



Employment Opportunities, Latency, and Satisfaction among KAUFU Graduates

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Abstract:

Introduction: With the expansion in dental education in the Kingdom of Saudi Arabia and the increased number of graduating dentists, the current marketplace has become less accommodating, leaving several dental graduates unemployed.

Objectives: This study aimed to estimate the latency of getting the first job among graduates of King AbdulAziz University Faculty of Dentistry (KAUFU) and to assess the factors that may influence the latency of getting the first job, to evaluate the financial and professional satisfaction of the first job, and to determine the sectors that provide the highest number of employment opportunities.

Methods: A 20-item self-administered questionnaire was developed, and face validity was confirmed. The questionnaire was populated using Google Survey Forms[®] and distributed between December 2022 and January 2023 to all dentists who graduated from KAUFU in 2019, 2020, and 2021.

Results: A total of 100 respondents undertook the questionnaire, of which 55% were females. The majority of respondents were in the age range of 25 to 27 years old. Fifty-six percent of the respondents managed to secure their first job by the time this questionnaire was undertaken and 42% reported getting their jobs within the first year after graduation. There was no influence of gender, graduation Grade Point Average (GPA), and Saudi Dental License Exam (SDLE) scores on job opportunities ($p=0.21$, 0.418 , and 0.606 , respectively) or latency for getting the first job ($p=0.654$, $p=0.745$, and 0.374 , respectively). Almost half of the job opportunities were provided by the private sector. Of the respondents, 46% reported a lack of financial satisfaction, while 37% reported a lack of professional satisfaction.

Conclusion: A significant number of new KAUFU graduates are encountering difficulties in getting their first job. Only half of the graduates managed to secure a job within the first year after graduation. Age, GPA, and SDLE scores had no influence on job opportunities. Capitalization of the private sector/enterprises is the future direction. Further studies are needed from other dental institutions.

Keywords: Employment, Job opportunity, Dental graduates, Latency, Job satisfaction.

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1. INTRODUCTION

Dentistry is a highly developed profession that focuses, first and foremost, on supporting patients' needs while providing optimal quality oral care [1, 2]. Dental schools strive to provide rigorous training programs to ensure the readiness of their graduates to provide optimal oral care and fulfill societal demands. Governing bodies implement standardized licensing requirements to guarantee the ability of providers to deliver safe and efficacious oral care [3, 4].

In the Kingdom of Saudi Arabia (KSA), the healthcare system is consistently prioritized with an enormous annually allotted budget [5, 6]. Every year, approximately 6%-7% of the total national budget is allocated for the health sector, including dentistry, to provide healthcare services and create more healthcare job opportunities [5]. Moreover, dental schools across KSA graduate a significant number of adequately trained dentists who, alongside expatriate dentists, diligently work to cover societal demands. In 2016, a total of 16,887 licensed dentists were registered with the Saudi Commission for Health Specialties (SCFHS), the governing body for licensing healthcare providers [7, 8]. Recent statistics by Al-Qahtani *et al.* [9] showed that, as of 2020, the dentist-to-population ratio in KSA has reached 1:1288, which, compared to international standards, has reached an oversaturation. Consequently, the local marketplace has become less accommodating, leaving several unemployed young dental graduates or forcing them to cave into a suboptimal job within or outside the field of dentistry [10].

Securing a satisfactory career provides a positive emotional position that grants a feeling of happiness and satisfaction [11, 12]. Dentists' satisfaction with their personal profession can very much affect their production and, hence, enhance their standard of life alongside their general feeling of contentment [12, 13]. This may positively improve the standard of care made available to patients and provide a better benefit to the overall population [14].

Therefore, the main aim of this investigation was to estimate the latency for getting the first job among new graduates of KAUFU and investigate some of the potentially influencing professional parameters. The secondary aims were to identify the sectors that offer the highest number of first-job opportunities and to assess the level of satisfaction of KAUFU graduates with these first jobs.

