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Knowledge, Attitude, and Practice Regarding Oral Hygiene Among Prison Inmates of Bannu Central Jail

Sadiq Rehman[1], Saad Saud Jan[2], Murrium Bibi[3], Uzma[4]
[1]Director of Madina Institute, Khyber Medical University, Peshawar, Pakistan.
[2]Lecturer, Dental Technology, Madina Institute, Khyber Medical University, Peshawar, Pakistan.
[3]Dental Technician, Khalifa Gul Nawaz Hospital, Medical Teaching Institution, Bannu, Pakistan.
[4]Lecturer & Coordinator of Dental Technology, NCS University System, Khyber Medical University, Peshawar, Pakistan.
Corresponding Author: Sadiq Rehman, Email: sadiqrehman757@gmail.com

Abstract

Background: Oral hygiene is all about keeping our mouths, teeth, and gums clean and healthy to ward off oral health problems. The main aim is to prevent the buildup of plaque and tartar, which can lead to cavities, gum disease, and bad breath. Unfortunately, prisoners often face challenges in accessing dental care, leading to a higher prevalence of dental issues compared to the general population. This study aims to understand the knowledge, attitudes, and practices related to oral hygiene among inmates at Bannu Central Jail, highlighting the importance of oral health for everyone, regardless of their circumstances.

Material and Method: The study was conducted at Bannu Central Jail. This was a descriptive cross-sectional study selected with 384 sample size. Data was recruited from the prisoners of Bannu through the Convenience sampling technique study. Those who were not given data were excluded from the study.

Results: Among 384 prisoners 66.9% were unaware of dental issues, 63.8% had gum bleeding, 60.7% had tooth sensitivities, 60.2% had dental caries, 62.5% had gum problems, and 37.8% experienced tooth pain. Hygiene habits varied: 68.8% brushed daily, 65.1% used toothbrush and paste, and 34.9% used Miswak. Changed brush every 6 months (50.3%), and visited the dentist annually (45.1%).

Conclusion: The awareness related to oral health was found to be not good. Every prisoner is suffering from gum bleeding, sensitivities, gingivitis, Dental carries, etc. We should focus more on educating people about oral health care through health education programs in Bannu Central Jail.

Keywords: Oral Health, Oral Hygiene, Knowledge, Attitude And Practices, Jails, Prisoners.

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INTRODUCTION

The prison community faces numerous health challenges, one of which is poor oral health due to inadequate oral hygiene practices.[1] Oral hygiene prevents dental issues like caries, periodontal diseases, and oral cancers. It involves regular brushing, flossing, and dental check-ups to maintain a healthy mouth and fresh breath.[2] Limited studies in jails, especially in Pakistan, are due to factors like tobacco's role in worsening periodontal diseases and oral cancer risk. Additionally, lack of oral health knowledge and negative attitudes contribute to poor health among inmates.[3] Maintaining good oral hygiene is crucial for everyone as it significantly influences quality of life. When oral health is neglected, it can have adverse effects on nutrition, growth, and everyday activities.[4] Dental caries and periodontal diseases are prevalent concerns affecting society.[5] Imprisonment induces stress, impacting physical and mental health, including oral health issues like gingivitis, exacerbated by stress's effects on the immune system.[6] The WHO prioritizes enhancing oral health services for prisoners due to the high prevalence of oral diseases and the challenges in providing adequate care within prison conditions.[7] Personal dental hygiene is crucial for maintaining oral health, preventing plaque buildup, and controlling periodontal disease. Daily brushing and flossing are essential for removing plaque effectively.[8] Inadequate oral hygiene can lead to various issues such as bad breath, gum disease, cavities, and ultimately, tooth loss. Factors include oral cavity issues, periodontitis, poor hygiene, diet, smoking, and certain medical conditions.[9] Dental caries, or tooth decay, is a global chronic disease affecting people of all ages, with older adults being more susceptible. If untreated, caries can progress to affect the dental pulp, potentially leading to pulp necrosis, infection, and dental root issues, including abscesses.[10] Pregnant women's oral health impacts their own and their unborn child's well-being. Pregnancy can lead to oral problems like gingivitis and periodontitis. Healthcare providers play a key role in prevention and treatment during pregnancy.[11]

