Current situation and barriers to women's leadership in health care education in Saudi Arabia: A cross-sectional study

Ohoud S. Almalki [a],[*], Ahmed Ibrahim Fathelrahman [a], Osamah M. Alfayez [b], Ghada A. Bawazeer [c]

[a] Department of Clinical Pharmacy, College of Pharmacy, Taif University, Taif, Saudi Arabia
[b] Department of Pharmacy Practice, College of Pharmacy, Qassim University, Qassim, Saudi Arabia
[c] Department of Clinical Pharmacy, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia

ABSTRACT

Background: The aims of the current study were to explore the true representation of female academic staff who have advanced to leadership positions in Saudi health academic institutions and to determine the possible barriers to women's advancement to leadership positions in academia.
Methodology: This was a cross-sectional study conducted between August 2022 and August 2023 using an adapted self-reported online questionnaire via Google form. Data was analyzed descriptively and comparatively by presenting frequencies with percentages besides means with standard deviations across various background categories and comparing them using student *t* test.
Results: A total of 115 educators in health care professions participated in the study, three fifths of them were Saudi and female, with the majority being married and employed by government organizations. The most impactful structural challenges for female leadership included the centralization of decision-making within the institution, unclear organizational bylaws for leadership qualifications and appointment processes, and the existence of a wide range of administrative units. The prevailing belief that men possess superior capacity and management skills compared to women in leadership roles and the reluctance to accept women's authority by their subordinates were identified as the most influential culture challenges for female leadership. Most influential personality-related challenges included difficulty of balancing professional responsibilities with family obligations, stress and tension arising from reconciling the needs of subordinates with organizational goals and the complexity of traveling for work.
Conclusions: The study identified the most influential structural, culture, and personality-related barriers and other potential perceived challenges faced by female leadership. A collective effort involving academic institutions, leadership, and relevant stakeholders is critical to address these barriers. Academic institutions must eliminate these challenges to utilize female leaders' talent fully, as they contribute unique perspectives and skills to their institutions.

1. Introduction

Gender-based differential treatment has led to disparities across societies, and these disparities have been widely reported in healthcare education (Li et al., 2021; Oxford Reference, n.d). Female underrepresentation in academia is evident in different geographical contexts (Alomair, 2015; Maheshwari & Nayak, 2020; Yinhan et al., 2013). Despite the increasing number of women in higher educational institutions (Alhareth, 2015), female representation in higher education

leadership—constituting primarily college deans and vice deans, which are the highest leadership at Saudi universities after presidents and vice presidents—has not increased correspondingly.

As of 2018, 72 higher education institutions were operating in Saudi Arabia, ranging from government universities to technical and vocational colleges (Ministry of Education, 2018). The number of Saudi female teaching staff increased from 2,769 in 1996 to 23,774 in 2018; in comparison, their Saudi male counterparts increased from 6,090 in 1996 to 28,640 in 2018 (Ministry of Education, 2018). At first glance, these

statistics seem encouraging in terms of achieving gender parity, considering that not all teaching institutions admit women, particularly several technical and vocational colleges. However, female faculty in higher education in Saudi Arabia are overrepresented in lower-rank, entry-level positions such as lecturers and teachers rather than professors and associate professors (Ministry of Education, 2018).

In 1996, Saudi female professors and associate professors totaled 54 compared with 1,131 Saudi males holding the same ranks; in 2018, female professors and associate professors constituted only 23 % of all higher education faculty (Ministry of Education, 2018). Similar data from the United States shows that women are more likely to be lecturers and instructors than men, but the numbers decline higher in the upper ranks. For example, 55 % and 53 % of instructors and lecturers, respectively, are women; however, only 28 % of full professors at institutions granting bachelor's, master's, doctorate, and associate degrees are women (Colorado Women's College and University of Denver, 2013).

Although a previous study has suggested that gender-segregated educational institutions in Saudi Arabia create more opportunities for women to become leaders (Hamdan, 2005), such opportunities do not manifest in reality. Women with equivalent qualifications are less represented among the high-ranking teaching faculty in higher education; thus, they are rarely given leading positions in these institutions (Hamdan, 2005). According to the 2017 Saudi Ministry of Education Report cited by Alsubaie and Jones (2017), women account for 228 of deputy deans, 61 out of deans, 12 out of vice presidents, and 1 out of university directors; only the Princess Nourah Bint Abdulrahman University, an all-female university with no male competition, has a female director.

Similar statistics were reported in China, where women occupied only 9.3 % of leadership positions at 38 universities (Yinhan et al., 2013). The same theme emerged: almost all women leaders in the study were appointed as second-rank directors, namely, vice presidents and deputy and party secretaries. Further, only one woman was a university president. In the US, female representation in university presidencies increased from 26 % in 2011 to 30 % in 2016; however, they are still underrepresented in academic leadership and are more likely to opt out and change their career to care for their children (American Council on Education ACE, 2017).

Globally, the representation of women in leadership positions in health and medical careers is obstructed mainly by family roles, mobility issues, lack of support, gender schemes, and salary differences (Wiler et al., 2022; Malik et al., 2022). Women also have access to fewer individuals in higher positions to endorse and validate their scholarly productivity and quality compared to men (Chisholm-Burns, 2017).

As of 2023, 32 pharmacy schools were operating in Saudi Arabia, 2 of which (6.3 %) were led by female deans. However, one of the schools is an exception because it is a female college that solely admits female students; for the first time, a female dean has led the other school (Umm Al Qura), which admits both genders, since 2021. For the remaining 30 pharmacy schools in Saudi Arabia that admit students of both genders, male faculty members have occupied deanship positions for the entirety of their existence. The situation is similar in other medical and applied medical science schools in Saudi Arabia. Notably, Taif University (TU) took the lead of assigning the first female dean to their college of medicine in 2017 and later appointed another female dean to the allied health science school in 2021. Nevertheless, barriers might be different in Saudi Arabia because the government's Saudi Vision 2030 plan aims to increase women's participation in the workforce by 30 % (https://www.hrsd.gov.sa/en/womens-empowerment), and the salary difference might not be an issue for Saudi female educators. However, data on women's representation in leadership positions in Saudi health education settings are lacking. To address this gap in the literature, this study aimed to explore the true representation of female academic staff who have advanced to leadership positions in Saudi health academic institutions in light of Vision 2030 and to determine the possible barriers to women's advancement to leadership positions in academia.

