

Risk Factors And Knowledge Regarding Cholelithiasis Among Adults Residing In Selected Villages Of District Sirmaur, Himachal Pradesh: A Descriptive Study

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Abstract- Cholelithiasis is one of the commonest among the major gallbladder diseases, affecting large population of community. In untreated cases it may lead to numerous complications. Approximately 10-20% of the national adult populations are currently having Cholelithiasis. A Descriptive study was designed to find out the risk factors of Cholelithiasis among adults, to assess the knowledge regarding Cholelithiasis among adults, to determine the association of risk factors of Cholelithiasis with selected socio demographic variables and to determine the association of knowledge scores of adults with selected socio demographic variables. The descriptive survey included 100 study subjects between 30-70 years of age living in rural areas of District Sirmaur, Himachal Pradesh, selected through two stage cluster sampling. Subjects were interviewed by Structured Knowledge Questionnaire for the assessment of risk factors and knowledge regarding Cholelithiasis. The findings of the study showed that among 100 study samples about 52% of the adults were male, 48% were females and were in the age group of 30-40 years. The risk factors assessment showed that 30% of the adults had family history of Cholelithiasis, 16% of adults had obesity, 42% adults were performing mild physical activity, 29% of adults were taking high fatty diet. Study findings revealed that majority (57%) of the adults had only poor knowledge, 42% had average and only 1% had good knowledge regarding Cholelithiasis. Among the study subjects, 10% of the adults were diagnosed cases of Cholelithiasis, of which 6 were males and 4 were females. The study found a significant association of age of adults with their risk factors score at the level of $p < 0.05$. A significant association was also seen between knowledge score of adults with their education status, occupation and family monthly income at the level of $p < 0.05$. The study concluded that there was the presence of various modifiable risk factors such as sedentary lifestyle, obesity and high fatty diet among the adults in Sirmaur district and community educative sessions

need to be implemented to make people aware about these risk factors.

Keywords- Risk factors, Knowledge, Cholelithiasis, Adults.

I. BACKGROUND

Cholelithiasis is one of the most prevalent gastrointestinal disorders and an important worldwide health concern. Although gall stone disease characteristically has a low mortality rate, its high morbidity rate has an important economic impact. In Asian countries the prevalence of gallstone disease is approximately 10%. The prevalence of Cholelithiasis in India is more in females than males, and in northern India prevalence is more than that in southern India¹. Cholelithiasis is also strongly associated with gallbladder, pancreatic and colorectal cancer occurrence. Moreover, the National Institute of Health estimates that almost 3,000 deaths (0.12% of all deaths) per year are attributed to complications of Cholelithiasis and gallbladder diseases. Although extensive research has tried to identify risk factors for Cholelithiasis, several studies indicate that definite findings still remain elusive².

Gall stones constitutes a significant health problem in developed societies affecting 10-15% of the adult population meaning 20-25 million Americans have or will have gallstones. The resultant direct and indirect cost of gall bladder disease represents a consumption of approximately 6.2 billion dollars annually in the US constituting a major health burden that has increased more than 20% over the last 3 decades. In India, the prevalence of gall stones in adult population is 6.12 % (men 3.07% and women 9.6%). The mortality rate for gall stone disease is relatively low at 0.6%³. In North Indian region 6.20% prevalence was recorded for gall stone diseases in which 5100 persons with symptoms (7.12%)

and 1448 without symptoms (2.99%) were recorded. The occurrence of Cholelithiasis has been found as high as 7.4% in the adult population in the cities of Chandigarh and New Delhi in North India, which is interestingly seven times more frequent than in south India. It is found common 61% in females and 39% in males and specifically in age group 45-60 years (38.5%) among females and above 60 years in males (20.8%)¹.

II. METHODOLOGY

The research design adopted was Descriptive design and the samples were selected by one stage cluster sampling. The sample comprised of one hundred adults between the ages of 30-70 years. The data was collected using a structured interview schedule to assess the knowledge of adults regarding Cholelithiasis and a checklist developed by the researcher was used to assess the risk factors of Cholelithiasis.

Sampling Criteria:

The study included the adults:

1. Who were present at the time of data collection.
2. Who can understand Hindi or English

A descriptive design was taken up on 100 subjects by using two stage cluster sampling technique. Firstly, Tehsil Pachhad was selected through simple random sampling. Again randomization was done to select one Panchayat under the Pachhad Tehsil which consisted of 5 villages named as Bongli, Khech, Lana, Bhalta and Macher (clusters) and then samples were selected who were present at the time of data collection in these villages.

Development and Description of the Tool

Tool 1: - Interview schedule to assess the socio-demographic data of adults which consisted of age, gender, educational status, monthly income, occupation and personal habits of adults.

