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Karima Ait-Aissa,
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REVIEWED BY

Ben Morris,
Leeds Trinity University, United Kingdom
Ryan Scheckel,
Texas Tech University, United States

*CORRESPONDENCE

Khlood Baghlaf
✉ kbaghlaf@kau.edu.sa

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Key performance indicators of the academic advising system and student performance among Saudi undergraduate dental students: a retrospective analysis

Khlood Baghlaf^{1*} and Safia Al-Attas²

¹Pediatric Dentistry Department, Faculty of Dentistry, King Abdulaziz University, Jeddah, Saudi Arabia,

²Department of Oral Diagnostic Sciences, Faculty of Dentistry, King Abdulaziz University, Jeddah, Saudi Arabia

Background: Academic advising should be central to an institution's educational mission, rather than merely treated as an additional service.

Aims: This study evaluates the effectiveness of the academic advising (AA) system at the Faculty of Dentistry over 5 years, emphasizing its essential role in fostering student success and achievement. It investigates the connection between academic advising meetings and student performance as indicated by grade point average (GPA). In addition, this study provides ratings for academic advising systems.

Methods: A retrospective cross-sectional analysis was conducted by collecting data from undergraduate students regarding their participation in AA meetings and their academic performance over the past 5 years. Key performance indicators were calculated from 2021–2025. The analysis of data from 2024 examined the mean GPA and its association with the number of AA sessions attended.

Results: A significant increase was observed in key performance indicators from 48.31% in 2021 to 68.50% in 2025, reflecting enhanced student engagement and advising effectiveness. Furthermore, a positive correlation was identified between the frequency of advising meetings and student GPA, with high achievers participating in more meetings than lower-achieving peers. Female and senior students demonstrated greater advising engagement and academic success. The study also highlights the challenges faced by the academic guidance unit, such as faculty time limitations and uncooperative student behavior, which impede effective advising.

Conclusion: This study presents recommendations for improving the AA process, stressing the importance of ongoing evaluation and adopting innovative strategies to better address student needs. Overall, the results highlighted the vital role of academic advising as a foundational aspect of the educational experience that facilitates personal growth and academic success among students.

KEYWORDS

grade point average, higher education, tutoring, academic success, student retention

Introduction

Academic advising (AA) is a critical component of the higher education experience, serving as a guiding framework for students as they navigate their educational journey (Urquhart, 2020). An effective academic advising system not only facilitates course selection and degree planning but also fosters personal growth and development. Advising should be at the core of the institution's educational mission rather than being added on as a service (Crouse, 2021). Academic advising has become a distinct interdisciplinary field, yet its role is often described through analogies that obscure its uniqueness; thus, fostering a scholar-practitioner model is essential for establishing a clear scholarly identity and advancing the profession, as illustrated by developments in archaeology and practices at The Pennsylvania State University (Schulenberg and Lindhorst, 2008). As students transition from high school to college, they encounter a myriad of challenges, including unfamiliar academic environments, increased independence, and the need for self-directed learning (Nirmalan et al., 2025).

Importance of tailored support

The importance of an academic advising system lies in its ability to provide support tailored to individual student needs (Brown, 2020). The literature continues to support the important role of academic advising in student success and retention (Crouse, 2021). Drake (2011) emphasizes that academic advising goes beyond administrative tasks; it is a vital process of building relationships with students to help them align their personal strengths and interests with their academic and life goals, thereby enhancing student retention and persistence. A literature review by Zhang et al. (2019) highlights the importance of student advising for achieving success in higher education by examining effective strategies and personal stories at various institutional levels, focusing on the necessity for enhanced enrollment and retention efforts (Zhang et al., 2019). Advisors play a vital role in helping students set realistic academic and career goals, understand institutional policies, and make informed educational decisions. Furthermore, academic advising contributes to student retention and success by addressing academic difficulties early, providing resources for academic improvement, and connecting students with campus services (Drake, 2011).

Evaluating effectiveness through key performance indicators

Key performance indicators (KPIs) are used to evaluate the effectiveness of academic advising programs in colleges and universities. These metrics help institutions to evaluate and improve the quality and impact of advising services. Several qualitative and quantitative methods have been used to assess the performance of advisory programs. Common KPIs include student retention, graduation, and student satisfaction surveys (Ballard, 2013).

Methods of assessment

Qualitative assessments often involve surveys to gather student feedback on their perceptions of the quality of advising

services. Quantitative measures include various methods, such as evaluating advisor performance by tracking the number of students advised, retention rates, graduation outcomes, and students' academic performance (Goemans and Kapinos, 2024). Existing research has highlighted the positive correlation between academic advising and student retention. Tippetts et al. (2022) reported that students who meet with academic advisors at least once per semester are 9% more likely to persist and enroll the following semester (Tippetts et al., 2022).

Challenges faced by faculty advisors

Many college faculty view advising as an unwelcome responsibility. Many faculty members are overwhelmed with their teaching, research, and administrative responsibilities (Hoerrner, 2003). Advising adds another layer of obligation that can detract from primary academic pursuits. Not all faculty members are trained in effective advising techniques. This lack of preparation can lead to frustration, as they may feel ill-equipped to meaningfully support students (McGill et al., 2020).

Impact on student experience

In a diverse and dynamic college setting, the advising relationship can significantly impact a student's academic experience, leading to enhanced engagement, satisfaction, and, ultimately, graduation rates (Crouse, 2021). By fostering a collaborative environment in which students feel empowered to take charge of their education, academic advising systems not only enhance individual student outcomes, but also strengthen the overall academic community. Therefore, this study aims to retrospectively evaluate the academic advising system at the Faculty of Dentistry, King Abdulaziz University, Saudi Arabia, by analyzing KPIs, assessing students' perceptions over 5 years, and examining the relationship between academic advising meetings and student achievement as reflected in the grade point average (GPA). The ultimate objective is to develop evidence-based recommendations for improving the academic advising system.