2. Methods

2.1. Study design and participants

This cross-sectional study was conducted between August 2022 and August 2023 to explore possible barriers to women's advancement to leadership positions in Saudi medical schools and health sciences schools using a self-reported online questionnaire. The inclusion criteria were faculty members in medical and health sciences schools (medicine, dentistry, pharmacy, nursing, applied medical science, and other related colleges) from all regions of Saudi Arabia. A questionnaire was distributed through social medical platforms, and the deans of scientific research at TU and 10 other public universities also invited their academic staff at health science colleges to participate in the study by emailing them a Google Form link to the survey. The Research Ethics Committee of TU approved the study protocol (approval no. 44–007). All participants provided consent before participating in the study.

2.2. Study tool

We used an adapted version of a previously published and validated questionnaire (AlAhmadi, 2011). The questionnaire consisted of two sections. The first section concerned the participants' demographic characteristics (age, nationality, marital status, number of children, region of residence, major, highest education level, type of academic institution, university name, years of work experience, current or previous leadership experience, highest leadership position, years of experience in leadership/managerial positions, and gender of subordinates). The second section concerned the challenges that women leaders experience in healthcare education using a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Challenges were divided into four subsections. The first contained 10 questions concerning structural challenges (clarity of the institution's vision; segregation between genders; limited power granted to women leaders; little opportunity to participate in drawing the institution's strategic plan; centralization of decision-making in the institution; lack of material and moral incentives in the institution; poor administrative organization of the women's sections; lack of clarity in organization bylaws of leadership position qualifications and/or the process of appointment; underrepresentation of women leaders on institutional committees and boards and in meetings; and wide range of administrative units). The second subsection contained four questions concerning cultural challenges (low confidence among senior management in female leadership, prevailing beliefs about men having greater capacity and management skills than women as leaders, a reluctance to accept women's authority by their subordinates, and the difficulty of dealing with male colleagues and superiors).

The third subsection contained eight questions concerning personal challenges (low self-confidence, fear of responsibility, difficulty balancing professional responsibilities and family obligations, sense of isolation in the leadership position, sense of stress and tension due to the difficulty of balancing the needs of subordinates and structural goals, difficulty traveling for work because of family and personal circumstances, lack of motivation to lead, and the traditional societal view of women leaders as irresponsible mothers/family members). The fourth subsection contained seven questions concerning other challenges (limited opportunities for training and skill development compared with male leaders at all ranks, lack of mentors and role models, lack of connections with top-level decision-makers, less access to institutional resources to develop and support female professional growth and advancement, lack of knowledge about regulations governing the leadership position, limited opportunities to gain diverse experiences and learning in the organization, and limited opportunities to gain diverse experiences and learning outside the organization). The

Table 1
Demographic data of the participants (N: 115).

	Characteristic	N (%)
Age (years)	31–35	18 (15.7)
	36–40	31 (27.0)
	41–45	24 (20.9)
	46–50	15 (13.0)
	51–55	13 (11.3)
	56–60	7 (6.1)
	>60	7 (6.1)
Gender	Female	68 (59.1)
	Male	47 (40.9)
Nationality	Non-Saudi	42 (36.5)
	Saudi	73 (63.5)
Marital status	Married	95 (82.6)
	Single	14 (12.2)
	Divorced	6 (5.2)
Highest education level	PhD	65 (56.5)
	Professional Doctorate (e.g., MD, PharmD)	18 (15.7)
	Fellowship	13 (11.3)
	Master	10 (8.7)
	Residency	7 (6.1)
	Bachelor's degree	1 (0.9)
	Other	1 (0.9)
Type of academic institution	Governmental	112 (97.4)
	Private	3 (2.6)
Specialty	Pharmacy	44 (38.3)
	Medicine	32 (27.8)
	Applied Medical Sciences	13 (11.3)
	Dentistry	9 (7.8)
	Others	17 (14.8)
Region of residence	Central	39 (33.9)
	Eastern	7 (6.1)
	Northern	6 (5.2)
	Southern	3 (2.6)
	Western	60 (52.2)
Years of work experience	≤5	15 (13.0)
	6–10	28 (24.3)
	11–15	25 (21.7)
	16—20	18 (15.7)
	>20	29 (25.2)
Number of children	None	23 (3.5)
	1–2	27 (23.5)
	3–5	61 (53.0)
	>5	4 (3.5)

questionnaire was reviewed by three other researchers to ensure clarity, consistency, and validity, and it was administered in English.

2.3. Statistical analyses

We analyzed the data descriptively and comparatively. Descriptive statistics involved calculating frequencies and percentages for responses related to demographic variables. Comparative statistics involved calculating means and standard deviations for various categories of selected background variables, such as gender, nationality, and whether the participant held a leadership position. We used p values to indicate the statistical significance of differences and set significance at $\alpha = 0.05$. To test the significance of differences between two categories, we employed the Student t test.

3. Results

A total of 115 healthcare professional educators participated in this survey (Table 1). Roughly three fifths of the participants were Saudi and female; most participants were married and employed by government organizations. The sample exhibited good distribution across age groups, years of professional experience, and specialties, although a high proportion of the participants had a background in pharmacy. Furthermore, more than half of the participants held a PhD and hailed from the western region of the Kingdom. Table 2 presents the participants' leadership backgrounds, with three quarters reporting either current or past experience in a leadership role within an academic institution.