Gingivitis is primarily caused by microbial plaque buildup near the gum line. Other factors can worsen plaque accumulation or make gums more susceptible to infection. *Streptococcus sanguis* is a bacterial species associated with gingival health.[12] Gingival recession is a condition that affects at least one tooth surface and can be localized or generalized.[13] Oral hygiene involves the routine maintenance of a clean and healthy mouth, which is essential for preventing dental issues and unpleasant breath. Regularly practicing good oral hygiene is crucial to ward off diseases and maintain oral health.[14] Morning breath, caused by reduced saliva production overnight, is a harmless type of halitosis. Oral hygiene measures can alleviate this issue. Gender may play a role, as women tend to have higher VSC levels in the morning. Odontogenic halitosis stems from poor oral hygiene, dental plaque, and other factors. Gingivitis, characterized by inflammation due to dental biofilm accumulation, can be managed with proper oral care.[15] Gingival inflammation is often assessed visually and can be treated with gentler brushing, diligent flossing, and improved oral hygiene. Gingival recession, caused by various factors, can lead to sensitivity and other issues but can be treated by deep cleaning by a dentist and antibiotics if necessary.[16, 17] Brushing teeth reduces plaque. Powered toothbrushes, especially oscillating ones, fight plaque and gingivitis. Interdental brushes clean hard-to-reach spots. Mouthwashes with oils or chlorhexidine reduce gingivitis. Probiotics help manage periodontitis short-term. Lifestyle affects oral health and overall well-being. Regular dental visits and good hygiene are vital. Delaying visits worsens outcomes. Good oral hygiene prevents issues like bad breath and stained teeth. Early intervention can reverse dental problems. Oral hygiene is key to avoiding oral health issues.[18, 19]

Researchers led by Reddy *et al.,* conducted a study on the oral health of inmates serving life sentences in central Indian prisons. The findings revealed a significant occurrence of dental caries, affecting 97.5% of the participants, with an average Decayed Missing Filled Teeth score of 5.26. Moreover, the inmates displayed a Community Periodontal Index (CPI) score of 2, indicating that 21.6% of them had a score of 4 in at least one sextant, and 41.1% suffered from severe attachment loss in their gums. Denture use was reported by 8.8% of inmates, and 9.9% had oral submucous fibrosis.[1] Alkhadra *et al.,* studied oral hygiene in jail, finding DMFT scores of 9.09 for 16-17-year-olds, 9.00 for 14-15-year-olds, and 7.13 for 12-13-year-olds. Over half (53.3%) had poor oral hygiene, 45.7% fair, and only one had good hygiene.[5] Nagarale *et al.,* study found that 98.5% of male inmates aged 18 to 27 had periodontal disease, and 82.42% had dental caries. Almost all (98%) received no dental care. Many required fillings, extractions, and tooth replacements.[2] Nobile *et al.*, found that only 2% of individuals were unaffected by caries. Older prisoners who visited the dentist regularly, had a higher plaque index, and brushed their teeth less often showed higher levels of DMFT. 61.9% needed conservative care and 33.3% required extractions. Most had a CPI of 2, with 5% having a score of 4 in at least one sextant. 89.6% needed oral hygiene instruction, and 85.1% needed prosthetic treatment.[20]) Sharma *et al.,* studied oral hygiene in Jaipur's central jail, India. Out of 181 inmates, 77.90% had a normal BMI. Most had been incarcerated for less than six years (70.70%). Age significantly affected periodontal status, while there wasn't a notable correlation found between DMFT levels and the duration of incarceration. Age was identified as a significant risk factor for CPI and LOA.[21] This study in Bannu Central Jail, Khyber Pakhtunkhwa, Pakistan aims To evaluate the understanding of oral hygiene, attitudes, and to examine the oral hygiene habits and routines of incarcerated individuals. It will raise awareness among inmates and inform policymakers to improve oral health strategies in correctional facilities.

The research seeks to understand the level of oral hygiene knowledge, attitudes, and behaviors among inmates at Bannu Central Jail. By identifying prevalent oral health issues and knowledge gaps, the study aims to inform targeted health education programs within correctional facilities to promote better oral health among inmates.

