

# Three years versus four years Saudi Board Family Medicine program: Graduates' academic performance, perceptions, burnout, and satisfaction with professional life

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## ABSTRACT

**Background:** The specialty of family medicine, established in Saudi Arabia in the 1980s, has rapidly progressed in healthcare settings and is increasingly utilized by the population as well as recent MBBS graduates. Universally, there is ambiguity in the duration, curriculum, and assessment methods used in family medicine specialization programs. **Methodology:** A cross-sectional study was conducted among 183 fresh graduates from a 3-year and 4-year residency program. Data were collected using electronic forms, which were subsequently transferred to Microsoft Excel. Following appropriate coding, the data were transferred to SPSS for analysis. The dataset was then cleaned, and statistical tests, such as Chi-square and independent t-tests, were used to draw inferences. **Results:** Males (50.3%) and females (49.7%) had almost equal distribution in the study. Overall, 67.6% of respondents had passed the final exam; the pass percentage was 69.3% for the 3-year residency program and 66.4% for the 4-year program. The overall mean score for perceived achievement of SaudiMED-FM 2020 competencies was  $23.06 \pm 5.52$  out of a total score of 30. On comparing the 3-year versus 4-year residency program, there was no statistically significant difference between perceived competency scores and professional satisfaction scores. Among the study participants, 19 (10.4%) had 'serious burnout', and 22 (12%) had 'extremely serious burnout'. Professional satisfaction was significantly associated with burnout ( $P = 0.006$ ). **Conclusions:** Based on the study results, there was no significant difference regarding academic performance, perceived competencies, and professional satisfaction among the graduates of the 3-year versus 4-year residency program. Approximately more than half of the graduates had suffered from burnout which was reported more by the females and those with financial issues. The majority of the respondents suggested improvements in clinical rotation and assessment methods.

**Keywords:** Academic performance, burnout, perceptions, professional life, satisfaction, Saudi Arabia, SBFM Residents

## Introduction

The specialty of family medicine was introduced later than other medical specialties such as Internal Medicine, Surgery, and

Ophthalmology, and there is still no standardized duration for family medicine courses in developed or developing countries. The duration varies from 14 months to 4 years in different countries, and efforts are ongoing to establish a fixed duration of 3 years or 4 years based on the achievement of the results.<sup>[1]</sup>

The duration of family medicine courses is crucial for both individual and national workforce planning, enabling appropriate task assignment, development, and efficient utilization of

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resources. A four-year duration may significantly demand residents in terms of time and resources. The United States of America (USA) experienced a shortage of family physicians over a decade ago and debated the optimal duration of the family medicine course (i.e., 3 years or 4 years).<sup>[2]</sup> In the USA, family medicine training programs commenced in 1969, with most places continuing with the three-year program to address the shortage of family physicians.<sup>[3]</sup>

In Saudi Arabia, Family Medicine Program first started in Riyadh, a Military Hospital, in the 1980s. Since then, there has been a progressive increase in the number of FM trainees, leading to around 756 FM trainees in 2015,<sup>[4]</sup> further increasing to more than 3800 FM trainees during the year 2021. The number of Saudi Board Family Medicine (SBFM) training centers also rose from 95 in 2015 to more than 100 in 2021.

In Saudi Arabia, there is a shortage of trained family medicine doctors in primary health care centers, and this issue needs to be addressed in all aspects, including resource utilization and the types of cases visiting Primary Health Care Centres. Competent family physicians are capable of reducing the patient load on specialist doctors. Moreover, 70-80% of health problems can be resolved by primary health care physicians as the first level of contact, thus decreasing health care costs and increasing life expectancy.<sup>[5]</sup>

The current Family Medicine, SAUDI MED competencies result from a collaborative effort among national and international experts. These competencies were derived from the extract of a national experts committee (Saudi MED-UG), international scientific education developments such as the CANMED FM competencies, the Accredited Council for Graduate Medical Education (ACGME), and integration of competencies with the National Vision 2030 new model of care of Saudi Arabia. Additionally, two core competencies, Medical Knowledge and Patient Care, were added to the existing competencies in the previous FM curriculum before implementing FM Saudi MED competencies in 2020. Other competencies like Communication and Collaborator, Manager, Professionalism, and Scholarship were already considered as core competencies in the FM training program.<sup>[6]</sup>