2. METHODS

2.1. Ethical Considerations and Participants' Consenting

This study was reviewed and approved by the King Abdulaziz University Faculty of Dentistry (KAUFU) Research Ethics Committee in compliance with the Declaration of Helsinki [15] (ethical approval number: #024-01-23). A cover letter outlining the study objectives and assuring respondents regarding the confidentiality of their answers was shared with all potential participants

prior to undertaking the questionnaire. Participants were made aware that participation is voluntary and they can withdraw at any point before completing the questionnaire. All participants provided their written consent before accessing the questionnaire. The Google Form settings were modified to ensure respondents' privacy by disabling the collection of emails and IP addresses.

2.2. Study Design

A Self-administered questionnaire was constructed using Google Survey Forms[®]. The questionnaire contained 20 items, most of which were multiple choice answers inquiring about demographic data (*i.e.*, age, gender, current city of residence, and year of graduation), professional parameters (*i.e.*, graduation grade point average (GPA), and Saudi Dental License Exam (SDLE) scores), current employment status, latency in getting the first job since graduation, sector and geographic location of the first job, application/acceptance into a postgraduate program, adherence to dentistry (*i.e.*, getting a job within or outside dentistry), monthly income (*i.e.*, the existence of a stable income and amount), levels of professional and financial satisfaction. At the end of the questionnaire, one open-ended question was included to inquire about any feelings of regrets about pursuing dentistry as a career and, if so, what alternative fields would have been chosen in retrospect.

2.3. Face Validity Testing

Three new KAUFU dental graduates who were not participating in the study were chosen to assess the questionnaire's face validity prior to study initiation. All provided their written feedback regarding the clarity and readability of the questionnaire. Comments concerning ambiguity, lack of relevance, or difficulty understanding the questions were addressed to ensure the face validity of the questionnaire [16].

2.4. Sample Size and Study Technique

All dentists who graduated from KAUFU in 2019, 2020, and 2021 were invited, *via* their KAU alumni emails and WhatsApp Messenger[®], to complete an online questionnaire between December 2022 and January 2023. The questionnaire included a brief introduction about the study team, goals, and time required for completion. A reminder was sent within two weeks after the initial reach-out to encourage/remind participants who did not fill out the questionnaire. Data was automatically transferred from Google Forms to an encrypted digital online Excel spreadsheet that is password-protected.

2.5. Participant Inclusion and Exclusion Criteria

Inclusion criteria included: 1) dentists that graduated from KAUFU in the years 2019, 2020, and 2021; 2) willingness to voluntarily participate in the questionnaire and sign the questionnaire consent form before starting. Participation in the face validity testing was the only criterion for exclusion.

2.6. Statistical Analysis

Descriptive statistics (*i.e.*, counts and percentages for nominal and ordinal variables, medians, and interquartile ranges for ordinal variables) were calculated for each question and stratified by year of graduation, gender, GPA, and SDLE scores. For nominal variables, differences between graduates (*i.e.*, year of graduation, gender, GPA, and SDLE scores) were determined by Chi-square analysis. *P*-values under 0.05 were regarded as statistically significant. SAS version 9.4 and SPSS® version 22 were used for analysis.

3. RESULTS

3.1. Demographic Characteristics

A total of 376 KAUFU graduates were invited to participate, of which 100 respondents undertook and

completed the questionnaire. Fifty-five percent of the respondents were females. The majority of participants were aged 25-, 26-, and 27-year-olds (27%, 26%, and 29%, respectively), while only 18% were 28- and 29-year-olds. Most of the respondents resided in the city of Jeddah (93%), and only 7% lived in other cities around the Kingdom. Fifty-three percent of the study respondents graduated from KAUFU in the year 2021, 30% in the year 2020, and 17% in the year 2019. Table 1 depicts the demographic data of the study participants.

3.2. Professional Parameters and Application to Post-graduate Programs

Eighty percent of the respondents reported a graduation GPA of 4 or higher out of 5, while 20% had a GPA of less than 3.99. Interestingly, 99% of the respondents had their Saudi Dental License by the time

Table 1. Influence of gender on professional parameters, job opportunities, acceptance in postgraduate programs, job latency, income, financial and professional satisfaction.

