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RESEARCH ARTICLE OPEN ACCESS

Barbers' knowledge and self-reported preventive practices for blood-borne diseases in Kut City, Wasit Governorate, Iraq

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Abstract
Objectives: This cross-sectional study assessed knowledge of blood-borne diseases (BBDs) and self-reported preventive practices among barbers working in Kut City, Wasit Governorate, Iraq.
Methods: Between field visits to 56 barber shops in 2023, 159 barbers meeting the inclusion criteria (≥18 years old, ≥6 months' experience) consented to a structured, interviewer-administered questionnaire covering demographics, 21 knowledge items and 21 practice items. Correct responses were scored as 2 and incorrect responses as 1, and the total was converted to a percentage scale. Knowledge and practice scores were categorised as good (≥70%), moderate (50–69%) or poor (<50%).
Results: Overall, the mean knowledge score corresponded to 39% correct answers, placing the cohort in the poor knowledge category; reported adherence to key preventive practices, such as sterilisation after each client, routine use of personal protective equipment (PPE), and use of disposable blades, was low. Urban residence and higher formal education were significantly associated with better knowledge (χ^2, $p < 0.001$), while age and marital status were not.
Conclusion: The findings identify an urgent need for supportive, practical interventions, compulsory infection-control training, access to single-use supplies, promotion of hepatitis B vaccination and reinforced licensing, to protect barbers and their clients and to limit community transmission of vaccine-preventable and treatable infections. Data are available from the corresponding author on reasonable request.

Keywords: Barbers, blood-borne diseases, hepatitis, infection control, occupational health.

Plain English Summary

Barbers use sharp instruments and often work close to their customers' skin. When instruments are reused without appropriate cleaning or disposable replacement, there is a risk that infections carried in blood (for example, hepatitis B, hepatitis C, or HIV) can spread between people. We surveyed 159 barbers in Kut City about what they know and what they actually do to prevent the spread of infections. Most barbers had limited knowledge and revealed that instruments were rarely sterilised after each customer, protective equipment was rarely used, and disposable blades were rarely used. From the findings, it is clear that the interventions required are simple and include providing training on the demonstration of the cleaning and safe disposal of instruments, making the instruments affordable and accessible to barbers and customers in the form of disposable blades, encouraging barbers to be

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vaccinated against hepatitis B, and making sure that the licensing system is implemented to ensure a minimum safety standard is met.

Introduction

Knowledge and practice profile of barbers in any given area has two main purposes: for assessment and for the development and implementation of interventions that reduce the risks of transmission of blood-borne pathogens in areas where skin-penetrating procedures or blood exposure occur. Blood-borne pathogens such as hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV) have been and continue to be major contributors to the burden of preventable diseases in the world today. Barbers shave and provide close contact services that can meet clients' blood, and the reuse and poor disinfection of instruments provide plausible avenues for the transmission of infection (1, 2, 3, 4). Empirical studies done in various settings, such as in Pakistan, Ghana, Egypt, Italy, and Fiji, have all noted deficiencies in the knowledge and practice of barbers, suggesting that the problem is widespread and not limited to any single system or cultural background (1, 2, 3, 4, 5, 6). Other qualitative and quantitative studies done in Bangladesh and occupational health teaching interventions conducted in India support the idea that supply interventions can have positive impacts if done thoughtfully (7, 8, 9, 10, 10). First, it identifies concrete, addressable deficits, for example, lack of awareness about HBV vaccination or misperceptions about which procedures carry risk, that programmes can address through targeted, practical training. Second, it helps health authorities estimate the likely contribution of informal personal-care services to community transmission and to prioritise appropriate measures such as outreach vaccination or licensing linked to demonstrated infection-control competency (12). In this study, therefore, we set out to measure knowledge and self-reported preventive practices among barbers in Kut City and to examine how these attributes varied with basic demographic characteristics, to provide evidence to inform pragmatic local interventions.

