INTERNATIONAL JOURNAL OF APPLIED AND CLINICAL RESEARCH

IJACR

Research paper

Impact of Sociocultural Norms on Career Progression of Female Dentists: A Cross-Sectional Study from Khyber Pakhtunkhwa, Pakistan

Gul Afshan syed[1]*, Zarghona Fazal Sher[2], Sumaya Batool[3], Khushboo Rashid[3], Muhammad Khalid[4]

1. Peshawar Medical and Dental College, Peshawar, 25160, Khyber Pakhtunkhwa, Pakistan
2. Sardar Begum Dental College (SBDC), Gandhara University, Peshawar 25000, Khyber Pakhtunkhwa, Pakistan
3. Department of Oral and Maxillofacial Surgery (OMFS), Saidu College of Dentistry, Saidu Sharif, Swat 19200, Khyber Pakhtunkhwa, Pakistan
4. Department of Anesthesiology, Zubaida Khaliq Memorial Hospital, Skardu 16100, Gilgit-Baltistan, Pakistan

Abstract: *Background*: Female dentists face multiple challenges that may hinder their career progression, including sociocultural norms, family responsibilities, and workplace barriers. This study aimed to explore the perceptions of female dentists in Khyber Pakhtunkhwa, Pakistan, regarding factors influencing their professional advancement. *Methodology*: A cross-sectional survey was conducted among 213 female dentists working in both public and private dental sectors across Hayatabad, Peshawar City, Abbottabad, and Swat. A structured, validated questionnaire assessed sociodemographic characteristics, professional practice, and perceived barriers categorized into family, interpersonal, environmental, and sociocultural domains. Data were analyzed using descriptive statistics and logistic regression to examine associations between these barriers and promotion status. *Results*: Most participants were aged 30–39 years (53.5%), married (76.1%), and specialists (65.7%), with the majority practicing full-time (93%). Family-related challenges were the most reported barriers, with 47.9% strongly agreeing that family responsibilities and 49.2% that balancing work and family affected their careers; 59.2% identified childcare responsibilities as a significant challenge. Interpersonal barriers included male dominance (26.8%) and gender discrimination (20.2%), while environmental challenges were most notable in safe transportation (41.3%) and driving restrictions (39.9%). Sociocultural barriers were also prominent, particularly societal beliefs assigning primary child-rearing responsibilities to women (73.2% strongly agree/agree) and the lack of family-friendly policies (58.2%). Logistic regression indicated that family and sociocultural challenges were significantly associated with lower promotion rates. *Conclusions*: Female dentists in Khyber Pakhtunkhwa face multifaceted barriers to career progression, driven largely by family, sociocultural, and environmental factors. Addressing these challenges through mentorship, flexible work policies, and equitable promotion practices may enhance professional advancement and leadership representation for women in dentistry.

Volume No 04, Issue 01, 2026

Received: 26th February 2026
Accepted: 09th March 2026
Published: 11th March 2026
Doi: https://doi.org/10.66222/g699w597
Copyright: This work is licensed under a https://creativecommons.org/licenses/by-nc/4.0/
How to cite
Syed, G. A., Sher, Z. F., Batool, S., Rashid, K., & Khalid, M. (2026). Impact of sociocultural norms on career progression of female dentists: A cross-sectional study from Khyber Pakhtunkhwa, Pakistan. *International Journal of Applied and Clinical Research*, 4(01), 8–16.
Corresponding author
Gul Afshan syed[1]*
Peshawar Medical and Dental College, Peshawar, 25160, Khyber Pakhtunkhwa, Pakistan
Email: Afshangul013@gmail.com

Keywords: female dentists, career progression, sociocultural barriers, family responsibilities, Khyber Pakhtunkhwa, professional advancement.