Study Variables		Gender		Total n=100	P value
		Male n=45	Female n=55		
Average SDLE score	86-90	1	3	4	0.034
	80-85	8	24	32	
	76-79	17	17	34	
	70-75	12	7	19	
	<70	7	3	10	
	Didn't take the exam	0	1	1	-
GPA*	4-4.99	28	52	80	<0.001
	3-3.99	17	3	20	
Applied for any postgraduate program	No	13	13	26	0.551
	Yes	32	42	74	
Accepted to postgraduate program	No	39	40	79	0.208
	Accepted after 1st attempt	1	4	5	
	Accepted after 2 nd attempt	5	8	13	
	Accepted at 3 rd attempt	0	3	3	
Currently employed	No	25	33	58	0.654
	Yes	20	22	42	
Latency for getting the first job	0-6months	16	10	26	0.21
	7 months -1yearr	5	12	17	
	2-3 years	4	8	12	
	4-5 years	2	0	2	
	Still unemployed & looking for a job	14	19	33	
	Didn't search	4	6	10	
Monthly income range	<5k SR	18	9	27	0.042
	5k-10k SR	5	4	9	
	10k-15k SR	2	2	4	
	>15k SR	3	11	14	
	Does not have a job	17	29	46	-
financial satisfaction	No	31	15	46	<0.001
	Yes	3	13	16	
	Not currently employed or decided not to answer	11	27	38	
Professional satisfaction	No	23	14	37	0.030
	Yes	8	15	23	
	Not currently employed or decided not to answer	14	26	40	

Note: *GPA is graduation grade point average.

they responded to the questionnaire. The SDLE scores ranged between 80 to 90 out of 100 in 36% of the respondents, 70 to 79 in 53%, and less than 70 in 10%.

When inquiring about application attempts for post-graduate training programs, 74% of the respondents reported applying at least once. Of those who applied, 28.4% got accepted (n=21) [5 got accepted after the 1st attempt, 13 got accepted after the 2nd attempt, and only 3 got accepted after the 3rd attempt]. Table 1 depicts the professional parameters data of the study participants.

3.3. Employment Status, Latency, Location, and Sector

Overall, 57 of the respondents (57%) reported getting their first job between their graduation and the time of undertaking this questionnaire. Of those, 15 respondents reported that although they did get a job, they could not retain those jobs and were jobless at the time this questionnaire was undertaken. Upon inquiring about the current employment status, 58 (58%) reported being unemployed, while 42 (42%) were actually employed at the time this questionnaire was undertaken. It is worth mentioning that 10% of the respondents did not actually seek jobs after graduation. Regarding the latency of getting the 1st job after graduation (whether retained or not at the time the questionnaire was undertaken), 43 got their jobs within the 1st year after graduation (26 within the first 6 months after graduation), 9 got their jobs within the 2nd year, while 5 had to wait 3 years or more to get their first job.

Out of all respondents, 53 (53%) reported working in the field of dentistry (*please note that 42 were actually employed while 11 were residents or trainees*). Among those, 45 (84.9%) reported working or receiving their post-graduate training in the city of Jeddah, while 8/53 (15.1%) worked in other cities. Based on all responses, 48/100 provided information regarding the sector of their employment (42 had secured jobs, and 6 were residents/trainees). Twenty-three out of the 48 respondents worked in the private sector (47.9%), 12 worked in the Ministry of Health (MOH) hospitals and centers (25%), 9 worked in public academic institutions (18.8%), and 4 worked in military healthcare centers (8.3%). Interestingly, 46 (46%) respondents reported working in fields other than dentistry at a certain point after their graduation, of which 6 (13%) reported working 2 jobs simultaneously, one within and one outside dentistry. Of the 30 respondents who provided further details regarding their non-dental jobs, 21 (70%) reported working in the private sector, while 9 (30%) worked for the government.

The job titles held by the questionnaire respondents varied, with the majority (55%) reporting having no job title, 23% had a "General Dentist" title, 6% were "Residents", and 16% were referred to with other titles.