According to the survey responses, the most impactful structural challenges faced by female leadership included the centralization of decision-making within the institution (overall rating: 3.30 [SD: 1.29]), lack of clarity regarding organizational bylaws for leadership qualifications and appointment processes (overall rating: 3.14 [SD: 1.26]), and existence of wide range administrative units (overall rating: 3.00 [SD: 1.06]) (Table 3). In contrast, the prevailing belief that men possess superior capacity and management skills compared with women in leadership roles (overall rating: 3.17 [SD: 1.25]) and the reluctance to accept women's authority in leadership positions by their subordinates (overall rating: 2.99 [SD: 1.17]) were identified as the most influential cultural challenges for female leadership (Table 4).

Table 2
Participants' leadership background (N: 115).

	Characteristic	All F (%)	Male F (%)	Female F (%)
Having a leadership position currently or in the past in the academic institution?	No	29 (25.2)	8 (17.0)	21 (25.2)
	Yes	86 (74.8)	39 (83.0)	47 (69.1)
Highest leadership title	Dean	6 (5.2)	3 (6.4)	3 (4.4)
	Vice Dean for academic affairs	4 (3.5)	4 (8.5)	0 (0.0)
	Vice Dean for clinical affairs and training	1 (0.9)	0 (0.0)	1 (1.5)
	Vice Dean for development & quality	1 (0.9)	0 (0.0)	1 (1.5)
	Vice Dean for female section	6 (5.2)	0 (0.0)	6 (8.8)
	Head of Department	29 (25.2)	19 (40.4)	10 (14.7)
	Head of unit	23 (20.0)	9 (19.1)	14 (20.6)
	Committee chair	10 (8.7)	5 (10.6)	5 (7.4)
	Other	16 (13.9)	4 (8.5)	12 (17.6)
	None	19 (16.5)	3 (6.4)	16 (23.5)
Years of experience in leadership position	≤5	54 (47.0)	24 (51.1)	30 (44.1)
	6–10	24 (20.9)	10 (21.3)	14 (20.6)
	11–15	11 (9.6)	6 (12.8)	5 (7.4)
	16—20	3 (2.6)	2 (4.3)	1 (1.5)
	>20	2 (1.7)	1 (2.1)	1 (1.5)
	None/ Not applicable	21 (18.3)	4 (8.5)	17 (18.3)
Gender of subordinates	Both genders	74 (64.3)	40 (85.1)	34 (50.0)
	Female	18 (15.7)	0 (0.0)	18 (15.7)
	Male	4 (3.5)	3 (6.4)	1 (1.5)
	Not applicable	19 (16.5)	4 (8.5)	15 (22.1)

There are significant differences between male and female groups in responses provided for highest leadership position and gender of subordinates.

Table 3
Participants' structural-related perceived challenges facing female leaders (N: 115).

Item		N	Mean (SD)	P value
Lack of clarity of institutional vision	Male	47	2.60 (1.26)	0.924
	Female	68	2.62 (1.17)	
	Non-Saudi	42	2.48 (1.36)	0.401
	Saudi	73	2.68 (1.10)	
	No leadership position	29	2.59 (1.21)	0.908
	Leadership position	86	2.62 (1.20)	
	Overall	**115**	**2.61 (1.20)**	
Segregation between women's and men's sections	Male	47	2.74 (1.24)	0.935
	Female	68	2.76 (1.37)	
	Non-Saudi	42	3.00 (1.26)	0.123
	Saudi	73	2.62 (1.27)	
	No leadership position	29	3.03 (1.26)	0.178
	Leadership position	86	2.66 (1.28)	
	Overall	**115**	**2.76 (1.28)**	
The limited power granted to female leaders	Male	47	2.36 (1.16)	**0.035**
	Female	68	2.88 (1.35)	
	Non-Saudi	42	2.50 (1.21)	0.292
	Saudi	73	2.77 (1.34)	
	No leadership position	29	2.72 (1.33)	0.795
	Leadership position	86	2.65 (1.29)	
	Overall	**115**	**2.67 (1.30)**	
The low level of participation in drawing the strategic plans of the institution	Male	47	2.40 (1.13)	**0.032**
	Female	68	2.90 (1.23)	
	Non-Saudi	42	2.50 (1.08)	0.192
	Saudi	73	2.81 (1.27)	
	No leadership position	29	2.79 (1.20)	0.620
	Leadership position	86	2.66 (1.22)	
	Overall	**115**	**2.70 (1.22)**	
The centralization of decision making in the institution	Male	47	3.11 (1.35)	0.173
	Female	68	3.44 (1.23)	
	Non-Saudi	42	3.26 (1.21)	0.791
	Saudi	73	3.33 (1.34)	
	No leadership position	29	3.24 (1.27)	0.763
	Leadership position	86	3.33 (1.30)	
	Overall	**115**	**3.30 (1.29)**	
Lack of material and moral incentives in the institution	Male	47	2.60 (1.07)	0.270

Table 3 (*continued*)

Item		N	Mean (SD)	P value
	Female	68	2.84 (1.20)	
	Non-Saudi	42	2.76 (1.16)	0.873
	Saudi	73	2.73 (1.15)	
	No leadership position	29	3.03 (1.18)	0.112
	Leadership position	86	2.64 (1.13)	
	Overall	**115**	**2.74 (1.16)**	
Poor administrative organization of the women's section	Male	47	2.64 (1.07)	0.879
	Female	68	2.60 (1.40)	
	Non-Saudi	42	2.36 (1.16)	0.097
	Saudi	73	2.77 (1.31)	
	No leadership position	29	2.59 (1.35)	0.880
	Leadership position	86	2.63 (1.25)	
	Overall	**115**	**2.62 (1.27)**	
Underrepresentation of female leaders in committee, boards & meetings at the institution	Male	47	2.60 (1.17)	0.433
	Female	68	2.78 (1.26)	
	Non-Saudi	42	2.52 (1.21)	0.233
	Saudi	73	2.81 (1.23)	
	No leadership position	29	3.10 (1.31)	**0.042**
	Leadership position	86	2.57 (1.17)	
	Overall	**115**	**2.70 (1.23)**	
Wide range of administrative units	Male	47	2.87 (1.01)	0.285
	Female	68	3.09 (1.08)	
	Non-Saudi	42	3.00 (1.08)	1.000
	Saudi	73	3.00 (1.05)	
	No leadership position	29	3.24 (0.91)	0.157
	Leadership position	86	2.92 (1.09)	
	Overall	**115**	**3.00 (1.06)**	
Lack of clarity of organization bylaws of leadership position qualifications and or process of appointment	Male	47	2.87 (1.26)	0.058
	Female	68	3.32 (1.22)	
	Non-Saudi	42	2.86 (1.22)	0.068
	Saudi	73	3.30 (1.25)	
	No leadership position	29	3.14 (1.21)	0.995
	Leadership position	86	3.14 (1.27)	
	Overall	**115**	**3.14 (1.26)**	

Women leaders also grappled with personality-related challenges, including the difficulty of balancing professional responsibilities with family obligations (overall rating: 3.11 [SD: 1.38]), stress and tension induced by attempting to harmonize the needs of subordinates with

Table 4
Participants' cultural-related perceived challenges facing female leaders (N: 115).