As per the initiative from the Saudi Commission for Health Specialities (SCFHS), the curriculum design team conducted the situational analysis in October 2018 from the residents' surveys, focus group discussions from the major four regions: East, West, Central, and South regions of Saudi Arabia FM residents, and also considered the comparative study results (Benchmarking study) in their report. A comprehensive comparative study compares the current SBFM curriculum with international FM curriculums from Canada, United Kingdom, and United States based on some components of structure, FM clinics, hospital rotations, assessment, and research. Also, the team mentioned that the evaluation is based on three major domains: knowledge, attitude, and skills, and each domain has its own evaluation procedure.<sup>[6]</sup>

This study refined the CANMEDS competency framework and initiated Saudi MED 2020 competencies implementation, reduced the duration of curriculum from 4 years to 3 years, paved the pathway to learning techniques from a theoretical way to a more practical way of learning, reduction of certain courses duration like the introductory course and research course and removal of advance course as a block and also mentioned the importance of feedback and reflections.<sup>[6]</sup>

In the FM 2020 curriculum, two important developments were implemented, namely, Weekly Academic Day Activity (WADA), by the mandatory release of all residents from their routine duty to attend the full-day WADA on a specific day in a week. In addition, there is an allotment of specific volunteering hours for the residents during their tenure.

The SBFM 2020 curriculum, version 3, released in September 2022, mentioned the successful implementation of a new model of care based on Vision 2030 and emphasized the flexibility of rotations and the importance of elective postings for residents. The curriculum also included an extensive alignment between formative and summative assignments, the introduction of a spiral formative assessment map, and mandatory research proposal submission for all residents. Full thesis submission is at the discretion of the program director and training committee. The SCFHS guidelines mandate full research submission for the 4-year training program in all SBFM 2016 program curricula. The targeted competencies should be aligned with the Family physician's role according to the National Vision 2030, and the duration should not exceed 3 years.<sup>[7]</sup>

Most SBFM programs in 2022 have residents in both the 4-year and 3-year training programs. Additionally, a batch of residents completed the SaudiMED-FM 2020 competencies in 2022. This provides an opportunity to gather opinions from R3 and R4 residents and compare their evaluation scores at the final year level. Since there are many SBFM programs across the country, it is important to involve other SBFM training programs to comprehensively understand the current situation and develop a strategic plan for improving the family medicine curriculum.

The Family Medicine Academy in Qassim province has taken a great step in improving the quality of clinical practice at primary healthcare centers and evaluating the academic performance of trainees in selected SBFM programs. However, relatively few studies are available on perspectives such as performance, burnout, and professional satisfaction among residents in both developed countries and Saudi Arabia. To create world-class family physicians in the country in line with Vision 2030, periodic evaluation of formative and summative assessment methods and FM competencies is necessary for the future improvement of SaudiMED-FM 2020 competencies across family medicine programs in the country.

Based on the above situations, one option to evaluate performance is through a comprehensive evaluation of major dimensions in

the final year to conclude whether a 3-year or 4-year duration is better for achieving FM competencies as well as the final outcome of residents, burnout, and professional satisfaction. If a 3-year duration achieves better results than 4 years, a trial to condense the program into 2 years or 2.5 years could be considered in the future if an opportunity arises.

## Objectives

1. To determine the current R3 and R4 graduates' final academic year performance of SCFHS summative assessment.
2. To explore the opinions of R3 and R4 graduates about 3 years or 4 years program curriculum, respectively.
3. To determine the level of burnout and perceived satisfaction with professional life among final-year family medicine graduates of 3-year and 4-year residency programs.
4. To compare the academic performance, level of burnout, and perceived satisfaction with the professional life of current family medicine graduates of a 3-year residency program with a 4-year residency program.

## Methodology

### Target Population

R3 and R4 graduates from SBFM programs nationwide who finished their training on September 30, 2022.