3.4. Financial, Professional, and Working Environment Satisfaction

A total of 66 respondents reported not having a stable source of income. Looking at the monthly income range at

the time the questionnaire was undertaken, 46% of the study respondents reported no current source of income, 26% earned less than 5K Saudi Riyals (SAR), 13% earned what ranges between 5K and 15K SAR, and 14% earned more than 15K SAR per month. Only 16 out of 100 respondents indicated their satisfaction with their income, while 46 respondents were not satisfied. Additionally, 38 of the respondents did not provide information regarding income satisfaction either because they did not have a source of income or due to their preference not to disclose this information. When inquired about professional satisfaction, only 23 out of the 100 respondents reported being satisfied, while the remainder expressed their dissatisfaction or reported not being currently employed.

3.5. What Other Fields would have been Chosen in Retrospect?

When asked about choosing another field, retrospectively, 38% of respondents were happy as dentists and would choose dentistry again if time went back. On the other hand, 12% hoped they would choose a business, 12% hoped they would study medicine, 13% opted for engineering, and 10% chose other fields such as law, education, aviation, and culinary art.

3.6. Factors Influencing Job Opportunities and Acceptance in Post-graduate Training Programs

3.6.1. Gender

Overall, the comparative analysis demonstrated a statistically significant gender influence on the respondents' GPA, where 94.5% (n=52) of the female respondents *versus* 62.2% (n=28) of the male respondents got a GPA that ranged between higher than 4 ($p<0.001$). Additionally, females had significantly higher SDLE scores compared to males (45.5% (n=25) of females *versus* 20% (n=9) of males who scored above 80 out of 100; $p=0.034$). Regarding post-graduate training programs, there was no significant difference in the proportion of males *versus* females applying ($p=0.551$) and/or getting accepted ($p=0.208$) in post-graduate programs. Moreover, neither the current employment status nor the latency of getting the first job differed among the two genders ($p=0.21$ and $p=0.654$, respectively). Interestingly, female respondents reported making higher incomes than males, with 20% of female respondents *versus* only 6.7% of male respondents earning more than 15K SR per month ($p=0.042$). Consequently, a higher proportion of males reported dissatisfaction with their financial and professional life in comparison with their female counterparts (*i.e.*, 68.9% and 51.1% of males *versus* 27.3% and 25.5% of females; $p<0.001$ and $p=0.03$, respectively). Table 1 depicts the details pertaining to the influence of gender on professional parameters, job opportunities, acceptance in postgraduate programs, job latency, income, and financial, and professional satisfaction.

*Of note, there were only 3 respondents in this category which is insufficient to generalize results or draw conclusions.

3.6.2. GPA and SDLE Scores

Comparative analysis demonstrated a statistically significant influence of the respondents' GPA on their SDLE scores, where those with a GPA ranging from 4-4.99 had significantly higher SDLE scores (*i.e.*, 76 and above; $p < 0.001$). There was also a significantly higher proportion of those with higher GPAs (*i.e.*, 4-4.99) applying to post-graduate training programs compared to respondents with lower GPAs (*i.e.*, 3-3.99; $p = 0.03$). However, the rate of acceptance to post-graduate training programs did not statistically differ between the two groups ($p = 0.186$). Moreover, neither the current employment status nor the latency of getting the first job differed between those with higher *versus* lower GPAs ($p = 0.418$ and $p = 0.745$, respectively). GPA also had no influence on income,

financial satisfaction, or professional satisfaction among those with high *versus* low GPAs ($p = 0.271$, $p = 0.498$, and $p = 0.634$, respectively). Table 2 depicts the details pertaining to the influence of GPA on professional parameters, job opportunities, acceptance in postgraduate programs, job latency, income, and financial/professional satisfaction.

Data also showed that higher SDLE scores were associated with better chances of getting accepted into a postgraduate training program (25% of those with SDLE scores ranging between 86-90%* (1/4) and 59.4% of those with SDLE scores ranging between 80-85% (19/32) got accepted in postgraduate training programs; $p = 0.018$). However, no statistically significant influence of SDLE scores on job opportunities ($p = 0.606$) or the latency of getting the first job ($p = 0.374$) was depicted. (Table 3).

Table 2. Possible influence of GPA on professional parameters, job opportunities, acceptance in postgraduate programs, job latency, income, financial and professional satisfactions.

