makes up around 21.8 %.

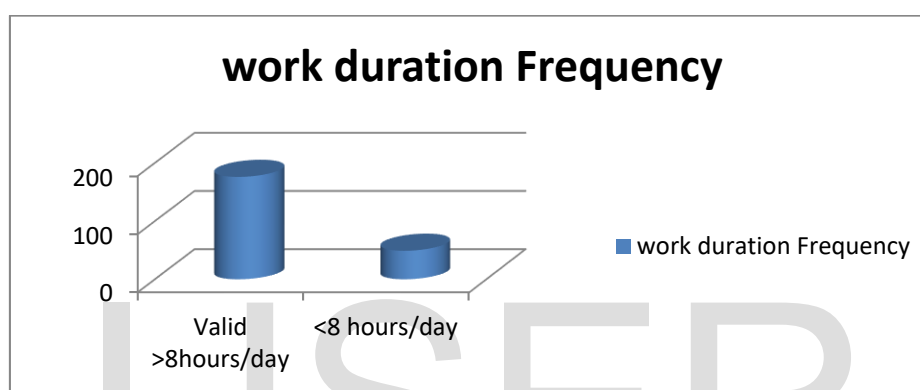


Figure.6 working duration of respondents

Long working hours were seen as a major factor in delaying the treatment of hernia as patients with hectic routines (78.2%) were not able to get the treatment on time as they were afraid that they won't be able to return to work for a long period of time after surgery so they tend to delay the treatment as much as possible.

7.3 Discussion

For the successful implementation of any effective public health program or a venture with in a country it is necessary and crucial to go through its outcomes and impacts. If that program is preventing or controlling disease, injury, disability or death and the public at large is being aware of the started interventional program then we consider it to be an efficient one. Despite many health reforms Pakistan is still facing many challenges in health system. The purpose of this research was to assess the role of work exposure in delaying the treatment of inguinal hernia and to ascertain the factors that act as a barrier in health care utilization among inguinal hernia patients and to find out the individual's perception towards the inguinal hernia treatment. It is evident from this study that patient aged between 25 to 35 years which constitutes around 71% of our total sample size, showed significant delay in seeking inguinal hernia treatment mostly due to the fear of surgical operation and its post-operative complications. This result is corresponding with the study of Oberg et al. (2017) i.e. delay in early stage treatment is due to the fear of surgical operations and high cost of hospitals. That is why patients refuse to get checked and explain their diseases. Such type of negative attitude can lead to life threatening complications like massive increase in size, strangulation and death from infection (Oberg et al, 2017)

It was noted in this study that almost all of the illiterate patients (47.6%) had negative perception towards the treatment as they tend to seek spiritual help and try home remedies first and when these things fail then they come to hospital to see a doctor for treatment after significant delay, whilst patients with education level of secondary or above (21.3%) had a better understanding towards the treatment and therefore they caused less delay in getting the treatment. These results are consistent with the study of Fakorede (2018) which states that delayed treatment due to lack of knowledge, poverty of parents and unavailability of effective information about doctors that treat hernia, increase the chances of disease prevalence. People who are unaware of inguinal hernia precautions, symptoms and complications usually try home remedies and try to hide their disease; hence lead towards the complicated situation and become difficult for treatment (Fakorede, 2018).

According to this study, categories which come in the low income bracket (10000-15000), (15000-20000), (<10000) make up around 68.1% of total study respondents and this low income act as a barrier in healthcare utilization which ultimately leads to treatment delay. These results are parallel with the findings of other researches; there are major barriers in getting surgical care which indicates three dimensional circle such as structural, socio-cultural and financial (Wennergren,2016). Barriers in financial context include direct and indirect cost of health care services (Postholm, 2018).

Long working hours were seen as a major factor in delaying the treatment of hernia as patients who work more than 8 hours per day (78.2%) were not able to get the treatment on time as they were afraid that they won't be able to return to work for a long period of time after surgery so they tend to delay the treatment as much as possible. As Fang (2015) explained that the association of work exposure and response both are linked with exposure intensity and work duration (Fang, 2015).

7.4 Research Limitations

This research is limited to target the survey respondents from selected rural areas only. Respondents of all regions of Punjab were not included for comprehensive results of the study.

This research has utilized the quantitative techniques only. We have not conducted in-depth interviews or focus groups of target population to probe underlying reasons for not seeking care for inguinal hernia.

Study population consisted of already diagnosed inguinal hernia patients with no control group in this study.

8. Conclusion

This is a descriptive cross-sectional study having following objectives,

1. To assess the role of work exposure in delaying the treatment of inguinal hernia.
2. To ascertain the factors that act as a barrier in health care utilization among inguinal hernia patients.
3. To find out the individual's perception towards the inguinal hernia treatment.

To find out the major factors that cause delay in hernia treatment among rural residents of Chunian, a modified questionnaire was developed. The questionnaire consists of questions regarding demographic data, monthly income, personal ownership, working exposure, barriers in health care utilization and perception towards treatment. Questionnaire with written consent were filled by patients, visiting OPDs of three rural health facilities of Chunian. From the research it was deduced that long working hour's leads to delay in getting hernia treatment, because of hectic schedule these workers tend to delay the treatment as far as they can as they fear from the fact that they won't be able to return to the work soon after operation which will make the living difficult for their families and themselves. Middle aged patients tend to delay hernia treatment because of the fear of surgical operation and its post-operative complications.

Low income and lesser ownership were seen as major barriers in seeking health care utilization. Patients who own less and earn less are more prone to complications of inguinal hernia because of treatment delay. Education level is seen as a major factor in building perception to inguinal hernia treatment. Illiterate patients had negative perception towards medical and surgical treatment causing delay in seeking inguinal hernia treatment

9. Recommendations

After concluding this research, effective recommendations are presented as follows:

Department of Health should initiate appropriate awareness campaigns to inform the community members regarding risk factors, precautions and treatment options of inguinal hernia.

Community participants must keep safety approach and follow the precautions while performing heavy work, where excessive load lifting is required because these are the major factors that are associated with inguinal hernia formation.

As community members do not know the proper treatment options and therefore hesitate to opt for surgery, it is the responsibility of health department to spread awareness among rural residents, so that they can be informed regarding the treatment options, and then they will be better able to approach relevant health facility for early treatment.

The results of this study will be helpful for general practitioners to consult the problems consistent with inguinal hernia treatment and recognize the factors associated with the inguinal hernia prevalence.

This study will give information regarding different factors that are associated with treatment delay of inguinal hernia patients. These factors need to be addressed properly in the community in lessening the treatment delay.

This study will offer bank of knowledge for the incoming researchers and students to consult and advance the assessment.

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Author's Profile



Dr. Ahmed Saud
MBBS, M.Phil. Public Health
Working as Demonstrator at
Shalamar Medical and Dental
College, Lahore (Pakistan).
Ahmedsaud756@gmail.com



Dr. Unsa Athar
MBBS
Working as
Demonstrator at
Shalamar Medical and
Dental College, Lahore
(Pakistan).
unsa.athar10@gmail.com



Naseem Sarfraz
M.Phil. Sociology Lahore Leads
University, Lahore
(Pakistan). Working as Medical
Social Officer (MSO) at
Shalamar Medical and Dental
College, Lahore (Pakistan)
urubab30@gmail.com



Dr. Saba Mahmood
MBBS
Working as
Demonstrator at Fatima
memorial Medical and
Dental College, Lahore
(Pakistan).
Sabamahmoodm16@gmail.com