Materials and Methods

A cross-sectional study was designed and implemented in 2023 among barbers working in Kut City. The research team targeted 56 barber shops located in various areas of Kut City and invited all the staff working in these shops to participate in the study. The inclusion criteria for the study were to be at least 18 years of age and to have at least six months of working experience in a barber shop. The data collection tool was a structured interviewer-administered questionnaire consisting of three sections: socio-demographic characteristics (age group, residence, marital status, and educational level), 21 questions on knowledge about blood-borne diseases, and 21 questions on self-reported practices to prevent infection. Two points were allocated to every correct answer and 1 point to every wrong answer. The score was then converted to a percentage of the maximum possible score to make it easier to understand the results. Three categories of good, moderate, and poor knowledge and practice were established according to the score: good if the score was 70% and over, moderate if the score was between 50 and 69%, and poor if the score was below 50%. The questionnaire had good internal consistency reliability ($\alpha = 0.83$). The content validity of the questionnaire was established by subjecting it to subject matter experts, and the agreement was 97%. The data were analysed and cleaned using Microsoft Excel and SPSS version 28. The characteristics of the participants and the data collected were described. The association between categorical data (knowledge and demographic characteristics) was assessed using the chi-square test at an α of 0.05.

Results

Participant profile

One hundred fifty-nine barbers participated in the study. Most of the participants, 65.4%, were 30 years of age or less. In addition, 86.2% of the participants worked in an urban setting, and 76.7% had some form of education. Almost half of the participants were married, while the rest were single or had other marital statuses. Table 1 is a summary of the participant characteristics.

Table 1: Participant characteristics (n = 159)

Characteristic	Number	Percentage (%)
Age ≤ 30 years	104	65.4
Age > 30 years	55	34.6
Residence — Urban	137	86.2
Residence — Rural	22	13.8
Formal education (any)	122	76.7

No formal education	37	23.3
Single	52	32.7
Married	79	49.7
Other marital status	28	17.6

Knowledge and preventive practice

The overall mean score of the 21 knowledge items was consistent with 39% correct responses, which falls into the "poor" knowledge level. Only 22.6% (36/159) correctly identified the types of infections that can be transmitted through blood. The level of knowledge about the clinical features of hepatitis was low, with only 9/159 (5.6%) correctly identifying the symptoms of hepatitis as prompted in the questionnaire. The level of self-reported preventive practice was low, with 15 (9.4%) reporting the routine practice of sterilising shaving tools after each client, 9 (5.6%) reporting the routine practice of personal protective equipment, and only 3 (1.8%) reporting the routine practice of the use of disposable shaving equipment. Only 12% (18/159) reported the possession of a formal licence to practice, and only 3 (1.8%) reported the attendance of a health education course related to occupational infection control. Table 2 shows a summary of the major knowledge and practice elements and the frequency of the responses.

Table 2: Selected knowledge and practice indicators

Indicator	n	%
Correctly identified blood-transmitted infections	36	22.6
Recognised hepatitis symptoms (prompted item)	9	5.6
Reported sterilisation after each client	15	9.4
Reported routine PPE use	9	5.6
Reported use of disposable blades	3	1.8
Reported HBV vaccination (any)	15	9.4
Licensed to practice	18	11.3

Correlates of knowledge

Education level and urban residence were both significantly associated with higher knowledge scores (χ^2, $p < 0.001$). In contrast, age category and marital status were not significantly associated with knowledge scores ($p > 0.05$).