Item		N	Mean (SD)	P value
Low confidence among senior management in women leadership	Male	47	3.00 (1.21)	0.422
	Female	68	2.79 (1.43)	
	Non-Saudi	42	2.74 (1.34)	0.399
	Saudi	73	2.96 (1.34)	
	No leadership position	29	2.93 (1.46)	0.808
	Leadership position	86	2.86 (1.31)	
	Overall	**115**	**2.88 (1.35)**	
Prevailing beliefs about men having higher capacity and management skills than women as leaders	Male	47	3.34 (1.06)	0.237
	Female	68	3.06 (1.35)	
	Non-Saudi	42	2.98 (1.22)	0.200
	Saudi	73	3.29 (1.26)	
	No leadership position	29	3.24 (1.18)	0.739
	Leadership position	86	3.15 (1.27)	
	Overall	**115**	**3.17 (1.25)**	
A reluctance to accept the authority of women's leadership by their subordinates	Male	47	2.94 (0.94)	0.657
	Female	68	3.03 (1.30)	
	Non-Saudi	42	3.00 (1.08)	0.952
	Saudi	73	2.99 (1.21)	
	No leadership position	29	3.00 (1.10)	0.963
	Leadership position	86	2.99 (1.19)	
	Overall	**115**	**2.99 (1.17)**	
The difficulty of dealing with male colleagues and superiors	Male	47	2.74 (1.24)	0.606
	Female	68	2.62 (1.32)	
	Non-Saudi	42	2.76 (1.24)	0.562
	Saudi	73	2.62 (1.31)	
	No leadership position	29	2.76 (1.24)	0.669
	Leadership position	86	2.84 (1.31)	
	Overall	**115**	**2.67 (1.29)**	

Table 5
Participants' personality-related perceived challenges facing female leaders (N: 115).

Item		N	Mean (SD)	P value
Poor self confidence	Male	47	3.28 (1.11)	**<0.001**
	Female	68	2.22 (1.22)	
	Non-Saudi	42	2.43 (1.19)	0.158
	Saudi	73	2.78 ('1.32)	
	No leadership position	29	2.59 (1.32)	0.751
	Leadership position	86	2.67 (1.27)	
	Overall	**115**	**2.65 (1.28)**	
Fear of responsibility	Male	47	3.62 (1.15)	**<0.001**
	Female	68	2.22 (1.26)	
	Non-Saudi	42	2.64 (1.35)	0.390
	Saudi	73	2.88 (1.42)	
	No leadership position	29	2.83 (1.31)	0.872
	Leadership position	86	2.78 (1.43)	
	Overall	**115**	**2.79 (1.40)**	
Difficulty of balancing between professional responsibilities and family obligations	Male	47	3.77 (1.08)	**<0.001**
	Female	68	2.66 (1.37)	
	Non-Saudi	42	3.05 (1.26)	0.701
	Saudi	73	3.15 (1.44)	
	No leadership position	29	3.45 (1.40)	0.130
	Leadership position	86	3.00 (1.35)	
	Overall	**115**	**3.11 (1.38)**	
Sense of isolation in the leadership position	Male	47	3.34 (1.10)	**0.001**
	Female	68	2.51 (1.31)	
	Non-Saudi	42	2.90 (1.20)	0.742
	Saudi	73	2.82 (1.34)	
	No leadership position	29	2.90 (1.37)	0.832
	Leadership position	86	2.84 (1.27)	
	Overall	**115**	**2.85 (1.29)**	
Sense of stress and tension due to the difficulty of balancing the needs of subordinate and structure goal	Male	47	3.55 (0.92)	**<0.001**
	Female	68	2.65 (1.15)	
	Non-Saudi	42	2.93 (1.09)	0.534
	Saudi	73	3.07 (1.19)	
	No leadership position	29	2.93 (1.16)	0.643
	Leadership position	86	3.05 (1.15)	
	Overall	**115**	**3.02 (1.16)**	

(continued on next page)

organizational goals (overall rating: 3.02 [SD: 1.16]), and complexity of traveling for work [overall rating: 3.02 (SD: 1.40)] (Table 5). Furthermore, the lack of connections with top-level decision-makers [overall rating: 3.08 (SD: 1.32)] was identified as the most important among potential perceived challenges faced by female leadership (Table 6). Significant disparities emerged among participants in their responses.

