





# Public hygiene and the awareness of beauty parlor: A study of consumer perspective

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## ABSTRACT

**Background:** The beauty-care industry flourishes globally, including in Kathmandu, Nepal. Despite limited research on personal hygiene, beauty parlors lack comprehensive studies. This study aims to assess beauty parlor public hygiene (BPH) awareness among university students.

**Methods:** The researchers employed a quantitative cross-sectional approach and purposive sampling to gather data from consumers. Consumers were surveyed using self-designed tools, and the researchers assessed the tools' reliability, validity, and pilot-tested them. The reliability (Cronbach's alpha) of the tools was measured at 0.793. Prior to conducting the final study, the researchers obtained ethical approval. In this study, the researchers utilized descriptive analysis, t-tests, and Chi-square tests to analyze the data.

**Results:** In this study, descriptive analysis showed that 53.0% of consumers scored 50.0% or lower in awareness of BPH. A one-sample t-test revealed a significant result ( $p=0.049$ ) for BPH, with a mean difference of 0.753 (95% confidence interval: 0.0032 to 1.5033). Regarding sociodemographic variables, the mean age of consumers was 26.89 years. 52.1% of consumers visited beauty parlors more than once a month, and 43.8% spent between 501 and 1,000 rupees per month. The main services consumers sought were hair styling/cutting and facial/skin care in this study.

**Conclusions:** Researchers suggested that below 50.0% of consumers scored low levels of awareness regarding BPH. Therefore, targeted interventions, more in-depth research studies, interdisciplinary collaboration, and standardized protocols for regulating and monitoring beauty parlor services are recommended. Regular laboratory examinations to identify different types of microbes such as bacteria, fungi, and viruses are also suggested to prevent various types of communicable and pandemic diseases.

**Keywords:** awareness, beauty parlors, public hygiene, university students, public health, consumer perspective

## INTRODUCTION

The beauty industry, particularly beauty parlors, holds a significant place in modern society, offering a wide array of services ranging from hair care to skincare [1, 2]. These establishments serve as havens, where clients entrust their well-being to them, seeking enhancement and relaxation [1]. However, among the pursuit of beauty, the importance of maintaining severe hygiene (HG) standards in beauty parlors can sometimes be overlooked [3]. In today's health-conscious culture, where safety awareness is paramount, ensuring cleanliness in beauty parlors becomes imperative. The meeting of heightened HG expectations and the growing demand for beauty services underscores significance of maintaining high HG standards in these establishments [2-4].

Research conducted in [3] sheds light on the detrimental effects of low-quality, unauthorized cosmetic products on consumer health. This study emphasized the urgent need for regulatory measures to address these concerns. Additionally, findings from [1] underscored the significant influence of rate and service quality on customer satisfaction while also highlighting the positive effects of the environment and facilities. It was highlighted beauty parlors as potential breeding grounds for viral, fungal, and bacterial diseases, emphasizing the importance of HG practices [6]. Similarly, it was identified hairdressing salons as environments prone to infection due to untreated tools and equipment [7, 8], further emphasizing the importance of HG standards [6]. Furthermore, World Health Organization (WHO) stressed the critical role of standard precautions in preventing the transmission of microorganisms in healthcare settings [4].

Despite its significance, beauty parlor public hygiene (BPH) is often overshadowed by other factors, such as service quality and setting, in discussions of customer satisfaction [1]. While these factors undoubtedly contribute to the overall salon experience [1], neglecting HG can have profound implications for customer well-being [7]. Therefore, it is essential to prioritize HG standards in beauty parlors to ensure the safety and satisfaction of clients.

However, while numerous studies have been conducted in beauty industry [1, 2, 5, 7] limited attention has been given to HG. Despite this, it permits further exploration due to its widespread usage, spanning from housewives to professional females [7]. The beauty industry, particularly personal care services, has been associated with various health issues especially those involving commercial purposes and unregulated practices [3]. In Nepal, there has been a noticeable increase in the beauty industry, yet research in this area remains rare. Given the importance of public HG, particularly in the wake of epidemics like COVID-19, it is crucial to examine the role of self-awareness regarding beauty HG in consumer practices. This study focuses on individuals who have utilized beauty services, aiming to identify sources of infection and health risks. By doing so, policymakers and researchers can develop interventions and guidelines to enhance the well-being of the general population in the beauty industry.

