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A Pilot study of Knowledge, Attitudes and Practices (KAP) of Barbers and Unqualified Dentists in Transmission of Hepatitis B and C in an Urban and Rural Setting in Punjab

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ABSTRACT

Chronic viral hepatitis secondary to hepatitis B and C infections with its sequale of cirrhosis and hepatocellular carcinoma has emerged as a modern day epidemic worldwide with huge sections of population being afflicted by these diseases both in underdeveloped and developed countries. More than 10 million people in Pakistan are estimated to suffer from chronic hepatitis B and C. Treatment of chronic viral hepatitis is expensive and effective in only 50% of patients. Urgent measures are therefore needed to curtail the spread of viral hepatitis by focusing on the possible routes of spread including but not limited to unsafe use of therapeutic injections, blood transfusion, surgical interventions, shaving from barbers, tattooing, mother to child transmission and unsafe sexual practices. Barbers and unqualified dental surgeons without adequate sterilization facilities could play an important role in the spread and transmission of hepatitis B and C. A pilot KAP (Knowledge, Attitudes and Practices) Survey of barbers and street dentists from an urban and a rural location in Punjab was carried out in November 2006 to determine the state of knowledge, attitudes and practices of the above two groups regarding risk of transmission of HBV and HCV as well as to evaluate differences in these parameters between the urban and rural population. This study has revealed that while knowledgeable about the transmission of hepatitis, attitudes and practices regarding prevention of transmission by the two groups of professionals were very unsatisfactory. Additionally on all the domains measured in this pilot study, urban professionals did better than their rural counterparts.

INTRODUCTION

The world is facing an epidemic of chronic viral hepatitis with more than 350 million people infected with chronic hepatitis B[1] and an estimated 170 million persons chronically infected with hepatitis C virus (HCV)[2].

Prevalence of chronic infection with HBV in Pakistan has been reported to be 7% in health professionals[3] and 2%–14% in blood donors[4,5].

Data on HCV prevalence is also very alarming. Luby et al[6], found an overall sero-prevalence of 6% in their study from Hafizabad. Studies from Lahore and Gujranwala have reported a prevalence of 16% and 23.8% respectively [7].

Important risk factors identified as contributing to HBV and HCV spread include unsafe use of therapeutic injections [8], blood transfusion [9], shaving from barbers and tattooing [10], mother to child transmission [11] and unsafe sexual practices [12]. Mele A et al reported razor sharing and shave from the barbers as a potential risk factor for HBV spread in Italian patients [13] Sawayama Y also emphasized the role of shaving in transmission of hepatitis C [14]. Similar conclusions were reached by Habib M [15] from Egypt and Bari et al and Farid et al from Pakistan [16,17]. Dental surgery as possible risk factor in the transmission of HBV and HCV was identified in two studies from Lahore [18,19]. In diagnosed cases of Hepatitis B and C, dental

extractions were noted as risk factors in 40-53% cases[19,20].

The possible role of transmission of hepatitis B and C was suggested by noting a higher seroprevalence of Hepatitis B among unqualified dental practitioners and barbers in Pakistan [21] and elsewhere [22,23].

Barbers and unqualified dental practitioners could be important in the spread and transmission of hepatitis B and C. Preventive strategies aimed at minimizing spread of hepatitis B and C are likely to succeed if data on knowledge and practices of barbers and the unqualified dental practitioners is available. No study has been reported in Pakistan about unqualified dental practitioners regarding their knowledge on the spread of blood-borne pathogens. We could find only one study on knowledge and practices of barbers [24].

The present study was a pilot KAP (Knowledge, Attitudes and Practices) Survey of barbers and street dentists from an urban and a rural location in Punjab carried out in November 2006. The primary objective was to determine the state of knowledge, attitudes and practices of the above two groups regarding risk of transmission of HBV and HCV.. The secondary objective was to evaluate differences in these parameters between the urban and rural population.

MATERIALS AND METHODS

A Rapid KAP Survey questionnaire in Urdu language was designed and initially field tested to assess the knowledge of the barbers and street dentists with regards to their awareness, attitude and practices of hepatitis and modes of transmission of the disease. This instrument was then used to conduct the KAP survey.

A total of forty barbers and street dentists were selected randomly as urban sample from low income area of Lahore known for its street dental practitioners and barbers. Barbers were divided into two groups viz. ones who had shops and ones who practiced their profession on the street. Each barber group comprised of 10 individuals giving total of 20 barbers. Three barbers with shops and one street barber refused to participate. Twenty volunteers were recruited for the street dentist group. Ten of these street dentists refused to participate. Thus a total of fourteen individuals from this group refused to participate in the study. The final urban sample analyzed comprised of 26 respondents.