Discussion

The results provide a clear and humanistic narrative that individuals who promote and maintain a clean and groomed appearance in our neighbourhoods are operating with minimal knowledge and without regular access to tools and systems that ensure safe practices. With a collective knowledge score of approximately 39% and a low adherence to primary infection-control practices, there is a substantial, addressable risk that barbering may contribute to and be avoidable in blood-borne pathogen transmission in our community. These data are consistent with other low- and middle-income country studies that have similarly demonstrated deficient knowledge and inconsistent sterilisation practices among barbers and salon workers (1, 2, 3, 4, 5, 6, 13). The tendency for individuals with a higher level of formal education to demonstrate a higher knowledge score is not surprising and is consistent with other studies that have demonstrated that formal education is a critical tool that not only allows individuals to understand health information but also to translate that information into healthy behaviours (2, 3, 6). We also recognise a tension between individuals' exposure to information and their absolute risk of exposure. In our study, barbers in urban settings demonstrated a higher knowledge score than their counterparts in rural settings. This is likely due to several reasons, including that urban barbers likely have greater exposure to information through various forms of media and services. However, it is also true that urban barbers likely have a greater number of client exposures, which could lead to a substantial exposure risk per shop. There is precedence that a combination of educational and structural interventions is necessary to address these concerns. Training interventions have been successful in improving knowledge and practice among barbers and salon workers in other studies (10). At the same time, other studies have demonstrated that reducing exposure opportunities and improving supply chain issues, such as ensuring that disposable blades are available to all barbers and salon workers, is critical to reducing exposure risk (12).

Study limitations

The cross-sectional study design, self-reported practices that may be subject to recall bias and social desirability bias, and sampling that involved visiting shops and interviewing consenting barbers in Kut City should be noted.

However, the similarity of our study's findings to previous studies gives us more confidence that these gaps are not due to study limitations. These trends are consistent with studies that have shown that formal education and information access are associated with awareness and safe practices among barbers and other similar occupational groups (1, 2, 3, 4, 5, 6, 10, 12). Additionally, although studies have been done in non-analogous settings such as clinical transfusion services and correctional facilities, these studies also highlight that risk of bloodborne transmission occurs in a variety of environments and that prevention strategies such as vaccination and safe work practices are effective in all settings (8, 9, 10, 14, 15).

Recommendations

In addition, according to the data presented in the study, it is proposed that the following recommendations be taken into consideration and implemented at a local level. First, it is recommended that all practising barbers undergo concise, practical infection-control training. It is recommended that such a course be a prerequisite to any barber seeking a license to practice or renew their license. The course should be very practical and should demonstrate to the trainee barbers how to effectively and efficiently conduct sterilisation and blade disposal. In addition, it is recommended that affordable single blades and other necessary blades and equipment be made available to barbers through various initiatives and subsidies. Thirdly, it is recommended that occupational hepatitis B vaccination be emphasised to barber associations and market clusters to help prevent a preventable occupational hazard. Fourthly, it is recommended that regulatory and incentives-based strategies be used to promote and encourage compliance. It is also recommended that client education be implemented to encourage barbers to be more compliant and to encourage their customers to also demand such services. It is recommended that a combination of both demand and supply strategies be used to ensure that a lasting change is realised.

Conclusion

Barbers in Kut City demonstrate limited knowledge of blood-borne infections and report infrequent use of fundamental preventive practices, creating a plausible pathway for occupational and community transmission of infections that are, in many cases, preventable or treatable. Addressing these gaps requires integrated action by public health authorities, licensing bodies and community stakeholders: practical infection-control training, stronger regulatory enforcement, improved access to single-use supplies and dedicated HBV vaccination efforts for this occupational group.

Declarations

Ethics approval and consent to participate

Ethical clearance for the research was approved by the Kut Technical Institution Ethics Committee, and informed consent was obtained orally from the participants before the interview. The feedback from the participants was anonymised before the data was analysed

Consent for publication

The authors gave consent for the publication of the work under the Creative Commons Attribution Non-Commercial 4.0 license.

Availability of data and materials

De-identified study data are available from the corresponding author on reasonable request.

Competing interests

The authors declare no competing interests.

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Authors' contributions

DFH, SID and ADM: Conceptualisation, data collection oversight, analysis and manuscript drafting.

All authors read and approved the final manuscript.

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