Methods

Study design

This study employed a retrospective cross-sectional design to evaluate the AA system at the College of Dentistry, King Abdulaziz University (KAU), Jeddah, Saudi Arabia, over a 5-year period (2021–2025). Ethical approval was obtained from the King Abdulaziz University Ethical Committee and initial institutional approval was granted by the College of Dentistry (approval number: Rec-08-01-25). This study assessed the KPIs related to academic advising and analyzed the association between advising meeting frequency and student academic performance, as measured by GPA. All the academic records of undergraduate students who scheduled academic advising meetings between September 2021 and June 2025 were included.

Data collection

Data were retrieved from the records of the Academic Advising Unit at the King Abdulaziz University Faculty of Dentistry (KAUFD). The extracted variables included academic year, sex, number of advising sessions attended, AA assessment surveys, and student GPA (for 2024 only).

Inclusion and exclusion criteria

The inclusion criteria comprised all data related to undergraduate students in their second, third, fourth, fifth, and sixth years. First-year dental students were excluded because they studied outside the college, within the broader university campus, and were supervised by university staff rather than by the faculty of the College of Dentistry. Both individual and group advising sessions were counted in terms of meeting frequency. The number of students who met their advisors at both individual and group meetings was calculated.

Key performance indicator (KPI) calculation

KPIs were retrospectively analyzed. The key performance indicator for students in the Faculty of Dentistry is defined as any student who has had two academic advising meetings during the academic year. The academic advising units agreed to adopt a KPI to track the percentage of students who attended at least two meetings with their academic advisors during the academic year. This percentage was set to the minimum target threshold of 50%. The overall KPI percentages for each year were used to evaluate the system performance and trends over time.

Student achievement based on grade point average (GPA)

This study examined the connection between academic advising meetings and student performance, as indicated by GPA, focusing specifically on students from the 2024 academic year. The dataset included each student's GPA and the number of meetings attended with academic advisors over the year. Students' performance was categorized as follows:

Grade A: GPA > 4.5.

Grade B: GPA between 3.5 and 4.49.

Grade C and below: GPA < 3.49.

For further analysis, students were classified as high achievers (GPA \geq 4.0) or low achievers (GPA < 4.0). The relationship between the number of advising meetings and student achievements was also assessed.

Students' ratings of the academic advising system during 2021–2025

To evaluate student perceptions of the academic advising system, a retrospective review was conducted using student feedback collected annually between 2021 and 2025 at the Faculty of Dentistry, King Abdulaziz University. The assessment was based on standardized

institutional surveys distributed to undergraduate dental students. The surveys included Likert-scale questions to evaluate key aspects of the advising experience and overall satisfaction. Data were aggregated and analyzed to identify trends and changes in student satisfaction over a 5-year period.

Statistical analysis

All data were anonymized and saved on a password-encrypted desktop. The data were entered into an Excel spreadsheet for better organization and easier analysis and comparison. The data were entered and analyzed using SPSS software (version 22.0; SPSS Inc., Chicago, IL, USA). Descriptive analysis reported the mean, frequencies, and percentages of the outcomes (number of students, faculty, and achieved KPI values). Academic advising meetings were recorded as the average number of meetings and compared to student achievement (high and low achievers) using an independent t-test. The Pearson correlation test was used to test the correlation between the average GPA and average number of meetings. Regression analysis was conducted, with student achievement (categorized as high or low achievers) as the outcome variable, and covariates including sex, academic year, and number of AA meetings. Statistical significance was set at $p < 0.05$.

Results

Key performance indicators related to students

Table 1 presents the KPIs for AA meetings among undergraduate students at the Faculty of Dentistry from 2021 to 2025, disaggregated by academic year (second to sixth) and sex. Overall, there was an upward trend in the average KPI, rising from 48.31% in 2021 to 64.00% in 2023 and reaching a peak in 2025 (68.5%), indicating a general improvement in student performance. Initially, in 2021, male students exhibited higher KPI (49.59%) than female students (47.13%). However, this sex-related gap has diminished over time, with female students surpassing males in all academic years, beginning in 2022. The gap widened over the years, particularly in the third, fourth, and sixth years, possibly reflecting a better adherence to or responsiveness to advising among female students. By 2025, the KPI among females reached 93% (sixth year) compared to 51% among sixth-year males. Notable improvements in both sexes were observed, particularly among students in the third, fifth, and sixth years, in which participation rates ranged between 70 and 93%, reflecting stronger advisor-student interactions during these stages.

Among the specific findings and year-by-year insights, male students exhibited a marked decline in KPI following a strong start, particularly in the second and sixth years, when participation dropped from 61.11 and 76.08% in 2021 to 46.15 and 20.9% in 2022, respectively. Although male engagement peaked in 2022 at 81.4% among third-year students, it fluctuated in the subsequent years. In contrast, female students demonstrated a steady improvement in KPIs across all levels, with the highest participation observed in the fifth and sixth years, reaching nearly 93% in 2025 among sixth-year students, the highest recorded in the entire dataset. Interestingly, the

TABLE 1 The percentage of students who attended at least two academic advising meetings during the years 2021, 2022, 2023, and 2024.