Notably, men consistently rated seven personality-related challenges higher than women participants (Table 4, low self-confidence, fear of responsibility, difficulty balancing professional responsibilities and family obligations, sense of isolation in leadership positions, stress and tension due to balancing subordinates' needs and structural goals, difficulty traveling for work, and lack of motivation to lead). In contrast, women rated three challenges higher than men did, two of which were

Table 5 (*continued*)

Item		N	Mean (SD)	P value
Difficulty of travelling if required because of family and personal circumstance	Male	47	3.49 (1.19)	**0.002**
	Female	68	2.69 (1.43)	
	Non-Saudi	42	3.14 (1.38)	0.467
	Saudi	73	2.95 (1.40)	
	No leadership position	29	3.21 (1.42)	0.400
	Leadership position	86	2.95 (1.38)	
	Overall	**115**	**3.02 (1.40)**	
Lack of motivation to lead	Male	47	2.96 (1.06)	**0.012**
	Female	68	2.38 (1.35)	
	Non-Saudi	42	2.60 (1.19)	0.888
	Saudi	73	2.63 (1.31)	
	No leadership position	29	2.69 (1.39)	0.724
	Leadership position	86	2.59 (1.23)	
	Overall	**115**	**2.62 (1.27)**	
The traditional view of the society about the female leaders as if they are being irresponsible mothers/family members	Male	47	2.98 (1.13)	0.411
	Female	68	2.78 (1.45)	
	Non-Saudi	42	3.10 (1.24)	0.153
	Saudi	73	2.73 (1.36)	
	No leadership position	29	3.07 (1.36)	0.332
	Leadership position	86	2.79 (1.32)	
	Overall	**115**	**2.86 (1.33)**	

structural (limited power granted to women leaders and little opportunity to participate in drawing strategic plans for the institution; Table 3); the third challenge was limited opportunities for training and skill development compared with male leaders in the same rank; Table 6). Interestingly, the perception of female committee, board, and meeting membership underrepresentation at the institution was higher among those who currently held no leadership position than among those who had previously done so (Table 3).

4. Discussion

This study primarily aimed to accurately determine women representation in academic leadership and identify the perceived barriers hindering this representation within medical and health-related programs in Saudi Arabia. Our findings can serve as a valuable baseline for assessing the advancement of women's leadership in academic medical programs. This study can redirect the attention of decision-makers within universities and the Ministry of Education toward the challenges that women encounter while striving to enhance women representation in leadership positions and fostering empowerment in the education sector, aligning with the objectives of Saudi Vision 2030.

This study revealed that women leaders in healthcare education in Saudi Arabia experience the following major challenges: centralized decision-making in academic institutions, lack of clarity regarding organizational rules concerning leadership qualifications and appointment process, belief in men's superior ability to lead subordinates, and

Table 6

Participants' other possible perceived challenges facing female leaders (N: 115).

Item		N	Mean (SD)	P value
Limited opportunities for training and skill development compared to male leaders in my rank	Male	47	2.23 (1.08)	**0.038**
	Female	68	2.72 (1.39)	
	Non-Saudi	42	2.62 (1.20)	0.543
	Saudi	73	2.47 ('1.34)	
	No leadership position	29	2.90 (1.37)	0.071
	Leadership position	86	2.40 (1.24)	
	Overall	**115**	**2.52 (1.29)**	
Lack of mentors and role models	Male	47	2.68 (1.16)	0.507
	Female	68	2.84 (1.30)	
	Non-Saudi	42	2.76 (1.24)	0.938
	Saudi	73	2.78 (1.25)	
	No leadership position	29	2.79 (1.29)	0.924
	Leadership position	86	2.77 (1.23)	
	Overall	**115**	**2.77 (1.24)**	
Lack of connections with top level decision makers	Male	47	2.87 (1.15)	0.150
	Female	68	3.22 (1.41)	
	Non-Saudi	42	2.88 (1.21)	0.225
	Saudi	73	3.19 (1.37)	
	No leadership position	29	3.17 (1.16)	0.659
	Leadership position	86	3.05 (1.37)	
	Overall	**115**	**3.08 (1.32)**	
Less access to institutional resources to develop and support female professional growth and advancement	Male	47	2.53 (1.08)	0.074
	Female	68	2.97 (1.40)	
	Non-Saudi	42	2.55 (1.06)	0.126
	Saudi	73	2.93 (1.39)	
	No leadership position	29	2.97 (1.14)	0.370
	Leadership position	86	2.73 (1.34)	
	Overall	**115**	**2.79 (1.29)**	
Lack of knowledge about regulations governing the leadership position	Male	47	2.87 (1.15)	0.933
	Female	68	2.85 (1.26)	
	Non-Saudi	42	2.76 (1.22)	0.509
	Saudi	73	2.92 (1.21)	
	No leadership position	29	2.76 (1.27)	0.602
	Leadership position	86	2.90 (1.19)	
	Overall	**115**	**2.86 (1.21)**	
Limited opportunities to gain diverse experiences and learning within the organization	Male	47	2.66 (1.02)	0.535

Table 6 (*continued*)

Item		N	Mean (SD)	P value
	Female	68	2.79 (1.28)	
	Non-Saudi	42	2.69 (1.22)	0.740
	Saudi	73	2.77 (1.17)	
	No leadership position	29	2.93 (1.30)	0.315
	Leadership position	86	2.67 (1.14)	
	Overall	**115**	**2.74 (1.19)**	
Limited opportunities to gain diverse experiences and learning outside the organization	Male	47	2.51 (1.01)	0.078
	Female	68	2.91 (1.29)	
	Non-Saudi	42	2.64 (1.16)	0.479
	Saudi	73	2.81 (1.22)	
	No leadership position	29	2.86 (1.32)	0.555
	Leadership position	86	2.71 (1.57)	
	Overall	**115**	**2.75 (1.20)**	

difficulties in balancing work and family obligations. Notably, gender may influence decision-making related to the appointment of women to leadership roles within the healthcare education system. This is evident in the study, as men rated seven personality-related challenges higher than women did, whereas women rated two structural challenges higher. Recognizing and tackling gender-based differences in the perception of challenges is crucial for advancing gender equality and fostering inclusive leadership within healthcare education. Conversely, the centralization of decision-making could act as a positive factor for balancing the gender gap in the presence of appropriate policies and transparent operations.