## METHODOLOGY

This study employs a quantitative research design, utilizing numerical data to investigate awareness in BPH among university-level students. The research adopted a cross-sectional strategy and purposive sampling to collect data. Researchers gathered contact information, including email, social medias, such as WhatsApp, Viber LinkedIn profiles, from selected academic institutes. Initially reaching out to 500 students, only 169 students participated during the allocated data collection period, yielding a participation rate of approximately 33.8%. Data collection occurred between January 2024 and April 2024. A standardized structured questionnaire, tailored to the study's objectives, was administered. The questionnaire consisted of 13 items measured on a Likert five-point scale (ranging from one: strongly disagree to five: strongly agree). Additionally, socio-demographic variables such as age, gender, marital status, and income level were collected. Collected data underwent statistical analysis, including descriptive statistics, t-tests, and chi-square tests, to examine levels and associations among variables. By utilizing quantitative techniques, this study aims to provide a comprehensive understanding of student perspectives on BPH awareness, contributing valuable insights to the beauty industry.

### Instruments of Study

#### Socio-demographic variables

**Section A:** Different demographic variables were studied. Each variable includes age group, gender, frequency of visits to beauty parlor, monthly spending at the beauty parlor, and appointment scheduling for visits.

**Section B:** Researchers developed comprehensive HG instruments based on previous research and evidence. They crafted a 13-item questionnaire utilizing a five-point Likert scale, covering aspects such as

1. HG1. Awareness of public HG practices,
2. HG2. Cleanliness of beauty tools,
3. HG3. Impact of salon cleanliness and confidence,
4. HG4. Ventilation adequacy,
5. HG5. Use of protective apparatus,
6. HG6. Waiting area cleanliness,
7. HG7. Public HG standards for towels and linens,
8. HG8. Proper waste disposal,
9. HG9. Regular surface sanitation,
10. HG10. Restroom cleanliness,
11. HG11. Access to clean water,
12. HG12. Professionalism, and
13. HG13. Review/feedback.

### Reliability & Validity Test

Reliability statistics revealed robust internal consistency with Cronbach's alpha at .793, based on standardized items, indicating high reliability across 13 items in the study.

Kaiser-Meyer-Olkin measure of sampling adequacy indicated moderate sampling adequacy at .526. Bartlett's test of sphericity yielded a significant result ( $\chi^2=1,017.402$ ,  $df=78$ ,  $p<.001$ ), suggesting suitability for factor analysis despite non-sphericity in the data [8].

Communalities after extraction ranged from .400 to .755, suggesting shared variance captured by the factors. Principal Component Analysis revealed substantial communalities, indicating the retention of meaningful information across all variables despite some variability in communalities [8].

Based on the rotated component matrix, items HG3, HG10, HG12, HG13, and HG7 exhibit strong loading on respective components, indicating they could serve as reliable indicators for distinct constructs. Items HG1 and HG4 also show consistent loadings, suggesting their suitability for the study [8].

### Ethical Consideration

Participants were informed about the aim of the study and were made to understand that participation was voluntary, with the option to refuse at any time. Respondents were assured of the confidentiality of their data and informed of their right to withdraw from the study at any point. And this IRC recognition from the Nepal Health Research Council. The reference number for IRC is 080/081-434.

## RESULTS

**Table 1** shows data analysis, which revealed participants' ages ranging from under 20 to over 31, with a mean age of 26.89 (standard deviation [SD]=7.599). Most respondents were female (73.4%). The majority visited beauty parlors more than once a month (52.1%) and spent between 501-1,000 Nepalese Rupees monthly (43.8%). The most common appointments

were for other services (47.9%), followed by hair styling and cutting (25.4%) and facial and skin care (20.1%).

**Table 1.** Illustration socio-demographic variables among participants

Variables	Frequency (n)	Percentage (%)
Age group (n=169)		
<20 years	30	17.8
21-30 years	95	56.2
>31 years	44	26.0
Mean=26.89; SD=7.599; Min=18; & Max=48		
Gender (n=169)		
Male	45	26.6
Female	124	73.4
Frequency of visits to beauty parlors (n=169)		
Twice a month	7	4.1
Monthly	74	43.8
More than once a month	88	52.1
Nepalese currency is (Rupees) spent monthly on beauty parlor services per individual		
Below 500	53	34.4
501-1,000	64	43.8
1,001-2,000	18	12.3
>2,001	11	7.5
Mean=982.88; Standard error=70.050; Min=50, & Max=4,000		
Appointment for a visit to your beauty parlor		
Hair styling and cutting	43	25.4
Facial and skin care	34	20.1
Waxing and hair removal	11	6.5
Others	81	47.9

**Table 2** presents the distribution of participants' awareness of BPH with 53.0% exhibiting an awareness level of 50 or lower, while 46.8% score 51 or higher.

**Table 2.** Level of awareness of BPH among participants

Level of hygiene	Frequency (n)	Percentage (%)
≤50	82	53.2
≥51	72	46.8

**Table 3** displays the results of a one-sample t-test assessing BPH among participants, with a test value of 54. The 95% confidence interval for the difference ranges from 0.0032 to 1.5033. Therefore, the result is considered significant at the 0.05 level of significance.