MATERIALS AND METHODS

Approval for the study was secured from the director of the NCS University System and the central jail authorities. A convenience sampling method was used to select 384 participants based on an anticipated population of 50%, With a 95% confidence interval and a 5% margin of error. All inmates were included, with non-participants excluded. Data collection involved a proforma covering demographic variables and oral hygiene questions derived from relevant literature. Verbal consent was obtained from participants. Data analysis was conducted using percentages and frequencies, and results were presented using graphs and tables. The statistical analysis was conducted utilizing SPSS version 22 software.

RESULTS

The table depicts findings from a study of 384 prisoners. Notably, 20-30-year-olds comprised 21.6% (83), while the largest group, 30-40-year-olds, accounted for 43.5% (167). Meanwhile, 40-50-year-olds represented 24.5% (94), and those aged 50-70 constituted 10.4% (40) of the sample (Table 1).

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Table 1: Age of prisoners

Age (years)	Frequency	Percentage
20-30	83	21.6%
30-40	167	43.5
40-50	94	24.5
50-70	40	10.4
Total	384	100

The provided data outlines various dental health issues among a group of 384 prisoners. Bleeding gums while brushing affected 245 individuals, constituting 63.8% of the sample, while 139 prisoners, or 36.2%, reported normal gum conditions. Regarding sensitivity in teeth, 233 prisoners (60.7%) experienced sensitivity, while 151 (39.3%) did not. Dental caries was prevalent among 231 inmates (60.2%), with 153 (39.8%) having normal dental conditions. Moreover, 240 prisoners (62.5%) exhibited signs of gum problems, while 144 (37.5%) showed no indications of such issues. Additionally, pain or discomfort in teeth was reported by 145 individuals (37.8%), while 238 (62%) experienced occasional discomfort, and only 1 prisoner (0.3%) reported never experiencing such discomfort (Table 2).

Table 2: Dental Health Issues Among Prisoners

Bleeding of gums while brushing	Frequency	Percentage
Bleeding	245	63.8%
Normal	139	36.2%
Total	384	100
Sensitivity in teeth		
Sensitive	233	60.7%
Non-sensitive	151	39.3%
Dental caries		
dental caries	231	60.2%
Normal	153	39.8%
Gum problem		
Gum problem	240	62.5%
No signs of gum problem	144	37.5%
Pain or discomfort in teeth		
Pain or Discomfort in Teeth	Frequency	Percentage
Many times,	145	37.8%
Occasionally	238	62%
Never	1	0.3%
Total	384	100

A significant portion, 66.9%, were found to be unaware of dental diseases, while 33.1% demonstrated awareness. Concerning dental care habits, fear was the primary deterrent to dentist visits, accounting for 66.7% of cases, followed by cost concerns at 21.1%, and restrictions imposed by authorities at 12.2%. Moreover, the majority, 83.9%, did not use dental floss, while 16.1% did. In terms of toothbrush maintenance, most prisoners (50.3%) changed their toothbrushes within six months, with intervals of 11.2% for one month and 38.5% for three months. Horizontal brushing was the most prevalent method at 57.8%, followed by vertical (23.7%) and circular (18.5%) methods. Daily brushing was common, with 68.8% brushing once, 24.7% twice, and 5.5% more than twice a day, while only 0.3% never brushed. For cleaning, 65.1% used toothbrush and toothpaste, while 34.9% used miswak. Brushing duration varied, with 65.4% brushing for half a minute and 34.6% for one minute. Furthermore, most prisoners (96.4%) sometimes brushed after meals, with only 3.6% never doing so. Regarding professional cleaning, 45.1% visited a dentist once a year, 0.3% twice, and 54.7% never (Table 3).

DISCUSSION

The findings of this study on inmates in Bannu central jails offer a distinctive chance to examine the oral health condition of this demographic. Only a limited number of studies have investigated the oral health status of inmates in central jails. Certain studies have indicated that the oral health condition of prison inmates tends to be poorer compared to that of the general population.[22] Oral hygiene involves maintaining the cleanliness and health of the mouth to prevent various pathological conditions such as gum diseases, cavities, mouth sores, and ulcers.[23] It's crucial because oral health issues can impact overall health. Understanding oral health requires assessing one's knowledge, attitude, and practices regarding oral hygiene.