Studying level	Gender	2021 N (%)	2022 N (%)	2023 N (%)	2024 N (%)	2025 N (%)
Second year	Male	33/54 (61.11%)	24/52 (46.15%)	33/57 (57.89%)	26/52 (50%)	26/33 (78.79%)
	Female	18/54 (33.33%)	30/53 (56.6%)	49/67 (73.13%)	33/51 (64.71%)	29/40 (73%)
Third year	Male	42/79 (53.16%)	35/43 (81.3%)	17/41 (41.46%)	33/58 (56.9%)	22/40 (55%)
	Female	35/68 (51.47%)	24/39 (61.54%)	28/39 (71.79%)	45/62 (72.58%)	43/48 (90%)
Fourth year	Male	39/87 (44.82%)	35/70 (50%)	29/42 (69.05%)	25/38 (65.79%)	22/47 (48.81%)
	Female	50/102 (49.02%)	45/67 (67.16%)	25/39 (64.1)	27/39 (69.23%)	49/62 (79%)
Fifth year	Male	33/83 (39.75%)	41/95 (43.16%)	42/72 (58.3)	25/42 (59.7%)	27/39 (69.23%)
	Female	48/104 (46.15%)	69/98 (70.4%)	58/67 (86.57)	18/38 (47.37%)	32/38 (84%)
Sixth year	Male	35/64 (76.08%)	17/81 (20.99%)	45/93 (48.39)	45/88 (51.14%)	22/43 (51.16%)
	Female	46/90 (50.11%)	59/111 (53.15)	71/100 (71)	35/77 (45.45%)	37/40 (93%)
Total students	Male	182/367 (49.59%)	149/341 (43.69%)	166/305 (54.43%)	154/278 (55.4%)	129/231 (55.84%)
	Female	197/418 (47.12%)	227/368 (61.6%)	231/312 (74.0%)	158/267 (59.18%)	212/267 (79%)
Average KPI	Both gender	48.31%	52.6%	64.0%	57.2%	68.5%

fifth year showed the most significant increase in engagement for both sexes, underscoring stronger advisor-student interaction and greater involvement as students advanced into their senior years. Overall, the data reflect a positive growth in advising engagement over the years, especially among female students.

Interpretation of the KPI trend for academic advising meetings (2021–2025)

An analysis of data regarding the key performance indicators of the academic advising system at the Faculty of Dentistry over 5 years is presented in [Figure 1](#). The line graph illustrates the trend in KPIs related to student participation in academic advising meetings over 5 years (2021–2025). The KPIs reflect the percentage of students who attend at least two advising sessions each year. In 2021, the KPI was 48.31%, indicating relatively low engagement. In 2022, the KPI increased to 52.60%, indicating a positive shift in participation. This upward trend continued significantly in 2023, when the KPI reached 64%, suggesting a strong improvement in the effectiveness and utilization of academic advising. However, in 2024, the KPI declined slightly to 57.20%, indicating the need for ongoing strategies to sustain student involvement. By 2025, KPI rebounded to 68.50%, reflecting renewed efforts and enhanced engagement in academic advising. Overall, the data show consistent growth in advising engagement, with a net increase of more than 20 percentage points between 2021 and 2025. This reflects a general upward trend in the effectiveness of academic advising despite some fluctuations that underscore the need for ongoing efforts to maintain and enhance this progress.

Association between the academic advisors' meetings and the students' performance in 2024

To better understand the impact of academic advising on student performance, this section explores the association between the number of advisor-student meetings and academic achievement during the

2024 academic year. The year 2024 witnessed a noticeable decline in advising engagement following a period of steady gains in the KPI. In 2024, there was a total of 545 undergraduate students. However, 64 students were unable to complete the final exams and were excluded from the analysis. [Table 2](#) presents the descriptive characteristics of the remaining 481 undergraduate students and the mean number of academic advisor meetings they attended. High achievers (GPA > 4.0) represented 67.8% ($n = 327$) of the student population, whereas low achievers accounted for the remaining 32% ($n = 154$).

In 2024, the study revealed that 67.8% of high achievers (GPA > 4) attended an average of 1.72 (SD = 0.53) meetings, while 32% of low achievers attended only 1.52 (SD = 0.70) meetings. Sex analysis showed a fairly balanced sample in terms of sex: male students comprised 53.3%, while female students accounted for 46.5%, and female students attended slightly more advising meetings on average (1.69) than male students (1.63), indicating a modest sex-based difference in engagement. Among the academic years, sixth-year students attended the most meetings (1.81), while fifth-year students attended the least (1.39). In terms of academic performance, the majority of students were in Grade B (GPA 3.5–4.49) at 54.1%, followed by Grade A (≥ 4.5) at 29.5%, and Grade C (< 3.49) at 12.9%. The average GPA for high achievers was 4.4 (± 0.23) out of 5, while low achievers had a mean GPA of 2.9 (± 1.25). It is worth noting that the average number of advising meetings was the highest among Grade A students (1.76) and showed a progressive decline across the lower-performing groups: Grades B (1.66), C (1.56), and failed students (1.06). Overall, higher academic performance and advising engagement were positively correlated.

[Table 3](#) presents the correlation between the number of academic advising meetings and student performance. High achievers (GPA > 4.0) attended an average of 1.72 advising meetings (SD = 0.53), whereas low achievers attended fewer meetings on average, with a mean of 1.52 (SD = 0.70). High achievers had a significantly greater number of meetings with their academic advisors than did low achievers. A positive correlation was found between a higher GPA and an increased number of meetings (Pearson's correlation coefficient = 0.22, $p < 0.001$), indicating that increased advisor engagement was associated with better academic performance.