ANNEXURE 1
Questionnaire for KAP survey

Kindly tick the most appropriate answer for each question. If you think that more than one option is true then mark both the options as correct.

1. **What is Hepatitis?**
   - Disease of liver [ ]
   - Disease of Blood [ ]
   - Cause of Jaundice [ ]
   - Hepatitis B and/or C [ ]

2. **How does Hepatitis B and C spread?**
   - Through the Breath [ ]
   - Through direct contact [ ]
   - Through used utensils [ ]
   - Through blood transfusion [ ]
   - Through used Instruments (e.g. scissors, blade, razor, instruments used for removal of teeth etc.) [ ]
   - Through all those means by which AIDS spreads [ ]

3. **Does hepatitis B and C spread through blood?**
   Yes [ ] No [ ]

4. **What are the symptoms of Hepatitis B and C?**
   - Loss of weight [ ]
   - Yellowness of skin [ ]
   - Both the symptoms [ ]
   - No specific symptom [ ]

5. **Is it possible to avoid Hepatitis?**
   Yes [ ] No [ ] Don't know [ ]

6. **How can Hepatitis B and C be prevented?**
   - Staying away from the patient [ ]
   - Avoiding reuse of dirty instruments [ ]
   - By Vaccination [ ]
   - By Medication [ ]
   - Treatment from Hakim [ ]
   - Any other way? _____.

7. **Does Hepatitis B and C Virus spread through infected syringe, needle, dental instruments, surgery, and razor etc.**
   Yes [ ] No [ ]

8. **Is it possible to treat Hepatitis?**
   Yes [ ] No [ ] Don't know [ ]

9. **Is it necessary to clean instruments after use on every customer?**
   Yes [ ] No [ ] Don't know [ ]

10. To protect from Hepatitis B and C: Yes [√] No [X]
- Instruments should be washed with soap and water [ ]
- Clean instruments with disinfectant solution [ ]
- Put instruments in boiling water [ ]
- Boil instruments in steam for a specific time [ ]
- Immerse instruments in disinfectant for specific duration [ ]
- Put the instruments in UV Light [ ]

11. If you know that your customer has Hepatitis B or C then: Yes [√] No [X]
- You will excuse yourself from doing his work [ ]
- You will treat him like all other customers [ ]
- You will keep separate instruments for these patients [ ]
- Waste the instruments after use on these patients [ ]
- This disease will make no difference because it does not spread through contaminated instruments [ ]

12. If you get Hepatitis B or C then Yes [√] No [X]
- It will make no difference to you and your work [ ]
- You will start wearing gloves while working [ ]
- You will leave your profession [ ]
- Any other comment: _____

13. Do you clean your instruments?
- Yes [ ] No [ ]

14. How do you clean your instruments?
- Wash instruments with soap and water [ ]
- ash instruments with disinfectant [ ]
- Put it under UV Light [ ]
- Boil instruments in steam for specific time [ ]
- Any other method: _____

15. When do you clean your instruments?
- Daily before starting work [ ]
- After use on every customer [ ]
- Weekly [ ]

16. Do you use new blade for every customer?
- Yes [ ] No [ ]

17. Where do you throw used razor and other accessories (e.g., cotton, cream, hair, teeth, needles etc?
- In the dust bin [ ]
- Separate tin cans [ ]
- Any other method _____

A second sample comprising of 37 individuals involved in the above mentioned professions was selected as a rural sample from the union council of Muridke. This group comprised of 15 dentists out of which 2 refused to participate, 15 barbers with shops of which 4 refused to participate and 7 street barbers who all participated. A total of six individuals in this sample refused to be interviewed. The final rural sample analyzed in this study comprised of 31 volunteers. Thus a total of 57 subjects were analyzed in the present pilot survey.

Statistical analysis

Data analysis was done using SPSS version 13. Nominal data recorded in this study was reported as frequency/percentages and analyzed using Chi-square test. Differences in various groups were analyzed using Z scores for proportions. For all analyses, a p value ≤ 0.05 was considered significant. Questions 1, 2, 4, 5, 6, 8, 10, 11, 12, 14 and 15 had more than one choice. After the data had been recorded according to the responses in the questionnaire, these variables were recoded in to binary variables identified as correct or incorrect responses and analyzed along with the remaining 6 variables.

RESULTS

This prospective KAP survey was conducted in 1 urban and 1 rural community to assess the state of knowledge of street dentists, barbers who worked in shops and street barbers who practiced their profession on the road side. Table 1 gives details of the samples interviewed from these two localities.