Study Variables		*GPA		Total n=100	P value
		Range 4-4.99 (n=80)	Range 3-3.99 (n=20)		
Average SDLE* score	86-90	4	0	4	<0.001
	80-85	30	2	32	
	76-79	34	0	34	
	70-75	10	9	19	
	<70	2	8	10	
	Didn't take the exam	0	1	1	
Gender	Male	28	17	45	<0.001
	Female	52	3	55	
Applied for any postgraduate program	No	17	9	26	0.03
	Yes	63	11	74	
Accepted to postgraduate program	No	60	19	79	0.186
	Accepted at 1 st attempt	4	1	5	
	Accepted at 2 nd attempt	13	0	13	
	Accepted at 3 rd attempt	3	0	3	
Currently employed	No	48	10	58	0.418
	Yes	32	10	42	
Latency for getting the first job	0-6months	18	8	26	0.745
	7 months -1yearr	14	3	17	
	2-3 years	11	1	12	
	4-5 years	2	0	2	
	Still unemployed & looking for a job	26	7	33	
	Didn't search	9	1	10	
Monthly income range	<5k SR	20	7	27	0.271
	5k-10k SR	6	3	9	
	10k-15k SR	3	1	4	
	>15k SR	14	0	14	
financial satisfaction	Does not have a job	37	9	46	-
	No	34	12	46	
	Yes	14	2	16	
Professional satisfaction	Not currently employed or decided not to answer	2	0	2	0.498
	No	29	8	37	
	Yes	20	3	23	
Professional satisfaction	Not currently employed or decided not to answer	31	9	40	0.634

Note: *GPA is graduation grade point average, **SDLE is Saudi Dental License Exam.

Table 3. Possible influence of SDLE scores on professional parameters, job opportunities, acceptance in postgraduate programs, job latency, income, financial and professional satisfactions.

Study Variables		Average SDLE* Scores						Total (n=100)	P value
		86-90 (n=4)	80-85 (n=32)	76-79 (n=34)	70-75 (n=19)	<70 (n=10)	Didn't take the exam (n=1)		
Accepted to postgraduate program	No	3	19	27	19	10	1	79	0.018
	Accepted at 1 st attempt	0	3	2	0	0	0	5	
	Accepted at 2 nd attempt	0	10	3	0	0	0	13	
	Accepted at 3 rd attempt	1	0	2	0	0	0	3	
Currently employed	No	3	15	21	11	7	1	58	0.606
	Yes	1	17	13	8	3	0	42	
Latency for getting the first job	0-6months	1	7	8	8	2	0	26	0.374
	7 months -1yearr	0	8	5	1	2	1	17	
	2-3 years	1	6	4	1	0	0	12	
	4-5 years	0	1	0	1	0	0	2	
	Still unemployed & looking for a job	2	9	11	6	5	0	33	
	Didn't search	0	1	6	2	1	0	-	-

Note: *Saudi Dental Licensing Exam.

3.6.3. Year of Graduation

With the COVID-19 pandemic happening during or around the graduation of the respondents, the influence of the year of graduation was assessed. It is worth mentioning that in KSA, all dentists undergo a full year of mandatory general practice right after their graduation in order to receive their dental license and be able to start a job in the field legally or enroll in post-graduate studies. Data showed no influence of the year of graduation on the respondents' GPA or their SDLE scores ($p=0.07$ and $p=0.795$, respectively). Interestingly, the proportion of those who graduated during the peak of the pandemic (i.e., 2020) was the highest in terms of applying to post-

graduate training programs (90% for graduates of 2020 and 82% for 2019 versus 62% for 2021; $p= 0.015$). Similarly, a higher proportion of those who graduated in both 2019 and 2020 were accepted to post-graduate programs compared to 2021 graduates ($p<0.001$). It seems that the more time elapsed since graduation, the higher the number of respondents reported having current jobs with higher income and higher levels of satisfaction compared to those who recently graduated ($p<0.001$). Table 4 details the influence of the year of graduation on professional parameters, job opportunities, acceptance in postgraduate programs, job latency, income, financial, and professional satisfaction.

Table 4. Possible influence of the year of graduation on professional parameters, job opportunities, acceptance in postgraduate programs, job latency, income, financial and professional satisfactions.