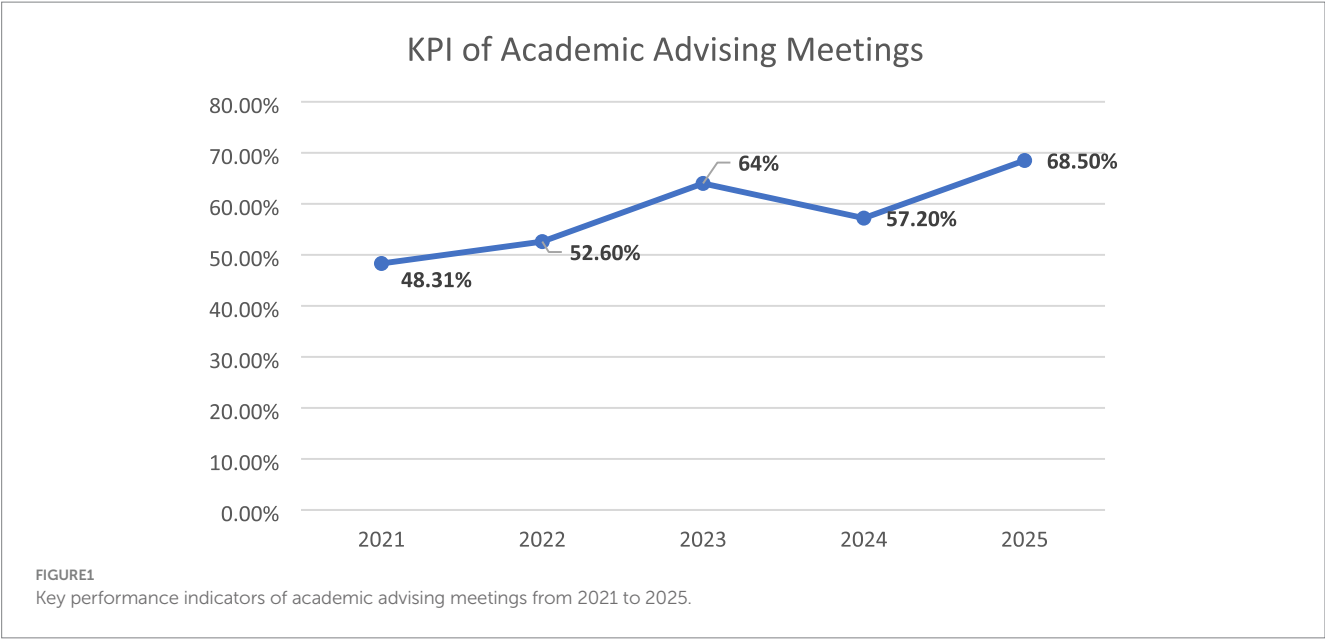


TABLE 2 Descriptive characteristics of undergraduate students in 2024 among 481 students.

Descriptive characteristics		2024 N (%)	Number of meetings Mean (SD)
Achievement	High achievers GPA > 4	327 (67.8)	1.72 (0.53)
	Low achievers GPA > 4	154 (32)	1.52 (0.70)
Gender	Male	257 (53.3)	1.63 (0.65)
	Female	224 (46.5)	1.69 (0.53)
Academic year	Second year	97 (20.1)	1.60 (0.69)
	Third year	109 (22.6)	1.75 (0.04)
	Fourth year	73 (15.1)	1.63 (0.06)
	Fifth year	79 (16.4)	1.39 (0.09)
	Sixth year	123 (25.5)	1.81 (0.03)
Grade distribution	Grade A (4.5 and above)	142 (29.5)	1.76 (0.04)
	Grade B (4.49–3.5)	261 (54.1)	1.66 (0.035)
	Grade C (lower than 3.49)	78 (16.2)	1.56 (0.09)

TABLE 3 The association between the number of academic advising meetings and students’ achievement in 2024 among 481 students.

Descriptive characteristics	Gender	2024 N (%)	Mean (SD) of meetings	p-value*
Achievement of the students	High achievers GPA > 4	327	1.72 (0.53)	0.001
	Low achievers GPA ≤ 4	154	1.52 (0.70)	
Gender	Male	257	1.63 (0.65)	0.23
	Female	224	1.69 (0.53)	

Regression analysis of factors associated with academic achievement

The regression analysis in Table 4 examines the factors affecting student achievement at KAU Dental College in 2024 by comparing high and low achievers among 481 undergraduates. The regression equation for analyzing student achievement, considering gender, year of study, and the number of academic advising meetings, can be expressed as $Y = \beta_0 + \beta_1 \text{“(Gender)”} + \beta_2 \text{“(Year of Study)”} + \beta_3 \text{“(Number of Meetings)”} + \epsilon$, where Y indicates achievement levels, and statistical significance is set at $p < 0.05$. The analysis included sex, number of academic-advising meetings, and year of study as predictor variables. The results indicate that female students are significantly more likely to be high achievers, with an adjusted odds ratio (AOR) of 6.68 (95% CI: 4.04–11.01, $p < 0.001$). Additionally, the number of

academics advising meetings is positively associated with achievement; students who attended more meetings had higher odds of being high achievers (AOR = 0.56, 95% CI: 0.39–0.81, $p = 0.002$). Regarding academic year, sixth-year students showed a significantly greater likelihood of high achievement compared to second-year students (AOR = 5.31, 95% CI: 2.78–10.14, $p < 0.001$). These findings highlight the importance of academic advising, sex, and academic progression in influencing student performance, and suggest that targeted support strategies should be tailored accordingly.