**Table 3.** One-sample t-test of BPH among participants

Test value=54						
	t	df	Sig. (2-tailed)	MD	95% CI of D	
					Lower	Upper
Sum_Hygiene	1.984	153	.049	.75325	.0032	1.5033

Note. MD: Mean difference; CI: Confidence interval; & D: Difference

**Table 4** shows Chi-square tests for age group and level of awareness of BPH show non-significant results across all measures: Pearson Chi-square ( $p=0.810$ ), likelihood ratio ( $p=0.810$ ), and linear-by-linear association ( $p=0.724$ ). With  $p$ -values  $>0.05$ , the association is not significant.

Chi-square test for gender and level of HG is not significant ( $p=0.320$ ) based on Pearson Chi-square. Similarly, likelihood ratio yields non-significant results ( $p=0.318$ ). There's no significant association between sex and observed HG levels.

**Table 4.** Association between selected demographic variables & level of BPH awareness among participants

Variables	Level of BPH awareness		Chi-square	df	p	
	≤50	≥51				
Age group						
<20 years	C	13	11	.810	2	<0.05
	EC	12.8	11.2			
21-30 years	C	45	43			
	EC	46.9	41.1			
>31 years	C	24	18			
	EC	22.4	19.6			
Gender						
Male	C	24	16	.320	1	<0.05
	EC	21.3	18.7			
Female	C	58	56			
	EC	60.7	53.3			

Note. C: Count & EC: Expected count

## DISCUSSION

The main aim of the study was to examine the level of BPH among participants. Descriptive statistics, frequencies, and percentages were utilized to describe the data, while t-tests were employed to assess significance. Chi-square tests were used to examine associations between variables.

In this descriptive analysis demonstrated that majority of participants (56.2%) are aged 21-30, indicating a strong presence of young adults in beauty parlor clientele. Females constitute a significant majority (73.4%) in beauty parlor patronage, suggesting a cultural preference for female custom. Majority (52.1%) visit beauty parlors more than once monthly, indicating high demand and frequent engagement with beauty services. Majority (43.8%) spend 501-1,000 Nepalese Rupees monthly, reflecting moderate spending and the economic importance of the beauty industry. Majority opt for "others" (47.9%), showing diverse service preferences. Hair styling (25.4%) and facial care (20.1%) are also popular choices. The main aim of this study is to examine the level of awareness about BPH. The research utilizes descriptive data analysis, revealing that 53.0% of participants exhibited awareness levels of 50 or lower, while 46.8% scored 51 or higher. Despite people taking beauty parlor services, over 50.0% have low awareness levels. The study suggests intervention programs to increase public HG awareness to prevent communicable diseases like COVID-19 and others. Previous research also highlights vital subjects in the growing beauty business [2, 3, 9, 10]. Current study findings align with previous research in this area, which consistently highlighted the significance of maintaining high levels of BPH to prevent the spread of infections and ensure customer safety [5]. Likewise another study by Alharbu and colleagues highlighted that beauty salons, while enhancing appearances, pose significant health risks due to potential disease transmission [5]. Research identifies pathogenic microbes in salon products, urging improved storage practices for public safety [5]. In beauty parlors/salons, various tools are used for services like facials, skincare, haircare, nail care, etc. If not sterilized and cleaned properly, there's a higher risk of spreading infections. One study supports this notion, emphasizing the potential infection sources from different beauty tools. Additionally, research by Bashir et al.

investigated five categories of used cosmetic products—namely lipstick, lip gloss, eyeliners, mascaras, and beauty blenders—to highlight the potential risks to consumers in the UK. Beauty blenders showed the highest contamination levels, with 93.0% not being cleaned and 64.0% being dropped and reused [11]. Using a range of cosmetics and tools without considering safety and public HG poses significant health risks. Research underscores the necessity for improved risk management strategies. Kim et al.'s study, focusing on customer ratings, highlights key factors such as raw material safety and facility management. Such approaches aid in crafting policies for safer beauty practices [12, 13]. Despite the growing emphasis on HG standards within the beauty and cosmetic industry [11, 13]. Our current study demonstrated that there remains a substantial proportion of individuals with limited awareness in this regard several factors may contribute to the observed disparities in awareness levels. Multi-level promotional interventions focusing on provider responses are needed to advance enhanced, need-oriented, and effective sanitary public health services, and public HG systems that can promote public HG and sanitary practices [14, 15]. Additionally, cultural norms and societal perceptions regarding HG and beauty products may influence individuals' psychological perceptions and behaviors [13, 16]. The significance of beauty and youth spans across cultures, often associated with models and movie stars who afford costly beauty treatments. However, beauty services' impact extends beyond appearance to emotional well-being. It was revealed that heightened self-perception positively correlates with increased self-esteem and societal acceptance [13].