Study Variables		Year of Graduation			Total (n=100)	P value
		2019 (n=17)	2020*** (n=30)	2021 (n=53)		
Average SDLE** score	86-90	1	1	2	4	0.795
	80-85	8	7	17	32	
	76-79	6	12	16	34	
	70-75	2	6	11	19	
	<70	0	4	6	10	
	Didn't take the exam	0	0	1	1	
GPA*	4-4.99	17	22	41	80	0.070
	3-3.99	0	8	12	20	
Applied for any postgraduate program	No	3	3	20	26	0.015
	Yes	14	27	33	74	
Accepted to postgraduate program	No	7	22	50	79	<0.001
	Accepted at 1 st attempt	2	1	2	5	
	Accepted at 2 nd attempt	6	6	1	13	
	Accepted at 3 rd attempt	2	1	0	3	

(Table 6) contd....

Study Variables		Year of Graduation			Total (n=100)	P value
		2019 (n=17)	2020*** (n=30)	2021 (n=53)		
Currently employed	No	5	10	43	58	<0.001
	Yes	12	20	10	42	
Latency for getting the first job	0-6months	1	16	9	26	<0.001
	7 months -1yearr	5	7	5	17	
	2-3 years	8	2	2	12	
	4-5 years	2	0	0	2	
	Still unemployed & looking for a job	0	4	29	33	
	Didn't search	1	1	8	10	
Monthly income range	<5k SR	5	16	6	27	<0.001
	5k-10k SR	0	3	6	9	
	10k-15k SR	2	1	1	4	
	>15k SR	7	6	1	14	
	Does not have a job	3	4	39	46	-
financial satisfaction	No	9	21	16	46	<0.001
	Yes	5	7	4	16	
	Not currently employed or decided not to answer	3	2	33	38	
Professional satisfaction	No	7	16	14	37	<0.001
	Yes	8	11	4	23	
	Not currently employed or decided not to answer	2	3	35	40	

Note: *GPA is graduation grade point average, **SDLE is Saudi Dental License Exam, ***Graduated during peak of the COVID-19 pandemic.

4. DISCUSSION

The Kingdom of Saudi Arabia has instated the 2030 vision aiming for significant and transformational societal, economic, and technological advancement and diversification [17]. Within the aforementioned aims lay striding efforts to support entrepreneurship, open employment opportunities, and empower the workforce in the kingdom. This forward movement is accompanied by population growth and societal modernization that increase the demand for services in many aspects of urban life, including healthcare. Dentistry is certainly not an exception, and the demand for more and better dental services, coinciding with the recent urbanization, is currently witnessed in a fashion comparable to other countries [18]. Over the past three decades, the kingdom has experienced an unprecedented advancement in dental education with the establishment of several new public and private dental schools [19, 20]. The number of schools has grown from 2 schools (King Saud University College of Dentistry, founded in 1975, and King AbdulAziz University Faculty of Dentistry, founded in 1985) to a total of 24 dental schools in the year 2018 [21].

With the increased number of dental graduates, the dentist-to-patient ratio has gone from 1:8906 in the year 1987 [22] to 1:1288 in 2022 [9]. When compared with the international standards, the dentist-to-population ratio in European countries ranges from 1:1,972 to 1:1,422 [23, 24], and 1:1,1645.5 in the United States [25]. This puts the dental profession in KSA in a state of market saturation and partially explains the difficulties young dental graduates are encountering in their search for jobs [23, 26].

To gain a better understanding of the current dental employment situation, this investigation attempted to estimate the latency for getting the first job among graduates of KAUFD, which is one of the oldest and biggest dental schools in KSA, and understand some of the graduates' professional parameters that may influence latency. The self-administered questionnaire yielded a 26.6% response rate with slightly more female respondents (*i.e.*, 55%) compared to males. Overall, 56% of all respondents reported getting their first job between the time of their graduation and the time the questionnaire was undertaken, but only 42% of them reported being employed at the time the questionnaire was undertaken (14% didn't retain their job for a long time). The majority of those first job opportunities (75%) were secured within the first year after graduation (46.4% of the jobs were secured within the first 6 months and 28.6% within the second 6 months), concluding that longer latency is adversely associated with the chance of getting a job. It is worth mentioning that 10% of the respondents did not actually seek jobs after graduation. Unfortunately, the questionnaire did not inquire about the reasons behind that; however, it is speculated that the lack of a job search is tied to the shift to freelancing outside the field of dentistry or the interest in joining post-graduate studies immediately after graduation. In a study by Al-Dlaigan *et al.*, approximately half of the dental graduates perused post-graduate training, and many opted for immediate enrollment in the training program right after their graduation [27]. A similar study in the United Arab Emirates reported the preference of dental professionals to specialize in clinical fields, especially orthodontics, endodontics, and oral surgery [28].