The rating of academic advisors by students during the last 5 years

Over the past 5 years, student ratings of the academic advising system have provided valuable insights into the system’s effectiveness (Figure 2). The bar chart illustrates the students’ overall ratings of the academic advising system from 2021 to 2024, with separate data for male and female students. The ratings showed a positive trend over time. In 2021, both sexes rated the system at approximately 4.4; however, by 2022, male students’ ratings increased to approximately 4.6, while female students reached approximately 4.5. The upward path continued in 2023, with male students rating the system around

TABLE 4 Regression analysis of students’ achievement and related factors among 481 undergraduate students in 2024 at KAU dental college.

Descriptive characteristics		Achievement (High or low achievers)			
Variables		High achievers	Low achievers	AOR (95% CI)	p-value
Gender	Male	136 (28.2)	121 (25.1)	1	1
	Female	191 (39.7)	33 (6.8)	6.68 (4.04–11.0)	<0.001*
Number of meetings	Mean (SD)	1.72 (0.53)	1.52 (0.70)	0.56 (0.39–0.81)	0.002
Student year	Second year	41 (8.5)	56 (11.6)	1	1
	Third year	79 (16.4)	30 (6.2)	1.38 (0.73–2.58)	0.31
	Fourth year	61 (12.6)	12 (2.4)	0.55 (0.25–1.20)	0.13
	Fifth year	58 (12.0)	21 (4.3)	0.80 (0.38–1.68)	0.56
	Sixth year	88 (18.2)	35 (7.2)	5.31 (2.78–10.14)	<0.001*

4.7 and female students achieving similar ratings. In the last 2 years, both groups maintained high satisfaction levels, ranging from 4.6 to 4.8. These results indicate a growing appreciation of the academic advising system, reflecting improvements in the quality of support provided to students.

Discussion

This study presents a comprehensive longitudinal analysis of academic advising engagement and its influence on student success at the Faculty of Dentistry, King Abdulaziz University (KAU), over 5 years. By examining Key Performance Indicators (KPIs), participation rates, and academic outcomes, this study highlights positive trends, sex and academic year disparities, and the critical association between advising frequency and academic performance.

These data not only shed light on what is occurring within this specific setting but also support and extend existing research in higher education and academic advising, both globally and within Saudi Arabia. Furthermore, this study offers targeted recommendations for enhancing the academic advising process. The data also highlighted enrollment patterns that may be linked to broader issues, including student retention, educational challenges, and shifts in demographic patterns.

Academic advising in King Abdulaziz University Faculty of Dentistry

KAU, located in Jeddah, Saudi Arabia, is one of the most respected public universities in the region. Since its establishment in 1967, it has become a major center for education and research in the Kingdom (Tayeb et al., 2016). Today, KAU is recognized both locally and internationally for its high academic standards, diverse programs, and strong commitment to innovation and community development (AI-Youbi and Zahed, 2019). KAU maintained its Arab leadership in international rankings, ranking first in the Arab world and ranked between 101 and 150 globally according to the Shanghai International Classification for 2021–2022, and ranking first in the Arab world in the British QS classification index for the third consecutive year (Alanazi, 2024). The Faculty of Dentistry (KAUFD), founded in 1985 by Royal Decree, holds a distinctive legacy in dental education as the second dental school in Saudi Arabia. KAUFD’s

achievements include international accreditation from the Association for Dental Education in Europe (ADEE) in 2008 and national accreditation from the National Center for Academic Accreditation and Assessment (NCAAA) in 2017. Notably, it is the only dental school outside the United States accredited by the Commission on Dental Accreditation (CODA), enabling it to host U.S. dental licensing examinations on-site—a testament to its global standing (Sbeeler, 2025).

Academic advising is a core element of the student development framework at KAUFD, aligning with both national and international standards. Advisors at KAUFD provide individual and group sessions to support students facing academic, financial, or personal challenges. When necessary, students were referred to the Deanship of Student Affairs, which offers confidential psychological, social, and career counseling through qualified professionals at the Academic Advising Center. This comprehensive approach has been validated by numerous studies (Al-Ansari et al., 2015; Awadh, 2018).

Modern academic advising has expanded its scope to include career preparation, skill development, and fostering students’ roles as engaged citizens (Campbell and Nutt, 2008). In response to evolving educational needs, Elson (2022) proposed a post-pandemic model that integrates advising within digital ecosystems. The model features four interconnected elements: Planning (designing advising strategies using digital platforms), Creating Resources (developing tools, such as e-portfolios), Sharing (maintaining regular communication), and Evaluating (gathering feedback to improve services) (Elson, 2022).

Following the pandemic, the AA unit at the Faculty of Dentistry permitted online meetings while continuing to promote in-person interactions. However, challenges have arisen because of staff working hours and compressed student schedules. In 2023, the AA unit began integrating advising meetings into the undergraduate schedule, and informed faculty members of the AA timetable to encourage more face-to-face meetings. Finally, evaluation emphasizes the necessity of collecting feedback and reviewing data to improve the advising process continuously (Elson, 2022).