Introduction

Over the past few decades, the dental profession has experienced a significant demographic shift marked by the increasing participation of women. Traditionally male-dominated, dentistry is now undergoing the "feminization" of the profession, with women representing a substantial proportion of dental students and a growing share of the global dental workforce [1]. Despite these advancements in dental education, women remain underrepresented in leadership, academic, and decision-making positions within dentistry. Studies indicate that female dentists are less likely to occupy senior academic roles, leadership positions in professional organizations, or own dental practices compared with their male counterparts [2]. Women dentists often experience career interruptions, work fewer hours, and face limited opportunities for advancement in private practice. This gap between increased educational participation and limited professional advancement is commonly described as the feminization paradox in dentistry [3, 4]. Various structural and sociocultural factors have been proposed to explain these inequalities. Gender stereotypes and biases can influence perceptions of leadership ability and professional competence, often disadvantaging women in traditionally male-dominated professions [5]. Women professionals may be perceived as less competitive or more likely to prioritize family responsibilities over career advancement, which can limit opportunities for promotion and leadership roles [6]. Women frequently face challenges in balancing professional duties with family and caregiving responsibilities. Limited access to mentorship, a shortage of female role models, and gender discrimination have been identified as significant barriers to women's career progression in dentistry. Disparities in professional rewards, including differences in salary, specialization opportunities, and career advancement, have also been reported in several studies [7]. In Pakistan, the feminization of dental education is evident, with women comprising a large proportion of dental students. However, this increased educational participation has not translated into equal representation in the professional workforce, as many female graduates do not remain actively engaged in clinical or academic careers. Sociocultural expectations, family responsibilities, and workplace challenges are often cited as key factors influencing women's career continuity [8]. These challenges may be more pronounced in Khyber Pakhtunkhwa (KP), where traditional gender roles and sociocultural norms can affect women's professional opportunities. Despite this, limited empirical research has examined the barriers affecting the career progression of women dentists in the region [9]. Therefore, the present study aims to investigate the impact of sociocultural norms on the career progression of women dentists in Khyber Pakhtunkhwa, Pakistan. Understanding the barriers that affect women's professional advancement is essential for developing policies and strategies that promote gender equity, strengthen workforce retention, and support leadership development within the dental profession.

Methodology

A cross-sectional survey was conducted to assess female dentists' perceptions of sociocultural and professional factors influencing their career progression. A structured questionnaire was distributed online to female dentists working in both public and private dental sectors across Khyber Pakhtunkhwa, Pakistan. Eligible participants included female dental practitioners working as general dentists or specialists. Dental students and individuals with incomplete contact information were excluded from the study. Participants were given several weeks to complete the survey, and reminder messages were sent periodically to enhance the response rate. Participation was voluntary and anonymous, and informed consent was obtained from all respondents prior to completing the questionnaire [10]. The survey instrument was developed based on previously published literature and designed to ensure clarity while minimizing missing responses. The questionnaire items were developed through a comprehensive review of relevant literature and consultation with experts experienced in questionnaire design. The final instrument consisted of three sections. The first section collected sociodemographic information, while the second addressed participants' professional practice characteristics. The third section examined external factors that may influence the career progression of female dentists. These factors were categorized into four domains: family-related challenges, environmental challenges, interpersonal challenges, and sociocultural challenges. Each domain included multiple items designed to capture the perceived barriers affecting women's professional advancement. Responses were recorded using a Likert scale. A pilot

study was conducted among a small sample of female dentists to evaluate the clarity, structure, and sequence of the questionnaire. Based on the pilot feedback, minor modifications were made to improve question clarity. The reliability of the instrument was assessed using Cronbach's alpha, and exploration factor analysis was performed to evaluate construct validity and identify underlying factors associated with career progression challenges [11]. Exploratory factor analysis was performed to examine the structure of the questionnaire items. Promax rotation was applied because the variables representing the four challenge domains were expected to be correlated. The number of factors retained was determined based on eigenvalues greater than 1 and inspection of the scree plot [12]. The questionnaire showed good iCronbach'sistency with a Cronbach's alpha of 0.893. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.841, indicating that the data were suitable for factor analysis. Based on the eigenvalues, four factors were extracted: family challenges, environmental challenges, interpersonal challenges, and sociocultural challenges. These four factors together explained 33.9% of the total variance in the questionnaire items. For the analysis, the four challenge domains (family, environmental, interpersonal, and sociocultural) were considered the main independent variables, while promotion was used as the outcome variable. Descriptive statistics were used to summarize the data. Logistic regression analysis was then performed to examine the association between the challenge domains and promotion among female dentists. Because promotion was a binary outcome, binary logistic regression was used. All statistical analyses were conducted using SPSS version 23 (IBM), and results were reported as beta estimates with 95% confidence intervals [13].