In our research, among the 115 individuals assessed, only 10.4 % held positions as deans or vice deans (in academics; clinical affairs and training, development and quality), and only 7.4 % of these individuals were women. This is consistent with the findings of Abdellatif et al. (2019), who assessed leadership positions in 25 leading medical schools across four continents, encompassing a total of 100 institutions. They discovered that men held 87.2 % of the top-tier positions, including dean or equivalent positions. Men also made up 64.6 % of deans working under the highest-ranked dean (assistant or associate deans), 82.3 % of department chairs or similar positions, and 77.8 % of directors of research and similar operational units (Abdellatif et al., 2019). In the US, gender disparities were reported in the domains of academic promotion, leadership, and satisfaction (Kuo et al., 2019). Draugalis et al. (2014) found that men were more likely to hold tenured or tenure-track positions and that they had received 89.4 % of the national achievement awards recorded since 1981. Moreover, male surgeons were significantly more likely to occupy academic leadership roles in Canada than their female counterparts. The probability of women surgeons achieving the top levels of leadership was notably lower (OR: 0.372, 95 % CI: 0.216–0.641; Hunter et al., 2021).

The issue of women's inadequate representation in leadership roles within healthcare education remains a persistent and significant concern (Alotaibi, 2020). Despite some national advancements to empower Saudi women leaders, structural barriers remain, including the centralization of decision-making, lack of clarity surrounding organizational bylaws, and existence of various administrative units, as shown in this study. Additionally, women's viewpoints and interests may remain unaddressed in the academic institutions when power and authority are concentrated among men (Alsubhi et al., 2018).

The lack of transparent organizational bylaws that define the qualifications and appointment procedures for leadership positions presents another important structural challenge for women aspiring to assume leadership roles in healthcare education. This ambiguity can prevent potential female candidates from climbing the leadership ladder. Unannounced or undefined selection and nomination criteria prompt unconscious gender biases and subjective judgments in the appointment decision, putting female candidates at a disadvantage and possibly leading to discrimination against them (Galsanjigmed & Sekiguchi, 2023; International Labor Organization, 2017).

Another cultural challenge that women leaders experience in academia is the reluctance of some subordinates to accept their authority. This reluctance may be attributed to unspoken or even subconscious cultural beliefs about men's superior managerial skills. Such beliefs could undermine the decisions of women leaders, thus hindering their opportunities for advancement (Alomiri, 2015; Alotaibi, 2016). In our study, we identified that the belief about men's superior managerial capacity and skills is among the most common cultural challenge hampering women's advancement to leadership positions. This deep-rooted belief can result in women being overlooked in the appointment of leadership roles, particularly in male-dominated academic environments that lack female role models. Efforts should be undertaken to support women leaders in expressing their authority and enable a shift away from cultural norms that require women to adapt a masculine style of communication to be effective in their roles.

Our research showed that the greatest personality-related barriers for women leaders in healthcare education in Saudi Arabia included difficulty in balancing work and family duties, fulfilling demands of subordinates while aligning to organizational goals, and traveling. Notably, women are often expected to excel in their chosen professional roles and the societal roles they are assigned as caregivers or wives; their emotional exhaustion and feelings of guilt are compounded when they are unable to fulfill these expectations (Banks, 2020). Furthermore, women leaders may experience emotional exhaustion or burnout while navigating conflicts and tensions within their departments or teams or when juggling their team's personal and institutional goals, which can intensify exhaustion (National Academies Press, 2019). They may also develop stress from becoming too detached from their family life if their professional workload, long working hours, or frequent travel disrupts their work–life balance (Bakker & Oerlemans, 2016; Brue, 2018).

The lack of connections with top-level decision-makers is a substantial challenge to fostering female leadership in male-dominated academic institutions. Because networking is often a major factor in how organizational decisions are made, the "glass ceiling" effect can affect women leaders since they often feel unwelcome in or barred from professional and social networks that are dominated by men. This makes it more difficult for women to establish connections with people at the executive level and thus ascend to leadership positions at their institutions (Abalkhail & Allan, 2015; Alotaibi, 2020; Carnes et al., 2018; Van Veelen & Derks, 2022).

To overcome the above challenges, decision-makers in healthcare education should promote a more inclusive and supportive culture that will help decrease the pressures women leaders experience at their institutions (Eagly & Karau, 2002). Administrators of these institutions should implement necessary measures to enable women leaders to thrive in their roles (Center for Creative Leadership, n.d). To bridge the gender gap in leadership at these institutions, efforts to foster a culture of bifocal mentoring, affinity groups, and networking would provide women leaders with opportunities and space to voice their concerns, share their experiences, exchange ideas, and support each other's careers (Myers et al., 2019; O'Brien et al., 2023). Moreover, administrators should conduct routine gender equality assessments (Clavero & Galligan, 2021) to accurately represent women in leadership positions at their institutions and assess their institution's position toward Vision 2030 goals regarding women's empowerment. Furthermore,

introducing inclusive and transparent policies to ensure unbiased appointment and leadership advancement would facilitate the achievement of the aims of Vision 2030. The Ministry of Education's role in tracking institutions' progress in implementing such policies would also be crucial for ultimately empowering women.

Connections with top-level decision-makers are paramount for optimal advocacy, mentorship, and career advancement. When women leaders lack these connections, they are at risk of losing crucial opportunities, which could hinder their professional growth. To address this challenge, decision-makers of academic institutions should consider creating networking opportunities and mentorship programs to open doors for women leaders to connect with high-level decision-makers at academic institutions and the Ministry of Education (Groves, 2021; O'Brien et al., 2023).

Our findings align with previous local studies that highlight the persistent barriers and gender-related difficulties women face when they aspire to participate in top-level decision-making in Saudi Arabian academic institutions. Despite an ongoing shift in attitudes, other factors—including deep-rooted cultural beliefs, limited networks, work–life imbalance, gender-based stereotypes, and insufficient leadership experience—continue to impact women's advancement to leadership positions (Almaki et al., 2016; Alsubhi et al., 2018). In Alotaibi's study, more than 60 % of the participants highlighted organizational barriers as a significant impediment to women's leadership advancement, as well as discrimination in appointment of leadership positions, promotion, and access to training and development programs. Approximately 20 % of male participants also articulated reservations about women in leadership roles; they expressed discomfort with the idea of working under women leaders due to deep-rooted cultural beliefs regarding women being weak, sensitive, and emotional (Alotaibi, 2020).