A similar approach was also adopted at KAUFD. Faculty advisors were required to meet assigned students at least once per semester in group sessions, with optional one-on-one appointments available as needed. During the pandemic, the AA facilitated online meetings, which later shifted toward hybrid models to maintain accessibility. To

Students rating of Academic advising system out of 5

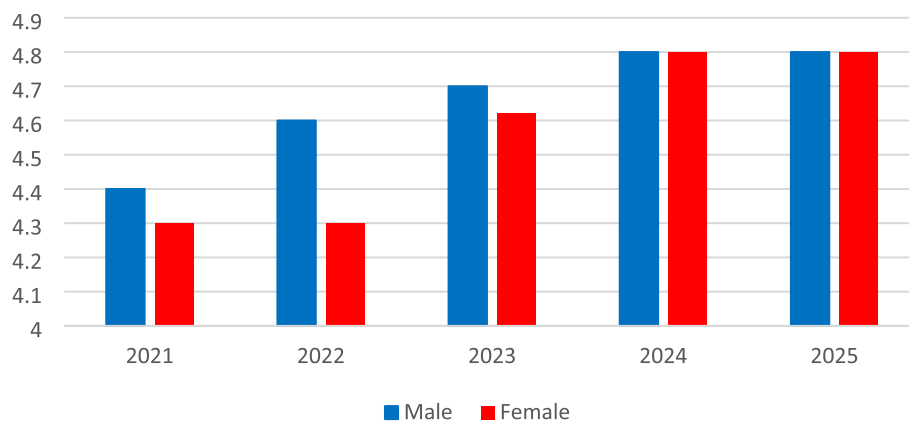


FIGURE 2
Students' ratings of the academic advising system during 2021–2025.

overcome the scheduling challenges faced by students and faculty, the AA unit began integrating advising sessions into its undergraduate timetable in 2023. In addition, feedback systems were introduced to collect insights from students and advisors for continuous improvement.

Awadh (2018) underscores the importance of high-quality advising in improving students' academic outcomes, such as GPA, persistence, and social integration (Awadh, 2018). Drawing on Tinto's integration theory and Astin's involvement theory, this study found that accessible and supportive advising enhances students' academic engagement and institutional loyalty, whereas poor advising contributes to attrition. It also calls for broader discipline-specific research to further evaluate the effectiveness of advising in the context of Saudi higher education.

Trends in KAUFU'S advising participation

An evaluation of KPIs for academic advising at the KAUFU revealed a sustained improvement in student engagement and advising effectiveness over the past 5 years. Student participation in academic advising has increased from 48.3% in 2021 to 68.5% in 2025, an almost 20-percentage-point rise. This positive trend likely reflects the success of institutional efforts to enhance the advising system, improve student awareness of its importance, and possibly a broader cultural shift that values advisor–student interaction. Particularly noteworthy is the system's resilience following a dip in 2024, followed by a significant rebound in 2025. This pattern highlights the faculty's capacity for adaptive strategy refinement and underscores the importance of continuous quality assurance mechanisms that rely on feedback and data-driven evaluation to improve academic support services (Kayyali, 2023).

To support these improvements, the Faculty of Dentistry implemented a structured action plan centered on leadership commitment and accountability. Strong backing from the Dean and administrative leadership has played a crucial role in facilitating meaningful reforms, enabling academic advising to function more

effectively (Ashton-Hay and Chanock, 2023). The recognition of outstanding academic departments and department heads for their commitment to advising further incentivizes faculty involvement. The heads of department are encouraged to assign clear advising responsibilities and monitor faculty participation. Advisors who failed to conduct sessions in the previous academic year are urged to increase their engagement.

Nevertheless, the decline in advising KPIs in 2024 prompted a closer examination of systemic and student-level barriers. Several factors were identified: students' demanding academic schedules often limited their availability for advising sessions, while some students, particularly those who were shy or less cooperative, were reluctant to actively engage. The effectiveness of the Academic Guidance Unit was further constrained by limited counseling resources and persistent negative perceptions of academic advising. These factors hinder the unit's capacity to provide robust student support. Broader challenges, such as limited advisor availability, evolving student expectations, and a lack of awareness regarding the benefits of advising, may also play a role (Afzal et al., 2024).

The faculty has undertaken several strategic initiatives to address these issues. These include integrating advising sessions into student academic schedules, encouraging sex-inclusive participation, and implementing ongoing feedback loops to refine advising strategies based on student needs. Coordination with the Student Performance Committee ensured consistency in support efforts across the departments. However, cultural barriers remain significant hurdles. Several local studies have shown that Saudi students often prefer seeking help from peers or mental health professionals rather than academic advisors. For instance, pharmacy students are more likely to consult psychologists or friends, whereas dental students commonly turn to classmates for academic advice (Al-Ansari et al., 2015; Almanasef, 2021). Feelings of embarrassment or discomfort when approaching faculty members have been cited as contributing factors (Almaghaslah and Alsayari, 2022).

These local findings are consistent with broader regional challenges. Afzal et al. (2024), in a mixed-methods study conducted in Pakistan,

identified key barriers to effective advising such as high advisor-to-student ratios, insufficient advisor training, limited institutional resources, communication gaps, and diversity-related issues—all of which negatively impact advising outcomes (Afzal et al., 2024).

Despite these ongoing challenges, the long-term improvement in academic advising of KPIs at KAU's Faculty of Dentistry reaffirms the essential role of advising in student academic planning, persistence, and success. As higher education becomes increasingly complex, continued investment in inclusive, responsive, and well-supported advising systems remains critical for fostering student achievement and institutional effectiveness.

Sex and advising participation dynamics

A detailed analysis of the data revealed notable sex-based differences in academic advising participation at the KAUFU. In 2021, male students will exhibit slightly higher participation rates (49.59%) than female students (47.12%). However, this trend reversed in 2022, with female students consistently surpassing their male counterparts in advising engagement in subsequent years. By 2025, participation among sixth-year female students will reach an impressive 93%, compared to only 51% among sixth-year males. This shift is consistent with both local and international studies suggesting that female students are generally more likely to seek academic advising support (Lucas and Berkel, 2005; Al-Ansari et al., 2015).

KAUFU employs a sex-based advising model, wherein students are matched with advisors of the same sex. This practice is supported by research that indicates that sex concordance in advising relationships can positively influence outcomes. For example, Kato and Song (2022), using data from a university with randomized advisor–student pairings, found that female students performed better academically when paired with female advisors, highlighting the potential impact of gender dynamics on advising effectiveness (Kato and Song, 2022).