Results

A total of 213 female dentists participated in the study. Among them, 110 (51.6%) were from Hayatabad, 65 (30.5%) from Peshawar City, 18 (8.5%) from Abbottabad, and 20 (9.4%) from Swat. Age distribution showed that most participants were aged 30–39 years (114, 53.5%), followed by 20–29 years (62, 29.1%), 40–49 years (27, 12.7%), and ≥50 years (23, 10.8%). Specifically, in Hayatabad, 38 participants (34.5%) were 20–29 years old, 57 (51.8%) were 30–39 years, 16 (14.5%) were 40–49 years, and 10 (9.1%) were ≥50 years. In Peshawar City, the corresponding numbers were 16 (24.6%), 31 (47.7%), 5 (7.7%), and 13 (20.0%). Abbottabad had 3 (16.7%) participants aged 20–29, 15 (83.3%) aged 30–39, and no participants aged ≥40. In Swat, 5 (25.0%) were 20–29 years, 11 (55.0%) were 30–39, 4 (20.0%) were 40–49, and none were ≥50. Marital status indicated that the majority were married (162, 76.1%), followed by single (34, 16.0%) and divorced (14, 6.6%). Regionally, married participants included 84 (76.4%) in Hayatabad, 48 (73.8%) in Peshawar City, 15 (83.3%) in Abbottabad, and 15 (75.0%) in Swat. Single participants accounted for 18 (16.4%) in Hayatabad, 8 (12.3%) in Peshawar City, 3 (16.7%) in Abbottabad, and 5 (25.0%) in Swat. Divorced participants were 5 (4.5%) in Hayatabad and 9 (13.8%) in Peshawar City; no divorced participants were reported from Abbottabad or Swat. Regarding educational level, 63 participants (29.6%) had a BDS, 62 (29.1%) had an MSc, 45 (21.1%) held a PhD, 14 (6.6%) were SCT, 8 (3.8%) had completed a fellowship, and 18 (8.5%) fell into other categories. In Hayatabad, 33 (30.0%) had BDS, 23 (20.9%) MSc, 33 (30.0%) PhD, 11 (10.0%) SCT, 2 (1.8%) fellowship, and 7 (6.4%) others. In Peshawar City, 12 (18.5%) had BDS, 28 (43.1%) MSc, 9 (13.8%) PhD, 2 (3.1%) SCT, 5 (7.7%) fellowship, and 9 (13.8%) others. Abbottabad had 11 (61.1%) with BDS, 2 (11.1%) MSc, 2 (11.1%) PhD, and 2 (11.1%) others. In Swat, 7 (35.0%) had BDS, 9 (45.0%) MSc, 1 (5.0%) PhD, 1 (5.0%) SCT, 1 (5.0%) fellowship, and no participants in others. For practice type, 73 (34.3%) were general practitioners and 140 (65.7%) were specialists. In Hayatabad, 38 (34.5%) were general practitioners and 72 (65.5%) specialists. In Peshawar City, 19 (29.2%) were general practitioners and 46 (70.8%) specialists. Abbottabad had 11 (61.1%) general practitioners and 7 (38.9%) specialists, whereas Swat had 5 (25.0%) general practitioners and 15 (75.0%) specialists. Most participants practiced full-time (198, 93.0%), while 15 (7.0%) practiced part-time. In Hayatabad, 102 (92.7%) were full-time and 8 (7.3%) part-time. All participants in Peshawar City (65, 100%) and Swat (20, 100%) were full-time, while in Abbottabad, 11 (61.1%) were full-time and 7 (38.9%) part-time. Regarding managerial responsibilities, 48 participants (22.5%) reported having such responsibilities, while 165 (77.5%) did not. In Hayatabad, 27 (24.5%) had managerial responsibilities; Peshawar City, 13 (20.0%); Abbottabad, 3 (16.7%); and Swat, 5 (25.0%). For promotions, 82 participants (38.5%) reported having received a promotion, while 131 (61.5%) had not. Regionally, promotion rates were 31

(28.2%) in Hayatabad, 36 (55.4%) in Peshawar City, 8 (44.4%) in Abbottabad, and 7 (35.0%) in Swat. Finally, challenge factors were assessed using mean scores (± SD). Family-related challenges had a mean of 1.9 ± 0.76; interpersonal challenges, 2.8 ± 1.00; environmental challenges, 2.5 ± 0.84; and cultural challenges, 2.5 ± 0.87. Regionally, family challenges were 1.8 ± 0.76 in Hayatabad, 2.1 ± 0.79 in Peshawar City, 1.6 ± 0.56 in Abbottabad, and 2.0 ± 0.72 in Swat. Interpersonal challenges were 2.8 ± 0.99, 2.8 ± 1.02, 3.3 ± 1.08, and 2.3 ± 0.82, respectively. Environmental challenges were 2.4 ± 0.68, 2.8 ± 0.97, 2.2 ± 0.79, and 2.4 ± 0.99, and cultural challenges were 2.4 ± 0.83, 2.7 ± 0.97, 2.7 ± 0.82, and 2.3 ± 0.74 in Hayatabad, Peshawar City, Abbottabad, and Swat, respectively.