Tool 2: - Checklist to assess the risk factors of Cholelithiasis among adults that consisted of risk factors as family history, dietary pattern and physical activity

Tool 3: - Interview schedule to assess the knowledge of adults regarding Cholelithiasis which comprised of 21 Questions.

Sl.No	Category	No of Items	Score	Percentage (%)
1	Cholelithiasis	4	4	19.04
2	Causes and risk factors	5	5	23.80
3	Sign and symptoms	4	4	19.04
4	Diagnosis	1	1	4.7
5	Management	2	2	9.52
6	Complication	1	1	4.7
7	Prevention	4	4	19.04
Total		21	21	100
Scoring key				
• Good 15-21 Maximum Score: 21				
• Average 8-14 Minimum Score: 0				
• Poor 0-7				

Content validity of the tool was obtained from 5 nursing experts and 2 medical experts. The reliability for risk factors checklist was 0.758 by using Test Retest method, reliability for interview schedule (knowledge) was 0.7382 by Cronbach's alpha and 0.7073 by Split half (odd- even) correlation method.

Procedure of Data Collection

After obtaining formal permission from the ethical committee and research authority of Akal College of Nursing, the research study was conducted among 100 samples residing at Bongli, Khech, Lana, Bhalta and Macher Districts of Sirmour (H.P). To conduct the study, permission was obtained from Pradhans of selected villages. Basic information was collected regarding each village. House to house survey was done and adults fulfilling the criteria were selected from the rural areas of Bongli, Khech, Lana, Bhalta and Macher. The investigator had given self-introduction to participants and they were informed about purpose of the study and written consent was obtained from the participants. Data was collected regarding socio demographic variables, risk factors and knowledge regarding Cholelithiasis by Structured interview method.

IV. ANALYSIS & RESULTS

The collected data was organized, analyzed and interpreted by using descriptive and inferential statistics with the help of SPSS. Analysis and interpretation was done based on objectives of the study. In the current study, data analysis were described under following sections:

Section A: Frequency and percentage distribution of Socio demographic data of adults.

Section B: Risk factors of Cholelithiasis among adults

Section C: Knowledge score of adults regarding Cholelithiasis

Section D: Association of risk factors with socio-demographic variables of adults

Section E: Association of knowledge with socio- demographic variables of adults

Section A:

Table No: 1 Distribution of Adults based on Socio demographic data (N=100)

Socio demographic variables	Frequency (f)	Percentage (%)
Age(Years)	30-40	56
	41-50	17
	51-60	13
	61-70	14
Gender	Male	52
	Female	48
Education status	No formal education	21
	Primary	34
	Secondary	21
	High secondary	7
	Graduation & above	17
Occupation	Homemaker	41
	Self employed	15
	Private employee	7
	Govt. employee	12
	Agriculture	25
Religion	Hindu	99
	Sikh	1
Monthly Family income(Rs.)	<5000	11
	5001-10000	43
	10001-20000	34
	>20000	12
Habits	Smoking	11
	Alcoholism	16
	No habits	73
Diet	Vegetarian	30
	Non vegetarian	70
Source of water	Tap water	49
	River/ well	51
Source of information	Mass media	58
	Friends / relatives	42

Table 1 shows that 56% of the adults were in the age group of 30-40 years. Also, 52% of the adults were males and 48% of the adults were females. Majority of the adults (34%) were having primary education status. Among all,41% of the adults were housewife by occupation. 99% of the adults belonged to Hindu religion. The monthly family income of the adults (43%) was between Rs.5001- 10,000 per month and 11% of the adults had income <5000 Rs. per month. About 11% of the adults had habit of smoking, 16% had habit of alcoholism and 73% of the adults had no habits. Majority of the adults (51%) were using surface water and 49% of the adults were using tap water. 58% of the adults had got information regarding Cholelithiasis through mass media.

Section B:

Table No: 2 Distribution of Adults based on Risk factors of Cholelithiasis (N=100)

Risk factors	Frequency (f) / Percentage (%)
Age (>40)	44
Gender (female)	48
Family history	30
High fatty diet	29
Obesity	16
Physical activity (mild)	42

Table 2 shows that among all the risk factors of Cholelithiasis about 44% of the adults were having their age over 40 years. 48% of the adults were females. Also, 30% of adults had family history of Cholelithiasis. 16% of the adults were obese,29% of the adults were taking high fat diet and only 42% of the adults were doing mild physical activities.