The consistently higher engagement among female students warrants a deeper exploration of the factors driving this trend. While female participation has grown steadily, the data also reveal signs of disengagement among male students, particularly sixth-year males, by 2022, suggesting unmet advising needs. This disparity calls for targeted interventions to improve male student engagement, including peer-mentoring initiatives, male-focused outreach programs, and sex-sensitive advisor training. Such measures can help ensure that all students, regardless of sex, have equal access to academic support.

Conversely, male students may face structural or cultural barriers that hinder their participation in advising. These may include the societal stigma associated with help-seeking behaviors, a greater inclination toward self-reliance, or potential advisor biases that underestimate male students' support needs. Addressing these challenges requires both institutional awareness and the adoption of inclusive advising strategies that account for the diverse needs and behaviors of the student population.

Advising participation progression through academic years

The data revealed year-to-year fluctuations in advising participation, with engagement generally increasing in the senior

years of the dental program, most notably among female students. In 2025, fifth- and sixth-year students reported the highest advising participation rates, ranging from 73 to 93%, with sixth-year females demonstrating the strongest levels of engagement. In contrast, students in the early years of the program exhibited significantly lower participation. This upward trend likely reflects the increasing academic and career-related pressures accompanying the program's progression, which in turn heighten the demand for personalized academic and professional guidance. This may also suggest an increased institutional focus on advising during the final years of study as students prepare for graduation or workforce entry.

These findings align with those of Swecker et al. (2013), who emphasized the vital role of academic advising during transitional phases in a student's educational journey, particularly the shift from coursework to professional practice or further education (Swecker et al., 2013). The observed stage-specific increase in advising engagement underscores the need for advising models that adapt to the evolving academic development and support requirements of students. However, an important implication emerges from these trends: Institutions should avoid concentrating advising resources exclusively for students nearing graduation. Early engagement is equally critical. Research has shown that early intervention can prevent attrition and foster a sense of belonging (Kuh et al., 2006). Implementing structured orientation programs, peer mentoring initiatives, and mandatory advising check-ins during the first and second years can help students build a strong foundation for academic planning and long-term success. These proactive strategies not only mitigate challenges before they escalate but also foster a culture of consistent and sustained advising engagement throughout the undergraduate experience.

Relationship between academic advising and student performance in 2024

This study also examined the relationship between academic advising and student achievement using data from the 2024 cohort, which was the most recent one available at the time of analysis. These findings indicated that students with higher GPAs were more likely to engage in advising sessions. High achievers (GPA > 4.0) attended more sessions than their lower-performing peers, and a statistically significant Pearson's correlation ($r = 0.22$, $p < 0.001$) confirmed this association. These results are consistent with prior research demonstrating the positive impact of academic advising on student performance and persistence (Jamaludin et al., 2021).

Among the academic years, sixth-year students attended most meetings, which may reflect greater advising needs or motivation among senior students approaching graduation (Zhang et al., 2019). It is worth noting that the average number of advising meetings was the highest among Grade A students and showed a progressive decline across lower-performing groups, Grade B, Grade C, and failed students, which further supports the association between advisor engagement and academic success and highlights a potential gap in support for underperforming students who may benefit the most from regular advising (Afzal et al., 2024).

While rising KPIs reflect improved advising participation, they should be interpreted as indicators of engagement rather than outcomes in themselves. The true value of academic advising lies in its capacity to influence meaningful student outcomes including academic

achievement, retention, and satisfaction. An extensive body of literature supports this perspective. [Kuh et al. \(2006\)](#) emphasized the role of advising in promoting persistence and academic success, particularly among underprepared students ([Kuh et al., 2006](#)). [Chiteng Kot \(2014\)](#) found that first-year students who engaged in advising achieved higher GPAs and were more likely to persist, with female and minority students benefiting most ([Chiteng Kot, 2014](#)). Similarly, [Fricker \(2015\)](#) linked effective advising to improving academic performance, motivation, and goal setting ([Fricker, 2015](#)). [DeRosa \(2023\)](#) further emphasized the value of advising in fostering a sense of validation and belonging, particularly among marginalized students, thereby indirectly enhancing academic success ([DeRosa, 2023](#)).

In the Saudi context, [Awadh \(2018\)](#) reported that high-quality advising characterized by accessibility, clarity, and personalized support, positively influences student satisfaction and academic integration ([Awadh, 2018](#)). Moreover, [Al-Dossary \(2008\)](#) and [Al-Nory \(2012\)](#) identified gaps in advising services and linked weak academic support structures to adverse student outcomes such as low GPA, reduced persistence, and delayed graduation ([Al-Dossary, 2008](#); [Al-Nory, 2012](#)). These findings collectively reinforce the necessity for well-structured and responsive academic advising systems to meet the diverse and evolving needs of students throughout their academic journey.

Complexities revealed by regression analysis

Although advising meetings are generally associated with higher student GPAs, the adjusted odds ratio (AOR = 0.56) revealed a negative association between meeting frequency and high academic achievement, introducing a notable nuance. This inverse relationship suggests that students with lower academic performance attend advising sessions more frequently, likely because of faculty referrals or a greater need for remedial support. These findings underscore the limitations of a reactive advising model in which support is offered primarily after academic difficulties arise.

Instead, the data highlight the importance of a proactive, developmental advising approach emphasizing early identification of at-risk students, personalized interventions, and continuous academic support throughout the educational journey.