Table 1. Sociodemographic, professional characteristics, and challenge factors of female dentists (n = 213) across different regions (Hayatabad, Peshawar City, Abbottabad, and Swat).

Variable	Hayatabad	Peshawar City	Abbottabad	Swat	Total
Participants	110 (51.6%)	65 (30.5%)	18 (8.5%)	20 (9.4%)	213 (100%)
Age, years					
20–29	38 (34.5%)	16 (24.6%)	3 (16.7%)	5 (25.0%)	62 (29.1%)
30–39	57 (51.8%)	31 (47.7%)	15 (83.3%)	11 (55.0%)	114 (53.5%)
40–49	16 (14.5%)	5 (7.7%)	2 (11.1%)	4 (20.0%)	27 (12.7%)
≥50	10 (9.1%)	13 (20.0%)	0 (0%)	0 (0%)	23 (10.8%)
Marital status					
Married	84 (76.4%)	48 (73.8%)	15 (83.3%)	15 (75.0%)	162 (76.1%)
Single	18 (16.4%)	8 (12.3%)	3 (16.7%)	5 (25.0%)	34 (16.0%)
Divorced	5 (4.5%)	9 (13.8%)	0 (0%)	0 (0%)	14 (6.6%)
Education level					
BDS	33 (30.0%)	12 (18.5%)	11 (61.1%)	7 (35.0%)	63 (29.6%)
MSc	23 (20.9%)	28 (43.1%)	2 (11.1%)	9 (45.0%)	62 (29.1%)
PhD	33 (30.0%)	9 (13.8%)	2 (11.1%)	1 (5.0%)	45 (21.1%)
SCT	11 (10.0%)	2 (3.1%)	0 (0%)	1 (5.0%)	14 (6.6%)
Fellowship	2 (1.8%)	5 (7.7%)	0 (0%)	1 (5.0%)	8 (3.8%)
Others	7 (6.4%)	9 (13.8%)	2 (11.1%)	0 (0%)	18 (8.5%)
Practice type					
General practice	38 (34.5%)	19 (29.2%)	11 (61.1%)	5 (25.0%)	73 (34.3%)
Specialists	72 (65.5%)	46 (70.8%)	7 (38.9%)	15 (75.0%)	140 (65.7%)
Practice					
Full-time	102 (92.7%)	65 (100%)	11 (61.1%)	20 (100%)	198 (93.0%)
Part-time	8 (7.3%)	0 (0%)	7 (38.9%)	0 (0%)	15 (7.0%)
Managerial responsibility					
Yes	27 (24.5%)	13 (20.0%)	3 (16.7%)	5 (25.0%)	48 (22.5%)
No	83 (75.5%)	52 (80.0%)	15 (83.3%)	15 (75.0%)	165 (77.5%)
Promotions					
Yes	31 (28.2%)	36 (55.4%)	8 (44.4%)	7 (35.0%)	82 (38.5%)
No	79 (71.8%)	29 (44.6%)	10 (55.6%)	13 (65.0%)	131 (61.5%)
Challenge factors (Mean ± SD)					
Family	1.8 ± 0.76	2.1 ± 0.79	1.6 ± 0.56	2.0 ± 0.72	1.9 ± 0.76
Interpersonal	2.8 ± 0.99	2.8 ± 1.02	3.3 ± 1.08	2.3 ± 0.82	2.8 ± 1.00
Environmental	2.4 ± 0.68	2.8 ± 0.97	2.2 ± 0.79	2.4 ± 0.99	2.5 ± 0.84
Cultural	2.4 ± 0.83	2.7 ± 0.97	2.7 ± 0.82	2.3 ± 0.74	2.5 ± 0.87

The study explored perceived challenges faced by 213 female dentists across Hayatabad, Peshawar City, Abbottabad, and Swat. Family factors were the most prominent, with nearly half strongly agreeing that family responsibilities (47.9%) and balancing family with work (49.2%) affected their careers, and 59.2% strongly agreeing that childcare responsibilities posed a challenge. Interpersonal factors such as male dominance (26.8%) and gender discrimination

(20.2%) were also reported, while attitudes of male colleagues and patients elicited mixed responses. Environmental factors including limited dental facilities, leadership opportunities, mentoring, female role models, safe transportation, and workplace location were moderately challenging, with the highest concerns being lack of safe public transportation (41.3%) and the ban on women driving (39.9%). Cultural factors were significant, particularly societal beliefs assigning greater responsibility for children to women (73.2% combined strongly agree/agree) and lack of family-friendly policies (58.2%). Overall, family, cultural, and environmental barriers were the most influential factors affecting female dentists' professional experiences. The complete details are shown in table 2.