Our data demonstrated that the private sector was the provider for almost half of the first job opportunities, while the MOH provided one-fourth of the jobs. This reflects a shift from the statistics captured in 2016, where 66% of the licensed Saudi dentists worked in the public sector [8]. It is also worth mentioning that approximately half of the respondents reported working in fields outside of dentistry at certain points after their graduation, whether as a stand-alone job or simultaneously with their job in dentistry. Of interest, the private sector was again the source of the majority of non-dental jobs. This data provides insights regarding the future employment direction and that more emphasis should be directed toward the private sector. Opening job opportunities should not only be limited to getting employed but may expand to tackle entrepreneurship. This insight may push the young, talented professional to invent new opportunities that are directly or indirectly connected to the field of dentistry, such as dental technologies/artificial intelligence, dental insurance/economics, dental marketing, social media advertisements/awareness, dental bridging with other fields of healthcare including medicine and pharmaceuticals [8, 29].

In terms of income, 46 out of the 100 respondents reported having no source of income. Among the 54 with an existing source of income, almost half of them reported a monthly income of less than 5000 Saudi Riyals (SAR), which translated to the financial dissatisfaction reported by a majority of the respondents. This finding requires further investigation to uncover the sources and reasons for the lower wages. It also highlighted the lack of compliance of the employers regarding the minimum wage of 7000 SAR mandated by the Ministerial Decree of the Ministry of Human Resources and Social Development issued on October 12th, 2021, and came into force on April 11th, 2022 [30].

Moreover, professional dissatisfaction was reported by half of the respondents who were employed at the time this questionnaire was undertaken. The expression of approximately half of the respondents regarding their retrospective choices for careers other than dentistry was another interesting finding uncovered by this questionnaire. Job satisfaction is defined as “a cheerful or upbeat emotive mood emerging from a review of one's employment or professional experiences”. [31] This satisfaction is linked to improved habits and performance at the workplace in addition to positive effects on a person's mental and physical health [32-35]. Worldwide, the dental workforce is confronting major educational, practice, and policy transformations, leading to a significant shift in the nature of the profession. Societal and economic changes are other factors adding extra challenges to dental professionals and compromising their workplace satisfaction [36-38]. The lack of professional satisfaction reported in this study should be further investigated in future projects. Identifying and ameliorating major sources of professional dissatisfaction are crucial for boosting workforce motivation and enhancing dental provider well-being [39].

4.1. Influence of Demographic Characteristics and Professional Parameters

Comparative analysis was performed to uncover the influence of demographic characteristics and professional parameters on the latency for getting the first job among KAUFU graduates. Significant gender influence on professional parameters was detected, with females obtaining higher GPAs and SDLE scores compared to males. However, no difference in the proportion of males *versus* females applying and/or getting accepted into post-graduate training programs. Neither the current employment status nor the latency of getting the first job differed between the two genders. Of interest, female respondents made higher incomes compared to their male counterparts and reported higher levels of satisfaction both financially and professionally.

The analysis also demonstrated that, regardless of gender, higher GPAs were associated with higher SDLE scores and a higher number of applications to post-graduate training programs. However, neither the rate of acceptance to post-graduate training programs nor the current employment status or the latency of getting the first job differed between those with higher *versus* lower GPAs. Additionally, GPAs had no influence on income or financial/professional satisfaction.

Furthermore, the data showed no influence of the year of graduation (*i.e.*, 2019, 2020, 2021) on the respondents' GPA or SDLE scores. Interestingly, the proportion of those who graduated during the peak of the COVID-19 pandemic (*i.e.*, 2019 and 2020) was the highest in terms of applying and getting accepted to post-graduate training programs. Respondents who graduated in 2019 reported having current jobs with higher income and higher levels of satisfaction compared with those who recently graduated (*i.e.*, 2021).