Section C:

Distribution of adults based on categories of Knowledge scores regarding Cholelithiasis (N=100)

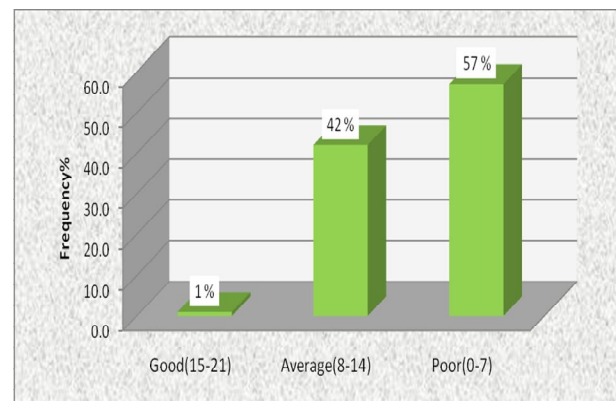


Figure 1: Bar diagram showing distribution of adults based on knowledge score percentage

Figure shows Cholelithiasis knowledge questionnaire scores obtained by the adults categorized as good (15-21), average (8-14) and poor (0-7). Only 1% of the adults had good knowledge score, 42% of the adults had average knowledge score and 57% of the adults had poor knowledge score about Cholelithiasis.

Section D:

Table No: 3 Association of Risk factors score of Adults with Socio demographic variables (N=100)

Demographic Variables		Risk Score Levels(N=100)			Association with RISK FACTOR Score				
Variable	Categories	High	Average	Low	χ^2 Calculated value	P Value	df	χ^2 Table Value	Result
Age (Years)	30-40	0	17	39	27.715	0.000	6	12.592	Significant
	41-50	1	11	5					
	51-60	1	6	6					
	61-70	3	10	1					
Gender	Male	1	20	31	4.333	0.112	2	5.991	Not Significant
	Female	4	24	20					
Education status	No formal education	2	14	5	10.430	0.236	8	15.507	Not Significant
	Primary	1	14	19					
	Secondary	1	6	14					
	High secondary	0	2	5					
	Graduation & above	1	8	8					
Occupation	Homemaker	4	21	16	11.047	0.199	8	15.507	Not Significant
	Self employed	1	3	11					
	Private employee	0	2	5					
	Govt. employee	0	7	5					
	Agriculture	0	11	14					
Religion	Hindu	5	44	50	0.970	0.616	2	5.991	Not Significant
	Muslims	0	0	0					
	Sikh	0	0	1					
	Christian	0	0	0					
Monthly Family Income(Rs.)	< 5000	0	3	8	5.988	0.425	6	12.592	Not Significant
	5001-10000	1	21	21					
	10001-20000	3	13	18					
	> 20000	1	7	4					
Habits	Smoking	1	6	4	3.536	0.465	4	9.488	Not Significant
	Alcoholism	0	5	11					
	No habit	4	33	36					
	Any other	0	0	0					
Diet	Vegetarian	2	14	14	2.263	0.638	4	9.488	Not Significant
	Non vegetarian	0	3	1					
	Both	3	27	36					
Source of water	Tap water	2	25	22	1.940	0.379	2	5.991	Not Significant
	River/ well	3	19	29					
Source of information	Hand pump	0	0	0	1.352	0.509	2	5.991	Not Significant
	Mass media	2	24	32					
	Friends / relatives	3	20	19					
	Awareness program	0	0	0					

Table 3 depicts the association of individual risk factors such as age >40, female gender, family history, high fatty diet, obesity and physical activity with their socio-demographic variables calculated by chi square test. There was a significant association found between the age of adults with their risk factor scores at $p < 0.05$ level of significance.

Section E:

Table No: 4. Association of knowledge scores with socio demographic variables of adults (N=100)

Demographic Variables		Levels(N=100)			Association with Knowledge Score				
Variable	Options	Good	Average	Poor	Chi Test	P Value	df	Table Value	Result
Age (years)	30-40	1	27	28	6.178	0.404	6	12.592	Not Significant
	41-50	0	3	14					
	51-60	0	6	7					
	61-70	0	6	8					
Gender	Male	0	21	31	1.281	0.527	2	5.991	Not Significant
	Female	1	21	26					
Education status	No formal education	0	3	18	31.435	0.000	8	15.507	Significant
	Primary	0	10	24					
	Secondary	0	11	10					
	High secondary	0	3	4					
	Graduation & above	1	15	1					
Occupation	Homemaker	0	16	25	18.900	0.013	8	15.507	Significant
	Self employed	0	5	10					
	Private employee	0	2	5					
	Govt. employee	1	10	1					
Religion	Agriculture	0	9	16	1.395	0.498	2	5.991	Not Significant
	Hindu	1	41	57					
	Muslims	0	0	0					
	Sikh	0	1	0					
Monthly Family income (Rs.)	Christian	0	0	0	20.389	0.002	6	12.592	Significant
	< 5000	0	2	9					
	5001-10000	0	16	27					
	10001-20000	0	14	20					
Habits	> 20000	1	10	1	2.920	0.571	4	9.488	Not Significant
	Smoking	0	3	8					
	Alcoholism	0	5	11					
	No habit	1	34	38					
Diet	Any other	0	0	0	14.305	0.006	4	9.488	Significant
	Vegetarian	1	19	10					
	Non vegetarian	0	3	1					
Source of water	Both	0	20	46	2.201	0.333	2	5.991	Not Significant
	Tap water	1	23	25					
	River/ well	0	19	32					
Source of information	Hand pump	0	0	0	2.080	0.354	2	5.991	Not Significant
	Mass media	1	27	30					
	Friends / relatives	0	15	27					
Source of information	Awareness program	0	0	0	2.080	0.354	2	5.991	Not Significant
	Friends / relatives	0	15	27					