Table 2. Perceived challenges faced by female dentists in Hayatabad, Peshawar City, Abbottabad, and Swat (n = 213)

Factors / Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Family factors					
Family responsibilities	102 (47.9%)	66 (30.7%)	38 (17.7%)	5 (2.3%)	3 (1.4%)
Childcare responsibilities	126 (59.2%)	41 (19.2%)	35 (16.2%)	5 (2.3%)	7 (3.1%)
Balancing family life with work	105 (49.2%)	75 (35.2%)	24 (11.3%)	5 (2.3%)	3 (1.4%)
Lack of adequate income	39 (18.3%)	66 (31.0%)	56 (26.2%)	46 (21.6%)	7 (3.3%)
Interpersonal factors					
Male dominance in the field	57 (26.8%)	52 (24.4%)	56 (26.3%)	33 (15.5%)	15 (7.0%)
Gender discrimination	43 (20.2%)	61 (28.6%)	52 (24.4%)	39 (18.3%)	18 (8.5%)
Male colleague attitude toward female dentist	21 (9.9%)	31 (14.6%)	66 (31.0%)	57 (26.8%)	36 (16.9%)
Patient attitude toward female dentist	21 (9.9%)	52 (24.4%)	69 (32.4%)	51 (23.9%)	20 (9.4%)
Environmental factors					
Lack of dental facilities	38 (17.8%)	66 (31.0%)	39 (18.3%)	48 (22.5%)	23 (10.8%)
Lack of leadership positions and promotion opportunities	48 (22.5%)	67 (31.5%)	59 (27.7%)	31 (14.6%)	8 (3.8%)
Lack of effective mentoring	38 (17.8%)	79 (37.1%)	48 (22.5%)	33 (15.5%)	16 (7.5%)
Lack of female role models	29 (13.6%)	41 (19.2%)	48 (22.5%)	57 (26.8%)	38 (17.9%)
Lack of safe public transportation	88 (41.3%)	67 (31.5%)	26 (12.2%)	23 (10.8%)	8 (3.8%)
Geographical location of workplace	54 (25.4%)	47 (22.1%)	44 (20.7%)	57 (26.8%)	10 (4.7%)
Ban on women driving	85 (39.9%)	51 (23.9%)	39 (18.3%)	26 (12.2%)	11 (5.2%)
Cultural factors					
Lack of family-friendly policies	72 (33.8%)	52 (24.4%)	64 (30.0%)	16 (7.5%)	8 (3.8%)
Cultural stereotypes against women	36 (16.9%)	56 (26.3%)	56 (26.3%)	52 (24.4%)	13 (6.1%)
Country's customs and traditions	29 (13.6%)	72 (33.8%)	59 (27.7%)	38 (17.8%)	15 (7.0%)
Societal beliefs that women have greater responsibility for children	66 (30.9%)	90 (42.3%)	31 (14.6%)	21 (9.9%)	5 (2.3%)
Traditional attitude of women as the weaker gender	43 (20.2%)	47 (22.1%)	39 (18.3%)	66 (30.9%)	18 (8.5%)

Discussion

A survey of all practicing female dentists in Hayatabad, Peshawar City, Abbottabad, and Swat was conducted to assess factors influencing their practice and professional development. In addition, the survey collected data on common sociodemographic and professional characteristics that could affect these factors. Most respondents were from Hayatabad and Peshawar City, reflecting the larger population and concentration of dental professionals in these