4.2. Suggested Solutions

1. Further emphasis on opportunities within the private sector and capitalization on dentistry-related entrepreneurship and private enterprises seems to be a promising direction. Dental schools should equip their graduates with the necessary preparation to tackle the current marketplace and expand beyond the conventional practice of dentistry.

2. The Ministry of Human Resources and Social Development may be petitioned to look into the issue of employment latency and come up with a mitigation plan for the current situation. Additionally, the issue of substandard wages must be investigated and addressed. Minimum wages for dentists, per Ministerial Decrees, should be enforced.

3. A nationwide study should be initiated to ensure that the population growth rate in KSA is proportionate to the growth in the number of licensed/practicing dentists. These statistics can give a projection for the future demand for the dental workforce in KSA, which dental schools may rely on to provide a coinciding number of graduates without oversaturating the market.

4. Improving career advisory: From the beginning of a student's dental education, dental schools should offer comprehensive career assistance and counseling services. This can include career counselors who can help students explore various career pathways and offer advice on job search tactics *via* workshops, seminars, and one-on-one meetings.

5. Regularly conduct market research and analysis to spot growing specialties and high-demand areas in the dentistry business, as well as present and future trends.

6. Encourage the exchange of knowledge about license qualifications and professional regulations, as well as raise awareness of employment opportunities across diverse geographic areas.

CONCLUSION

The current population and economic growth in the KSA have yielded significant educational and professional advancement, with dentistry being no exception. However, the recent market saturation may have created difficulties in securing dental employment opportunities. The private sector seems to be the provider of the majority of job opportunities within and outside the field of dentistry. Approximately half of the respondents to this investigation managed to secure their first jobs, and about half of them got their jobs within the first year after graduation. Consequently, this compromised the financial and professional satisfaction of young dental graduates of KAUFU. Since internal demographics (*i.e.*, gender and year of graduation) and professional parameters (GPAs, and SDLE scores) have no influence on employment status and latency for getting the first job, external parameters, including the overall shift of the KSA to the private sector and capitalizing of private enterprises is worth exploring.

LIMITATIONS OF THE STUDY AND FUTURE DIRECTIONS

With self-administered questionnaires, the data is highly subjective and prone to personal biases. Higher chances of receiving responses from those who are not employed or not satisfied with their current employment are most likely since the core of the investigation pertains to their concerns. This may skew the questionnaire responses and the findings of the study. Moreover, the study was limited to graduates of KAUFU and is not representative of the entire Kingdom. Further issues, including those of other dental schools, are currently underway.

By identifying the currently existing hurdles in dental graduates' employment, a petition will be raised to the Ministry of Human Resources and Social Development to attempt solutions.

The current research group will also be embarking on the second phase of this investigation, aiming to capture the number of licensed/practicing dentists in KSA over the past 10 years, the number of new dentists graduating from all dental schools over the past 10 years, and the KSA population growth rate. This data will provide a projection for future demand for dentists and optimize the dentist-to-population ratio.

AUTHORS' CONTRIBUTIONS

It is hereby acknowledged that all authors have accepted responsibility for the manuscript's content and consented to its submission. They have meticulously reviewed all results and unanimously approved the final version of the manuscript.

LIST OF ABBREVIATIONS

KAUFU = King AbdulAziz University Faculty of Dentistry

SDLE = Saudi Dental License Exam

GPA = Grade Point Average

KSA = Kingdom of Saudi Arabia

SCFHS = Saudi Commission for Health Specialties

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was reviewed and approved by the King Abdulaziz University Faculty of Dentistry (KAUFU) Research Ethics Committee (ethical approval number: #024-01-23).

HUMAN AND ANIMAL RIGHTS

This study was reviewed and approved in compliance with the Declaration of Helsinki.

CONSENT FOR PUBLICATION

All participants provided their written consent before accessing the questionnaire.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of the article is available in the Tufts University Box at <https://tufts.box.com/s/tz9w20k259m1igj47mxodec2pjlmksvm>. Please note that there are no reference numbers in this institutional online box.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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