In this research applied the Chi-square test to examine the association between selected demographic factors: age group and gender. However, there was no significant association found between age group and HG awareness. Similarly, gender did not show a notable association. Both variables did not suggest significance in enhancing awareness of cosmetic tools' HG and safety. In light of these results, it is recommended to focus future research efforts on exploring other potential factors that may influence the awareness of BPH as a public HG practice, such as socio-economic status, access to healthcare, or cultural beliefs. Additionally, focusing on interventions like digital education to urgently and vitally increase HG awareness, self-esteem, and well-being. The significance of the during COVID-19 pandemic for public HG, and prompt machine learning diagnosis [17]. The COVID-19 pandemic period has been identified as a major contributor to the high levels of burnout discussed. The impact of burnout and low job satisfaction is well-documented in various studies. In order to better understand these effects, they can be categorized into different sets. The first set of effects focuses on individual concerns [18-20]. Research has been conducted on the safety and organizational factors in the workplace, as well as the socio-psychological risks faced by employees in the public health service sector. This research sheds light on how these factors influence the well-being [21-23]. Based on the premise that burnout was a phenomenon that had not been thoroughly investigated before [24, 25]. It was believed that burnout had always been an issue for health workers and students at these levels, but there had not been sufficient evidence to support this claim. With advancements in research methodologies and

progress in research, health practitioners and students were able to recognize and address this long-standing issue, also impacts on water and wastewater regulations and the risks they pose to environmental, HG and public health, associated with climate crises affected public HG [26-28].

### Limitations

This study has several noteworthy limitations. Firstly, it solely focused on examining awareness and practices related to BPH among participants, neglecting to examine underlying reasons or the effectiveness of existing interventions. Secondly, reliance on self-reported data may introduce limited samples and demographics could restrict generalizability. Additionally, the absence of longitudinal data hindered assessing changes over time, and other potential influences on BPH awareness were not considered. Given the increasing popularity of beauty parlors across different age groups, understanding, controlling, and preventing infection in these establishments is vital. Future research should address these limitations to gain a more comprehensive understanding and develop an effective intervention for promoting beauty public HG practices in beauty parlors.

### Recommendations

- ✓ **Targeted interventions:** Utilize digital education platforms to conduct workshops and training sessions, educating beauty parlor staff and consumers on sanitation, safety product and tools, and disinfection techniques.
- ✓ **Collaborative efforts:** Foster cooperation among regulatory bodies and industry stakeholders to establish standardized public HG protocols.
- ✓ **Addressing risks:** Implement proper HG and safety practices in beauty parlors to reduce disease transmission risks, including COVID-19.
- ✓ **Microbiology testing:** Conduct microbiology tests in Nepal to identify prevalent microorganisms, such as bacteria, viruses, fungi, and others factors.
- ✓ **Interdisciplinary research:** Engage in interdisciplinary studies involving economics, business, and healthcare management to regulate the beauty industry effectively.
- ✓ **Policy creation:** Develop policies ensuring employment and entrepreneurship opportunities.
- ✓ **Promoting well-being:** Conduct comprehensive studies to prevent infections and enhance public well-being in beauty parlors.

## CONCLUSIONS

In this study, researchers found that more than 50.0% of consumers scored below or equal to 50.0% on awareness of BPH. Most consumers visiting beauty parlors were female and used services like hair styling/cutting, skin care, and facials, where they shared items such as combs, scissors, towels, beauty blenders and so on, increasing the risk of spreading infections. With the rise of the COVID-19 pandemic and other

communicable diseases, there is a higher chance of infection transmission between individuals. However, this topic requires more attention, especially since researchers have not found similar studies conducted in Nepal—making this likely the first research study of its kind in the country. The researchers have suggested quick interventions, the development of standardized tools for regulating and monitoring the beauty industry, in-depth studies, and interdisciplinary collaboration to ensure trust and safety in beauty environments.

**Author contributions:** **IPA:** supervision, validation, visualization, conceptualization, data curation, investigation, methodology, project administration, resources, software, writing—original draft, & writing—editing & **PT, PS, & RL:** conception or design, data collection, data & interpretation, drafting article, critical future revision of article, & writing—original draft; **PT:** Principal Investigator. All co-authors agree with the results and conclusions.

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**Declaration of interest:** No conflict of interest is declared by the authors.

**Data sharing statement:** Data supporting the findings and conclusions are available upon request from corresponding author.

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