urban centers. Despite the moderate sample size and the inclusion of participants primarily from urban and academic settings, the findings provide valuable insights into the challenges faced by female dentists and contribute significantly to understanding factors that potentially influence their career progression. Consistent with previous reports, participants in this study indicated that family responsibilities, including childcare and balancing family life with work, were major barriers to career advancement. A substantial proportion strongly agreed that family duties (47.9%) and childcare responsibilities (59.2%) limited their professional development. Interpersonal factors, such as male dominance in the field (26.8%) and gender discrimination (20.2%), were also reported, along with mixed experiences regarding male colleagues' and patients' attitudes. Environmental factors, including limited access to dental facilities, leadership opportunities, mentoring, female role models, safe public transportation, and the geographical location of workplaces, were moderately challenging, with lack of safe public transportation (41.3%) and restrictions on women driving (39.9%) being the most strongly reported barriers. Cultural factors also played a key role, particularly societal expectations assigning greater responsibility for childcare to women (73.2% combined strongly agree/agree) and the absence of family-friendly institutional policies (58.2%). There is considerable evidence in the literature that family responsibilities significantly influence the career decisions of female dentists [14, 15, 16, 17]. Our findings are consistent with previous studies, indicating that family obligations, including household chores and childcare, remain major barriers to career advancement. In a Saudi study, 44% of female dentists reported that housework and family responsibilities negatively affected their professional growth [18]. Similarly, child-rearing and family obligations were shown to strongly influence women's working lives, particularly regarding work titles and specialization at academic institutions. Comparable patterns have been observed in countries such as the United States and Brazil [19, 20]. Family responsibilities may affect women's professional lives more than men's because women often feel obligated to balance work and family duties, leading to higher levels of work-family conflict. Most of our respondents worked full-time, which, in combination with household and childcare responsibilities, results in longer work hours for female dentists compared to their male counterparts. Maintaining a balanced lifestyle frequently requires career-related compromises, and the decision to have children may lead to women leaving their occupation at twice the rate of men [21]. To meet the demands of both family and dentistry, female dentists often assume the responsibility of a "double shift," managing professional and domestic duties simultaneously [22]. Our respondents also reported that environmental factors posed barriers to career progression, such as limited access to dental facilities, fewer leadership opportunities, lack of mentoring, and absence of female role models. These findings align with studies from the United States and Australia, which highlighted that women's professional advancement is often impeded by inequities in rewards and opportunities and the lack of visible female leaders [24, 25]. Sinkford et al. (2003) reported that in patriarchal and gender-stereotyped societies, women may face ongoing social and professional hostility, which forces them to fulfill traditional roles while attempting to grow professionally [26]. Common stereotypes, including the perception that family responsibilities detract from professional competence or that women are less competitive and assertive than men, continue to influence women's career trajectories. Turner and West (2006) reported that the phenomenon is aptly described by the phrase "the higher, the fewer," indicating that as professional hierarchy increases, the proportion of women declines and opportunities for career advancement become increasingly restricted [27]. The participants in the current study also identified commuting and workplace location as barriers to their career advancement. For dentists residing in areas with limited access to reliable transportation, commuting posed an additional challenge, which restricted their employment options and contributed to both time and financial burdens. Such limitations may hinder female dentists from performing at their full professional potential. Kjeldal et al. (2005) reported that interpersonal challenges, including gender discrimination and male dominance in the dentistry field, significantly influence career progression [28]. Samkharadze et al. (2015) further demonstrated that gender discrimination and stereotypes in dentistry can negatively affect women's self-realization and professional development [29]. Pallavi and Rajkumar (2011) reported that the sociocultural context can limit women's professional opportunities, as observed in our study [30]. Kfouri et al. (2013) noted that traditional gender roles, such as men as primary earners and women as caregivers, create social expectations that may restrict women's participation in competitive professional roles. Tahir et al. (2014) emphasized that

such cultural beliefs may influence women's professional identity and contribute to their social confinement to caregiving roles [31]. Sinkford et al. (2003) reported that historically, female dental students and professionals have faced stereotypes regarding emotional stability, reliability, and physical strength, which have influenced their career trajectories. Our regression analysis revealed that women facing family-related challenges were less likely to be promoted, supporting findings from previous literature that women's perceived responsibility for managing family duties may limit their investment in career advancement [32]. Nesbitt et al. (2003) reported that gender bias continues to influence academic and professional advancement, with female faculty and practitioners often facing barriers related to promotion, recognition, and equitable opportunities. Consistent with these findings, a substantial proportion of female dentists in our study who were not promoted (62.3%) indicated that environmental factors affected their career practice and progression [33]. Yuan et al. (2010) emphasized that the presence of female role models and mentors is critical, as they provide guidance to junior dentists, demonstrate leadership, and facilitate career advancement. These results underscore the need to address gender bias and implement targeted support strategies to promote the recruitment, retention, and professional growth of female dentists [34]. Manea et al. (2007) reported that survey-based studies of female dental professionals often face limitations related to sample size and representativeness [35]. In the present study, although 213 female dentists participated, the voluntary nature of the survey may have introduced self-selection bias. Moreover, most respondents were urban-based, with a high proportion of academics and specialists, which may limit the generalizability of the findings to the broader population of female dentists across Pakistan. Logistical constraints, such as limited access to participants practicing in multiple locations, further affected data collection. Nevertheless, the survey was designed to be concise, comprehensive, and easy to complete. Despite these limitations, the data provides valuable insights into gender-related challenges in dentistry and serves as a foundation for future research. Larger and more diverse studies are recommended to enhance generalizability and to identify effective strategies for mitigating barriers to career advancement among female dental professionals.