The current practice among prisoners reveals, 68.8% of the subjects do brush their teeth at least once a day and most of the subjects 65.1% use toothbrush and paste for cleaning their teeth and only 34.9% use miswak similar to the current study conducted by Nagar *at el.,* in India where most of the study subjects 176 (68.75%) were using toothbrush, and 80 (31.25%) finger for cleaning their teeth, 182 (71.09%) were using toothpaste, 51 (19.92%) were using toothpowder, and 23 (8.98%) were using charcoal for cleaning their teeth.[2] In this study, a majority of the subjects (65.4%) reported brushing for only half a minute, 57.8% utilized the horizontal brushing method, and 50.3% indicated changing their toothbrush every six months. This aligns closely with a study conducted in northern India, where the majority (79%) brushed their teeth in the morning, and 59% spent more than two minutes brushing.[3]

In the present study among the 384 prisoners of Bannu Central Jail only 45.1% clean their teeth with a dentist once in year and 53.7% never visited to dentist supported by the study out of the total, 53.2% of

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prisoners reported visiting the dentist, while 36.7% admitted to never visiting the dentist. This lack of dental visits among inmates may be attributed to a lack of awareness.[1]

Table 3: Dental Disease awareness among Prisoners

Awareness of Dental Disease	Frequency	Percentage
Not aware	257	66.9%
aware	127	31.1%
Visiting Dentist		
Visiting Dentist Reason	Frequency	Percentage
Fear	256	66.7%
High cost	81	21.1%
Not Allowed	47	12.2%
Use of Floss		
Not Using	322	83.9%
Using	62	16.1%
Changing of Toothbrush Interval	Frequency	Percentage
Within 1 month	43	11.2%
Within 3 months	148	38.5%
Within 6 months	198	50.3%
Methods of Brushing		
Methods of Brushing		
Circular	71	18.5%
Horizontal	223	57.8%
Vertical	91	23.7%
Time of Brushing		
Time of Brushing	Frequency	Percentage
Once per day	264	68.8%
Two times a day	95	24.7%
Over two times a day	21	5.5%
Never	1	0.3%
Cleaning of Teeth		
Cleaning of Teeth	Frequency	Percentage
Miswak	134	34.9%
Toothbrush and Toothpaste	250	65.1%
Brush Timing		
Brush Timing	Frequency	Percentage
Half minute	251	65.4%
One minute	133	34.6
Brush After Meal		
Brush After Meal	Frequency	Percentage
Never	14	3.6%
Sometime	370	96.4%
Teeth Clean by Dentist		
Teeth Clean by Dentist	Frequency	Percentage
Once a year	173	45.1%
Twice a year	1	0.3%
Never	210	54.7%
Total	384	100

The studies conducted by Nobile *at el.,* in Italy revealed different findings compared to the current study. In their research, a high percentage (92.2%) reported having a tooth-brushing habit, with 78.5% brushing their teeth more than once a day. Additionally, almost all participants (96%) stated that they used toothpaste. Regarding dental health care services, 60.8% claimed to be regular users, while 21.3% had not visited a dentist.[20] Prisoner inmates at Bannu Central Jail require increased awareness about oral health to address oral health issues effectively.

It's crucial for authorities to prioritize oral health care by expanding dental services within the jail premises. Establishing comprehensive dental clinics dedicated to inmate care will play a significant role in enhancing their oral health. Emphasizing oral health promotion, providing better education on oral hygiene, and addressing unhealthy habits should be paramount concerns at Bannu Central Jail. Regular Dental check-ups may be conducted for good oral health. This study was based on the jail population which did not correspond to the hole population to get the true image of the population. therefore, community-based studies should be conducted to get a genuine image of the jail population. One limitation of this study is its nature as a descriptive cross-sectional study, which primarily identifies prevalence and generates hypotheses. For comprehensive information, longitudinal studies are preferable, offering insights over time compared to cross-sectional approaches. Additionally, the duration of the research was restricted, which impacted the depth of the study's findings.

CONCLUSION

The study provided insights into the oral hygiene knowledge, attitudes, and practices among inmates at Bannu Central Jail. It's concerning that awareness about oral health is lacking, as every prisoner seems to be experiencing issues like gum bleeding, sensitivities, gingivitis, and dental caries. There's a clear need to enhance oral health knowledge and practices among the inmates. To address this, it's essential to introduce oral health promotion and awareness programs in the jail hospital. Additionally, more emphasis should be placed on implementing health education programs focusing on oral health care within Bannu Central Jail.

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