This study has certain limitations. First, the sample size was small; however, it was sufficient to shed light on this important issue. Second, the participants' assessments of the challenges facing women leaders in healthcare education may be subject to over- or underestimation. This potential bias is a result of the study's reliance on self-reporting; responses could have been influenced by the participants' emotional states. Third, few faculty members of private schools participated in the study. Nevertheless, the study's primary focus was not to measure the outcomes of female leadership appointments but to assess the perceived challenges encountered by women in healthcare education in Saudi Arabia.

Notably, the study possesses several strengths. It offers a good representation of the study population by including men and women and evaluating the perceived challenges faced by women leaders across various medical and allied health specialties within government and private institutions. The inclusion of participants from all regions of Saudi Arabia, all of whom were able to complete the questionnaire in its entirety, is another strength. Importantly, we believe that ours is the first quantitative study to be conducted in the field of healthcare education in Saudi Arabia and the Gulf regions. As such, it serves as a valuable baseline dataset regarding the challenges that hinder women's leadership in light of Vision 2030, which emphasizes women's empowerment across sectors, including higher education. This study can contribute to restructuring the leadership appointment system within healthcare education in Saudi Arabia.

Future efforts should focus on creating and promoting mentorship and sponsorship programs to support women in their leadership journey. In clinical practice, further evidence shows that female patients may prefer receiving medical care from female specialists, particularly in areas such as obstetrics and gynecology. It is possible that the same view prevails among stakeholders in medical education (Dagostini et al., 2022). Future research should address this issue.

5. Conclusion

The challenges of centralized decision-making, unclear organizational bylaws, and presence of numerous administrative units in Saudi healthcare education pose significant barriers for female educators aspiring to assume leadership roles. A collaborative approach involving academic institutions, leadership, and stakeholders is crucial to overcoming these obstacles. Eliminating these challenges is essential to fully utilize women leaders' talent as they bring distinctive viewpoints and skills to their organizations. Establishing a national database that tracks women's representation in higher education leadership is necessary for assessing progress toward achieving the goals of Vision 2030 for women's empowerment. Additionally, future efforts should focus on creating and promoting mentorship and sponsorship programs to support women in their leadership journey.

6. Consent for publication

Participants were informed via the participant information sheet that they agreed to participate in the study and offered their consent to the use of their anonymized data in publications.

Disclosure

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

Abalkhail, J., Allan, B., 2015. Women's career advancement: mentoring and networking in saudi arabia and the UK. Hum. Resour. Dev. Int. 18 (2), 153–168. https://doi.org/10.1080/13678868.2015.1026548.

Abdellatif, W., Ding, J., Jalal, S., Chopra, S., Butler, J., Ali, I.T., Shah, S., Khosa, F., 2019. Leadership gender disparity within research intensive medical schools: a transcontinental thematic analysis. J Contin Educ Health Prof. 39 (4), 243–250. https://doi.org/10.1097/ceh.0000000000000270.

AlAhmadi, H., 2011. Challenges facing women leaders in Saudi Arabia. Hum. Resour. Dev. Int. 14 (2), 149–166. https://doi.org/10.1080/13678868.2011.558311.

Alhareth, Y., Dighrir, I., Alhareth, Y., 2015. Review of women's higher education in saudi arabia. American Journal of Educational Research, 3 (1), 10–15. https://doi.org/10.12691/education-3-1-3.

Almaki, S., Silong, A.D., Idris, K., Wahiza, N., 2016. Challenges faced muslim women leaders in higher education. JESR. 6 (3) https://doi.org/10.5901/jesr.2016.v6n3p75.

Alomair, M., 2015. Female leadership capacity and effectiveness: A critical analysis of the literature on higher education in saudi arabia. International Journal of Higher Education. 4 (4), 81–93. https://doi.org/10.5430/ijhe.v4n4p81.

Alomiri, H.F., 2015. The impact of leadership style and organisational culture on the implementation of E-services: An empirical study in saudi arabia. Plymouth University, Plymouth. Doctoral Dissertation.

Alotaibi, F.T., 2020. Saudi women and leadership: Empowering women as leaders in higher education institutions. Open Journal of Leadership. 9 (3) https://doi.org/10.4236/ojl.2020.93010.

Alotaibi, F., Cutting, R., Morgan, J., 2016. A critical analysis of the literature on women's leadership in saudi arabia. International Journal of Business Administration and Management Research. 3(1):29 https://doi.org/10.24178/ijbamr.2017.3.1.29.

Alsubaie, A., Jones, K., 2017. An overview of the current state of women's leadership in higher education in saudi arabia and a proposal for future research directions. Administrative Sciences. 7 (4), 36. https://doi.org/10.3390/admsci7040036.

Alsubhi, A.A., Hoque, K.E., Abdul Razak, A.Z., 2018. Workplace barriers and leadership conflicts experienced by the women in higher education in saudi arabia. IJLD. 8 (2):, 1. https://doi.org/10.5296/ijld.v8i2.13007.

Bakker, A.B., Oerlemans, W.M., 2016. Momentary work happiness as a function of enduring burnout and work engagement. J. Psychol. 150 (6), 755–778. https://doi.org/10.1080/00223980.2016.1182888.

American Council on Education (ACE). American College President Study. (2017). Available from: https://www.acenet.edu/Documents/American-College-President-VIII-2017.pdf.

Banks, E.C., 2022. The Evolution of Strong Black Women in Academic Leadership: Balancing Careers, Family, and Self. Fisher digital publication. Accessed on November 15th, 2023 at https://fisherpub.sjf.edu/education_etd/535/.

Brue, K.L., 2018. Harmony and help: Recognizing the impact of work-life balance for women leaders. Journal of Leadership Education. 17 (4).

Carnes, M., Morrissey, C., Geller, S.E., 2008. Women's health and women's leadership in academic medicine: hitting the same glass ceiling? J Womens Health (larchmt). 17 (9), 1453–1462. https://doi.org/10.1089/jwh.2007.0688. PMID: 18954235; PMCID: PMC2586600.

Center for creative leadership. (n.d.) Retaining & Developing Women Leaders: 5 Steps for Success. Avaible at https://www.ccl.org/articles/leading-effectively-articles/5-proven-ways-develop-female-talent/.