Conclusion

This study provides the first comprehensive assessment of career barriers perceived by female dentists in Hayatabad, Peshawar City, Abbottabad, and Swat. Despite increasing participation of women in dentistry, they remain underrepresented in leadership and senior roles. The findings highlight multifactorial challenges, including balancing family responsibilities, navigating sociocultural norms, and overcoming environmental and interpersonal barriers. Female dentists reported that cultural expectations, gender stereotypes, and structural limitations constrain their career progression, emphasizing the need for targeted interventions. Strategies such as mentorship programs, family-friendly policies, flexible working arrangements, and equitable promotion practices can facilitate professional advancement and enhance leadership representation. Achieving gender equity in dentistry requires not only numerical equality but also systemic and cultural reforms that empower women to reach their full professional potential.

References

1. Abdullah, S., & Saeed, T. (2013). Comparison of role stressors, job satisfaction and turnover intensions of dentists working in public and private sectors. *Pakistan Oral & Dental Journal*, *33*(3).
2. Adams, T. L. (2005). Feminization of professions: the case of women in dentistry. *Canadian Journal of Sociology/Cahiers canadiens de sociologie*, 71-94.
3. Al-Dabaan, R., Newton, J. T., & Asimakopoulou, K. (2014). Knowledge, attitudes, and experience of dentists living in Saudi Arabia toward child abuse and neglect. *The Saudi dental journal*, *26*(3), 79-87.
4. Al-Habsi, S. A., Roberts, G. J., Attari, N., & Parekh, S. (2009). A survey of attitudes, knowledge and practice of dentists in London towards child protection. Are children receiving dental treatment at the Eastman Dental Hospital likely to be on the child protection register?. *British dental journal*, *206*(4), E7-E7.
5. Al-Rasheed, M. (2013). *A most masculine state: Gender, politics and religion in Saudi Arabia* (No. 43). Cambridge University Press.
6. Ashri, N. Y., Norah, A., AlMozainy, M., & AlSourani, R. (2009). Career profile of dentists in Saudi Arabia. *Saudi Dental Journal*, *21*.