Table 4 depicts the association of knowledge score of adults with their socio demographic variables such as age, gender, education status, occupation, religion, family monthly income, habits, diet, source of water and source of information calculated by chi square test. There was a significant association of education status, occupation, monthly family income and high fatty diet with knowledge scores of the adults at $p < 0.05$ level of significance.

Discussion

The findings of the study have been discussed in relation with the previous reviewed literatures.

Risk factors of Cholelithiasis

The study identified that among the modifiable risk factors of cholelithiasis, the most prevalent one among the study subjects was mild physical activity. Also, out of the 48 females in the study, four were identified to have high risk score, whereas out of the 52 male subjects, only one was having high risk score of cholelithiasis. The current findings are in accordance with a cross sectional study conducted in medical college, Kozhikode, Kerala on 100 Cholelithiasis patients which revealed that females had higher incidence of gall stone disease compared to men, with a ratio of 2:1 mean. Age group most commonly affected was between 31-50 years⁴.

Association between risk factors and demographic variables.

In present study there is statistically significant association between age of adults and risk factors of Cholelithiasis at <0.05 level of significance. This finding is supported by a cross sectional study conducted in Lahore, Pakistan on 100 patients. It was found that gall bladder stone is associated with age as p-value was found less than 5% level of significance, maximum patients found in age ranges between 31-35 years, showing that risk of developing gall stone increases by age. Gall stone is gender specific, females are more victims of developing stone than among males².

Knowledge of adults regarding Cholelithiasis

According to the present study findings only 1% of the adults had good knowledge score, 42% of the adults had average knowledge score and 57% of the adults had poor knowledge score related to cholelithiasis. The study findings are congruent with a similar study conducted on antenatal mothers assessing their knowledge regarding prevention of cholelithiasis which concluded that knowledge on prevention of cholelithiasis among antenatal mothers was poor in the selected antenatal clinics at Bangalore, Karnataka⁵.

V. CONCLUSION

The presence of modifiable risk factors such as sedentary lifestyle, obesity and high fatty diet were prevalent among the adults residing in Sirmaur district. Majority of the adults had only poor Knowledge regarding Cholelithiasis. Hence the study concluded that educational activities need to be undertaken in these areas with active community participation to tackle the growing incidence of cholelithiasis.

Recommendations

1. Comparative studies can be undertaken to find out the differences in occurrence of Cholelithiasis between rural and urban communities.
2. Study can be replicated on a larger sample.
3. Interventional research projects can be undertaken to explore the treatment options for cholelithiasis.

Acknowledgement

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Conflict of Interest

The authors declare no conflict of interest.

REFERENCES

- [1] Unisa S et al. Population-based study to estimate prevalence and determine risk factors of gallbladder diseases in the rural Gangetic basin of North India. *HPB (Oxford)*. 2011 Feb; 13(2): 117–125. doi: [10.1111/j.1477-2574.2010.00255.x](https://doi.org/10.1111/j.1477-2574.2010.00255.x) Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3044346/pdf/hpb0013-0117.pdf>
- [2] Bhatti AY, Bilal A, Zia SA, Hussain N, Zulfiqar T. A cross sectional study on the risk factors of gallbladder stone. *Int J Res Med Sci* 2016;4:5041-6.
- [3] Stinton LM, Shaffer EA. Epidemiology of gallbladder disease: cholelithiasis and cancer. *Gut and liver*. 2012 Apr;6 (2):172 available at www.ncbi.nlm.nih.gov/pubmed.
- [4] Parambil SM, Matad S, Soman KC. Epidemiological, demographic and risk factor profile in patients harbouring various types of gallbladder calculi: a cross sectional study from a south Indian tertiary care hospital. *International Surgery Journal*. 2017 Jan 25;4(2):525-8 available at <http://ijsurgery.com/article> download.
- [5] Ranjit S & Ranjit MV. Effectiveness of Structured Teaching Programme Regarding Prevention of Cholelithiasis among Antenatal Mothers in Selected Antenatal Clinics at Bangalore, Karnataka, India. *IJSR*. Volume 6 Issue 2, February 2017. Available from: <https://www.ijsr.net/archive/v6i2/21021705.pdf>