Chisholm-Burns, M., Spivey, C., Hagemann, T., Josephson, M., 2017. Women in leadership and the bewildering glass ceiling. Am. J. Health Syst. Pharm. 74 (5), 312–324. https://doi.org/10.2146/ajhp160930.

Clavero, S., Galligan, Y., 2021. Delivering gender justice in academia through gender equality plans? Normative and practical challenges. Gender, Work& Organization. 28 (3), 1115–1132. https://doi.org/10.1111/gwao.12658.

Dagostini, C.M., Bicca, Y.A., Ramos, M.B., Busnello, S., Gionedis, M.C., Contini, N., Falavigna, A., 2022. Patients' preferences regarding physicians' gender: a clinical center cross-sectional study. Sao Paulo Med. 140 (1), 134–143. https://doi.org/10.1590/1516-3180.2021.0171.R1.08062021.

Draugalis, J.R., Plaza, C.M., Taylor, D.A., Meyer, S.M., 2014. The status of women in US academic pharmacy. Am J Pharm Educ 78 (10), 178. https://doi.org/10.5688/ajpe7810178.

Eagly, A.H., Karau, S.J., 2002. Role congruity theory of prejudice toward female leaders. Psychol. Rev. 109, 573. https://doi.org/10.1037/0033-295x.109.3.573.

Galsanjigmed, E., Sekiguchi, T., 2023. Challenges women experience in leadership careers: An integrative review. Merits 3 (2), 366–389. https://doi.org/10.3390/merits3020021.

Groves, T., 2021. Establishing mentoring programs for the advancement of women in the workplace. New Horizons in Adult Education and Human Resource Development 33 (3), 66–69. https://doi.org/10.1002/nha3.20342.

Hamdan, A., 2005. Women and education in Saudi Arabia: Challenges and achievements. Int. Educ. J. 6 (1), 42–64.

Colorado Women's College, University of Denver (2013). Benchmarking Women's Leadership in the United States. Available from: https://www.issuelab.org/resources/26706/26706.pdf.

Hunter, J., Crofts, H., Keehn, A., Schlagintweit, S., Luc, J.G.Y., Lefaivre, K.A., 2021. Gender imbalance amongst promotion and leadership in academic surgical programs in Canada: A cross-sectional Investigation. PLoS One 16 (8), e0256742.

Human resources and social development. Women's empowerment. (n.d). Available from: https://www.hrsd.gov.sa/en/womens-empowerment.

International labor organization (2017). Breaking barriers: Unconscious gender bias in the workplace. Accessed at November 15th, 2023 at https://www.ilo.org/actemp/publications/WCMS_601276/lang–en/index.htm.

Kuo, I.C., Levine, R.B., Gauda, E.B., Bodurtha, J., Clements, J., Fivush, B., Ishii, L., 2019. Identifying gender disparities and barriers to measuring the status of female faculty: The experience of a large school of medicine. J Womens Health (larchmt). 28 (11), 1569–1575. https://doi.org/10.1089/jwh.2018.7610. Epub 2019 Jul 3 PMID: 31268398.

Li, B., Jacob-Brassard, J., Dossa, F., Salata, K., Kishibe, T., Greco, E., Baxter, N.N., AlOmran, M., 2021. Gender differences in faculty rank among academic physicians: a systematic review and meta-analysis. BMJ Open 11 (11), e050322.

Maheshwari, G., Nayak, R., 2020. Women leadership in Vietnamese higher education institutions: An exploratory study on barriers and enablers for career enhancement. Educational Management, Administration & Leadership 50 (5). https://doi.org/10.1177/1741143220945700.

Malik, M., Hussain, A., Hashmi, A., Saeed, H., Azhar, H., Abbasi, A.S., 2023. Barriers to gender equity for female healthcare academicians and researchers in Pakistan: Is it still an issue? Front Public Health. 4 (10), 981178 https://doi.org/10.3389/fpubh.2022.981178.

Ministry of Education. Higher Education Statistics. (2018). Available from: https://www.moe.gov.sa/ar/knowledgecenter/dataandstats/edustatdata/Pages/HigherEduStat.aspx.

Myers, K., Trull, L.H., Bryson, B.J., Yeom, H.S., 2019. Affinity groups: Redefining brave spaces. Journal of Baccalaureate Social Work 24 (1), 1–18.

National Academies of Sciences, Engineering, and Medicine; National Academy of Medicine; Committee on Systems Approaches to Improve Patient Care by Supporting Clinician Well-Being. Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-Being. Washington (DC): National Academies Press (US). (2019). Factors Contributing to Clinician Burnout and Professional Well-Being. Available from: https://www.ncbi.nlm.nih.gov/books/NBK552615/.

O'Brien, W., Hanlon, C., Apostolopoulos, V., 2023. Women as leaders in male-dominated sectors: A bifocal analysis of gendered organizational practices. Gend. Work. Organ. https://doi.org/10.1111/gwao.13019.

Oxford Reference. (n.d). Gender inequality. Available at https://www.oxfordreference.com/display/10.1093/oi/authority.20110803095846609#:~:text=Social%20process%20by%20which%20people,on%20the%20basis%20of%20gender.

Van Veelen, R., Derks, B., 2022. Equal representation does not mean equal opportunity: Women academics perceive a thicker glass ceiling in social and behavioral fields than in the natural sciences and economics. Front Psychol 16 (13), 790211. https://doi.org/10.3389/fpsyg.2022.790211. PMID: 35369222; PMCID: PMC8966382.

Wiler, J.L., Wendel, S.K., Rounds, K., McGowan, B., Baird, J., 2022. Salary disparities based on gender in academic emergency medicine leadership. Acad Emerg Med. 29 (3), 286–293. https://doi.org/10.1111/acem.14404.

Yinhan, W., Qi, Y., Kai, Y., 2013. Women leaders of higher education: Female executives in leading universities in china. Cross-Cultural Communication 9 (6), 40–45. https://doi.org/10.3968/j.ccc.1923670020130906.3031.