7. Atchison, K. A., Bibb, C. A., Lefever, K. H., Mito, R. S., Lin, S., & Engelhardt, R. (2002). Gender differences in career and practice patterns of PGD-trained dentists. *Journal of dental education*, *66*(12), 1358-1367.
8. Ayers, K. M., Thomson, W. M., Rich, A. M., & Newton, J. T. (2008). Gender differences in dentists' working practices and job satisfaction. *Journal of dentistry*, *36*(5), 343-350.
9. Carr, P. L., Ash, A. S., Friedman, R. H., Szalacha, L., Barnett, R. C., Palepu, A., & Moskowitz, M. M. (2000). Faculty perceptions of gender discrimination and sexual harassment in academic medicine. *Annals of internal medicine*, *132*(11), 889-896.
10. Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate behavioral research*, *1*(2), 245-276.
11. Dillman, D. A. (2007). Mail and internet surveys: The tailored design method. Hoboken, NJ: John & Wiley Sons.
12. Gates, S., Williams, M. A., Withers, E., Williamson, E., Mt-Isa, S., & Lamb, S. E. (2009). Does a monetary incentive improve the response to a postal questionnaire in a randomised controlled trial? The MINT incentive study. *Trials*, *10*(1), 44.
13. Fang, D., Moy, E., Colburn, L., & Hurley, J. (2000). Racial and ethnic disparities in faculty promotion in academic medicine. *Jama*, *284*(9), 1085-1092.
14. Habib, H. S. (2012). Pediatrician knowledge, perception, and experience on child abuse and neglect in Saudi Arabia. *Annals of Saudi medicine*, *32*(3), 236-242.
15. Hamel, M. B., Ingelfinger, J. R., Phimister, E., & Solomon, C. G. (2006). Women in academic medicine—progress and challenges. *New England Journal of Medicine*, *355*(3), 310-312.
16. Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and psychological measurement*, *20*(1), 141-151.
17. Khalid, A. B., Majid, A. M., & Othman, A. M. (2005). < The> possible reasons why dentists in full-time primary employment engage in additional part-time private practice.
18. Kfouri, M. G., Moyses, S. J., & Moyses, S. T. (2013). Women's motivation to become dentists in Brazil. *Journal of Dental Education*, *77*(6), 810-816.
19. Kjeldal, S. E., Rindfleish, J., & Sheridan, A. (2005). Deal-making and rule-breaking: Behind the façade of equity in academia. *Gender and Education*, *17*(4), 431-447.
20. Turner, S. P., & West, K. P. (2006). A qualitative comparison of women's leadership programs at local and national levels. *Journal of dental education*, *70*, 41-46.
21. Murray, J. J. (2002). Better opportunities for women dentists: a review of the contribution of women dentists to the workforce. *British Dental Journal*, *192*(4), 191-196.
22. Naidoo, S. (2005). Women in dentistry in South Africa: a survey of their experiences and opinions. *SADJ: Journal of the South African Dental Association= Tydskrif van die Suid-afrikaanse Tandheelkundige Vereniging*, *60*(7), 284-286.
23. Nonnemaker, L. (2000). Women physicians in academic medicine—new insights from cohort studies. *New England Journal of Medicine*, *342*(6), 399-405.
24. Pinn, V. W. (2006). Women's health research and health leadership: Benchmarks of the continuum. *Journal of Dental Education*, *70*, 27-34.
25. Rajeh, M., Nicolau, B., Pluye, P., Qutob, A., & Esfandiari, S. (2017). Are there barriers for professional development of women dentists? A qualitative study in Saudi Arabia. *JDR Clinical & Translational Research*, *2*(2), 119-131.
26. Rajeh, M., Nicolua, B., Qutob, A., Pluye, P., & Esfandiari, S. (2018). The development and validation of a questionnaire measuring barriers to career progression faced by women dentists in Saudi Arabia. *Open J Soc Sci*, *6*, 131-146.
27. Shaker, R. E., & Babgi, A. A. (2009). Women in dentistry: a perspective on major universities in Saudi Arabia. Part 2: analysis and statistical data. *The Saudi Dental Journal*, *21*(3), 107-112.
28. Kjeldal, S. E., Rindfleish, J., & Sheridan, A. (2005). Deal-making and rule-breaking: Behind the façade of equity in academia. *Gender and Education*, *17*(4), 431-447.
29. Samkharadze, S., Alkhanishvili, Z., Lursmanashvili, L., & Gvasalia, N. (2015). Gender stereotypes and labour segregation in dental offices. *European Scientific Journal*, *2*, 307-13.
30. Pallavi, S. K., & Rajkumar, G. C. (2011). Professional practice among woman dentist. *Journal of International Society of Preventive and Community Dentistry*, *1*(1), 14-19.
31. Tahir, S., Bashir, A., & Khan, J. S. (2014). Factors that hinder female dentists in pursuing their career. *Biomedica*, *30*(3).
32. Sinkford, J. C. (2006). Global health through women's leadership: Introduction to the conference proceedings. *Journal of Dental Education*, *70*, 5-7.

33. Nesbitt, P. E., Inglehart, M. R., & Sinkford, J. C. (2003). Work environment perceptions of full-time dental educators: does gender matter?. *Journal of dental education*, *67*(8), 916-924.
34. Yuan, J. C. C., Lee, D. J., Kongkiatkamon, S., Ross, S., Prasad, S., Koerber, A., & Sukotjo, C. (2010). Gender trends in dental leadership and academics: a twenty-two-year observation. *Journal of dental education*, *74*(4), 372-380.
35. Manea, S., Favero, G., Stellini, E., Romoli, L., Mazzucato, M., & Facchin, P. (2007). Dentists' perceptions, attitudes, knowledge, and experience about child abuse and neglect in northeast Italy. *Journal of clinical pediatric dentistry*, *32*(1), 19-26.
36.