Furthermore, the strong positive associations between female sex (AOR = 6.68), senior academic standing (AOR = 5.31), and high academic achievement indicate the influence of demographic and academic progression factors on student success. These findings suggest that advising strategies should be sensitive to sex-based learning dynamics and offer targeted support for the underclassmen, thereby fostering early academic development and promoting greater educational equity across student population ([Nemeth, 2017](#)).

Student perceptions and satisfaction trends

Between 2021 and 2025, student satisfaction with the academic advising system at the KAUFU steadily increased, with average ratings rising from 4.4 to 4.8 out of 5. This upward trend reflects growing trust in the advising process and likely corresponds to improvements in advisor accessibility, professional development, and responsiveness to students' needs. Notably, satisfaction ratings showed near parity

between sexes, indicating the effectiveness of inclusive advising practices. These positive developments underscore the importance of ongoing investments in advisor training and structured feedback mechanisms to sustain and enhance advising quality.

Interestingly, these findings contrast with those of a cross-sectional study conducted at the University of Dammam, where 66.2% of dental students consulted their academic advisors, yet only 17.2% expressed satisfaction with the advising system ([Al-Ansari et al., 2015](#)). In contrast, our results align with those of [Kannan et al. \(2023\)](#), who reported more favorable perceptions of academic advising among health sciences students in Saudi Arabia ([Al-Ansari et al., 2015](#)). They observed that advising positively influenced course planning and GPA improvement, with satisfaction most strongly linked to advisor availability, subject matter expertise, and supportive interpersonal qualities, particularly among nursing students and male participants. However, the most effective advising practices may encourage students to take actions that do not necessarily correspond with conventional KPIs. Effective advising does not always lead to good grades, re-enrollment, and completion.

Similar findings were reported by [Alshuaybat's \(2021\)](#) in Jordanian universities, which identified key drivers of student satisfaction, including advisor accessibility, communication skills, quality of academic guidance, and a clear understanding of institutional policies and regulations ([Alshuaybat, 2021](#)). Students reported significantly higher satisfaction when advisors were approachable, responsive, and well informed.

[Edujee and Michaud \(2014\)](#) further emphasized the centrality of advisor availability and effective communication in shaping students' advising experiences ([Edujee and Michaud, 2014](#)). Supporting this, [Alsabhan et al. \(2025\)](#), in a study at King Saud University, found that perceptions of advising effectiveness varied across colleges and were strongly influenced by advisor engagement and proactivity ([Alsabhan et al., 2025](#)).

[Awadh \(2018\)](#) demonstrated that high-quality academic advising is closely associated with improved academic performance, student satisfaction, and more clearly defined academic goals among Saudi university students ([Awadh, 2018](#)). This study called for enhanced advisor training and strengthened institutional infrastructure to support advising excellence.

At KAUFU, qualitative feedback from faculty and students aligns with these broader findings. Faculty members frequently commend academic advising units for their dedication, expertise, and role in supporting their students' academic and career development. Similarly, students expressed appreciation for the guidance they received in course selection, academic planning, and addressing academic challenges.

This shared positive perception underscores the growing recognition of academic advising as a critical contributor to student success and reinforces the importance of ongoing evaluation and continuous improvement in advising practices to meet the evolving academic and developmental needs of the student body effectively.

Strengths and limitations

This retrospective analysis of the academic advising system of the KAUFU offers several strengths. The 5-year longitudinal dataset provides

a robust foundation for evaluating trends in KPIs, student engagement, and advising outcomes. Importantly, it presents empirical support for the association between advising participation and improved academic performance, particularly with regard to GPA trends. The study also identifies significant shifts in sex-based engagement and year-level advising patterns, offering practical insights into institutional decision making.

However, this study had several limitations. First, the observational design limits causal interpretation as motivated students may self-select to advise and skew the relationship with academic success. Second, while the KPIs track participation, this study did not assess outcomes such as graduation rates, career placement, well-being, or external factors such as socioeconomic status or post-pandemic disruptions. Third, the study lacked data on advising quality and content, including session type, intensity, and advisor training factors, which are critical to advising effectiveness. Effective advising can occur in interactions that may not be highly satisfying, and the frequency of advising does not necessarily align with key performance indicators (KPIs). Finally, as the sample was limited to dental students at a single institution, generalizability is restricted owing to variations in academic culture and student populations across disciplines and universities.

Recommendations for future research

To deepen our understanding of advising effectiveness, future research should employ longitudinal multi-institutional studies exploring outcomes across diverse academic and cultural settings. Qualitative methods such as student and advisor interviews or focus groups can provide deeper insights into the relational and behavioral mechanisms that drive effective advising. Additionally, evaluating the integration of digital advising platforms, especially in post-pandemic contexts, may offer new strategies to enhance support in both traditional and virtual learning environments.

Conclusion

This 5-year retrospective analysis of the academic advising system at the Faculty of Dentistry, King Abdulaziz University, revealed steady improvements in student engagement, academic outcomes, and advising effectiveness. Increased participation, particularly among senior and female students, correlated with higher academic performance and greater satisfaction with the system. Key indicators, such as advising frequency and satisfaction ratings, showed marked improvements, reflecting enhanced advisor accessibility and training. However, disparities in engagement, particularly among males and lower-performing students, highlight the need for more inclusive and targeted advising strategies.

Data availability statement

Data is available upon reasonable request for the authors.

Ethics statement

The studies involving humans were approved by ethical approval was obtained from the King Abdulaziz University

Ethical Committee and initial institutional approval was granted by the College of Dentistry (Approval number: Rec-08-01-25). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

KB: Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. SA-A: Conceptualization, Methodology, Writing – original draft, Writing – review & editing.

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Conflict of interest

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.

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