Out of 40 subjects selected for study from urban population, 14 refused to participate (35%) compared to 6 refusals (16%) in the rural group. This difference was statistically insignificant (Z-score 1.878 p = 0.06). On sub group analysis, it was found that 10 (50%) of 20 street dentist refused to participate in the survey as compared with only 4 (20%) of the 20 barbers in the urban area sample ($p < 0.047$; Z score 1.989). This difference in refusal to participate between the street dentists and barbers was most likely due to the fact that street dentist were more likely to be aware that the profession they were practicing was illegal and were therefore hesitant in being interviewed. This difference was not as striking in the rural areas where 13% of the street dentists and 18% of the barbers refused to participate in the survey (Z-score = - 0.393 p-value = 0.694).

Table 1: Details of the samples interviewed from urban and rural localities.

Location	Professional group	Interviewed	Refused to participate	Final sample
Lahore	Street Dentists	20	10	10
	Barbers with shops	10	3	7
	Street Barbers	10	1	9
Total for Lahore sample		40	14	26
Muridke	Street Dentists	15	2	13
	Barbers with shops	15	4	11
	Street Barbers	7	0	7
Total for Muridkey sample		37	6	31
Total		77	20	57

Results of this study presented in Table 2 were tabulated in three categories. Questions 1-10 were categorised as knowledge, while questions 11-12 were used to asses attitudes and questions number 13-17 were focused on assessing practices. Results of this study involving analysis of the knowledge of participants revealed significant differences across the urban and rural population.

Over all Lahore (63%) had higher percentage of correct responses to all the 17 questions than Muridke (29%) reflecting good knowledge about hepatitis in Lahore.

On sub group analysis based on domains of knowledge, attitudes and practices, it was found that 77% of the individuals in Lahore were aware that hepatitis was a form of liver disease; 64% knew that it could spread through blood and blood products, while almost 50% were aware that used instruments (scissors, blades, extraction forceps etc) could transmit hepatitis. In Muridke analysis of knowledge of the barbers and quack dentists revealed that only 39 % were aware that hepatitis was a form of liver disease; 27% knew that it could spread through blood and blood products, while 16% were aware that used instruments (scissors, blades, extraction, forceps etc) could transmit hepatitis.

Data analysis on the domain of attitude towards hepatitis indicated that although subjects in both urban and rural communities were well aware of the disease but were either not concerned about the health hazard posed by this disease to their clients (36%) or did not consider that special precautions should be taken while dealing with these patients (79%). Only 13% of subjects responded that separate instruments should be used and this attitude was noted only in participants from Lahore. Similarly when asked that if they had the disease themselves what would be their response, 100% opted against changing their profession. Eighty five percent responded that it did not matter whether they had the disease or not and 14% were of the opinion that gloves should be worn by them in such a situation. No statistically significant difference was found in evaluation of attitudes across the urban and rural population.

Analysis of data pertaining to what the participants actually practiced revealed that all subjects claimed that they cleaned their instruments using Dettol (chloroxylenol). Interestingly none was aware of the fact that dettol is not virucidal against hepatitis B and C viruses. Twenty seven percent of the respondents from Lahore claimed that they washed their instruments after every use, 35% cleaned their instruments on weekly basis whereas 38% claimed that their instruments were cleaned once daily before work as compared to 22%, 30% and 48% respectively from Muridke.. No statistically significant differences were found between the responses sub grouped in to urban and rural population.

Table 2: Response to questionnaire.

Analysis of knowledge based on correct response for questions 1 to 10

Location	Street dentists	Barbers with shops	Street barbers	Total correct responses (N/%)
Lahore	10/10	3/7	6/9	19/26 (73)
Muridkey	7/13	2/11	1/7	10/31 (32)

Analysis of attitude based on incorrect response for questions 11 and 12

Location	Street dentists	Barbers with shops	Street barbers	Total incorrect responses (N/%)
Lahore	1010	3/7	8/9	21/24 (88)
Muridkey	11/13	9/11	6/7	26/31 (84)

Analysis of practices based on responses to questions 13 through 17 Urban and Rural Sample combined

Q-13 (do you clean your instruments)	Positive response from 100% of responders from both groups
Q-14 (how do you clean your instruments)	100% response was using DETTOL
Q-15 (when do you clean your instruments)	87% responded cleaning before work 30% after every use 25% weekly basis
Q-16 (do you use new instruments on every client)	Positive response from 100% of responders across all groups
Q-17 (how do you dispose used instruments, blades, extracted teeth, hair etc)	100% responded using waste baskets or dumping in to public sewerage lines.

Analysis of response to the practice of using new instruments (blade, needle for injection) every time and disposal of used instruments / sharps (blade, needle for injection), hair, extracted teeth etc indicated that 100% of all respondents uniformly across both urban and rural groups claimed to use new instruments. They also uniformly admitted to disposing their waste in ordinary open waste baskets or drained the same in to the municipal sewerage lines. No special waste disposal boxes were maintained and participant was concerned about the hazards caused by dumping these wastes without proper treatment or precautions.

DISCUSSION

Several studies have highlighted barbers and street dentist as potential sources for the transmission of hepatitis B and C[16-,21,24]. The present study was a KAP survey addressing knowledge, attitudes and practices of street dentists and barbers towards hepatitis transmission. We also evaluated if any differences existed between rural and urban settings.

We could only find one study conducted by Janjua et al in the twin cities of Rawalpindi and Islamabad restricted to assessment of knowledge and practices of barbers only [24]. No study addressing street dentists has been reported in Pakistan.

The results of the twin cities study indicated that only 13% of the barbers knew that hepatitis is a disease of the liver causing jaundice; that it is transmitted through parenteral route and could also be transmitted by razor. The results of our study show that 80% of the individuals in the big cities were aware that hepatitis was a form of liver disease; 63% knew that it could spread through blood and blood products, while almost 70% were aware that used instruments (scissors, blades, extraction forceps etc) could transmit hepatitis. However, in the smaller cities only 29% were aware that hepatitis was a form of liver disease; 22 % in these cities knew that it could spread through blood and blood products, while 23% were aware that used instruments (scissors, blades, extraction forceps etc) could transmit hepatitis. In all the rural areas only 18% being aware that hepatitis was a form of liver disease; 12% knew that it could spread through blood and blood products, while 15% were aware that used instruments (scissors, blades, extraction forceps etc) could transmit hepatitis. The difference in findings of the two studies could be attributed to the fact that the twin cities study was done in 1999, when the awareness campaigns on hepatitis were not actively pursued while today the efforts on awareness have been heightened. Another reason for the difference could be that the present study assessed the knowledge of two professional groups' viz-à-viz street dentists and barbers; while the previous study restricted itself to the barbers alone.

Janjua and associates had observed that 11.4% barbers cleaned the razors with a solution of Chloroxylenol (Dettol®). In our study 100% claimed to do the same. The percent of the individuals using Chloroxylenol may be different

but the chemical remains the same. Chloroxylenol which is a household disinfectant was mentioned in both the studies based on the conception that it possessed virucidal activity against hepatitis viruses which is not true. However, Chloroxylenol is much cheaper than glutarldehyde or similar chemicals and hence is being used as a commercial gimmick to portray adherence to a good professional practice.

The twin cities study also observed that all barbers disposed off their used blades in municipal waste bins or open place which was in agreement with the present study. All participants of both the studies disposed of their waste either on open garbage dumps located near their places of practice or into municipal sewerage lines. Discarded instruments, hair, extracted teeth, cotton soiled with blood and used syringes add to the reservoir of potentially infected material in our environment and this poses a major risk to sweepers and garbage handlers as well as waste scavengers, who may be children and at risk of acquiring infections [24].

Data analysis was done on the domains of knowledge, attitude and actual practices. This revealed that important differences existed in level of knowledge between urban and rural populations with the former having better knowledge than the later. This difference was probably the result of better exposure to educational campaigns, media coverage and better educational status of the urban population as compared to their rural counterparts. Social groups, electronic media and health care facilities are usually focused on the issues of hepatitis in urban cities. Rural communities at present generally lack these activities designed to increase public awareness. Future efforts aimed at control and eradication of hepatitis epidemic should not ignore the rural population. All such programs should target the less privileged rural communities to enhance their knowledge and awareness.

In conclusion although the awareness level in Lahore was relatively high compared to Muridke, the attitudes and practices to prevent its transmission in both rural and urban settings were unsatisfactory. This perhaps was due to the inability of dentists and barbers to afford expensive equipment and disposables for proper sterilization of their equipment. Their customers would prefer not to bear the increased cost of procedures and hence in an effort not to loose customers sterilization and safe disposal of biological waste was not their priority.

This survey has provided useful information which can be used to formulate and implement programs for control of hepatitis in Pakistan by focusing on the behaviours and practices of high risk groups. The authors plan to implement a larger country wide survey in the near future to determine Knowledge, attitudes and practices in all the four provinces of Pakistan.

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