### Study design

A cross-sectional study was conducted at family medicine SBFM programs among the residents from December 2022 to February 2023.

### Sample size

The sample size was calculated based on the prevalence of burnout mentioned in the study conducted in the Aseer region, Saudi Arabia, with the title of burnout and its correlates among the family medicine residents, and prevalence was shown as 84.2%.<sup>[8]</sup> The same prevalence was applied in Open Epi software for sample size calculation, design effect 1, the inclusion of R3 (484 residents) and R4 (1650 residents) who appeared for the final year exam (written and clinical exam); approximately 2134 residents inclusive of both level of residents,<sup>[9]</sup> 95% confidence interval and absolute precision (alpha) was 0.05. Based on the above parameters, the sample size estimate was 187, and the sample comprises both R3 (3 years) and R4 (4 years) program residents.

### Sampling method

Close to 100 SBFM programs are functioning in the Kingdom of Saudi Arabia. All SBFM programs were included in our study to cover the wide distribution. In the selected SBFM program, all final year R3 and R4 residents from the 3 years and 4 years programs were selected, respectively. A Google form was circulated to the concerned R3 and R4 residents in the SBFM programs to complete the questionnaire. Before

sharing the Google link, oral consent was taken from the eligible participant. After confirmation, the Google link was shared with the concerned residents. Google link was shared by social media platforms like WhatsApp, Telegram, and e-mail. The selected SBFM program secretaries were also informed about the study for the cooperation of their residents for active participation in the study. In relation to the performance activities of the residents, self-reported opinions and statements were taken for the important measurable variables like the final part 2 written and OSCE exam.

## Questionnaire

Before the development of the questionnaire, we reviewed previous studies conducted in Canada,<sup>[10]</sup> China,<sup>[11]</sup> and the United States.<sup>[12]</sup> The literature regarding family medicine programs training, comprehensive care, and training during the COVID-19 period was also reviewed. A study conducted in the USA during COVID-19 showed that most of the postgraduate training programs are a bit compromised due to the longer duration of lockdowns, restricted mobility of human beings, and prolonged duration of the pandemic across the globe.<sup>[12]</sup> We also considered opinions and validated certain variables with trainers involved in the Family Medicine Academy assessment unit and research faculty working at Research and Innovation unit.

The questionnaire comprised two parts. The first part dealt with the demographic profile of residents like age, gender, marital status and living with family, etc. The second part included specific educational and personal domains including the academic performance of different assessment methods and their variables, trainees' opinions about the Saudi MED competencies/Saudi FM 2020 competencies, and the impact of COVID-19 on SBFM training.

Also, it considered trainees' opinions about burnout status and professional satisfaction during the SBFM program. To measure burnout status, we adopted the Malach-Pines; A short version scale was used.<sup>[13]</sup> Similarly, regarding the professional satisfaction level, we adopted the satisfaction with life scale developed by Diener ED, Emmons RA *et al.* in the year 1985<sup>[14]</sup> and later further modified by Pavot W, Diener E *et al.* in the year 1993<sup>[15]</sup> as a short version of professional satisfaction questions with convergent validity and grading mentioned as 7-point Likert scale.<sup>[14,15]</sup> Perceptions about certain variables in the study, 5- and 7-point Likert scale was used as strongly agree to strongly disagree for the grading. Pilot study was conducted on 30 residents to maintain the feasibility, to refine for the improvement of the study, sequence, and modification of variables.

For the detection of burnout among family medicine residents, we adopted the Burnout measure scale originally designed in the year 1988, the latest revision done in the year 2005 and thereafter using this scale widely throughout the world and edited and developed as a short version by Malach-Pines, A. (2005) published in International Journal of Stress Management.<sup>[13]</sup> In this scale,

items are 10, and grades are 7 (from never, almost never, rarely, sometimes, often, very often, and always). Interpretation of the burnout scale was 0 to 2.4, considered as little or no burnout, a score of 2.5 to 3.4 indicates that there is a risk for burnout, the score of 3.5 and above are considered as burned out (Burnout positive), and score range of 4.5–5.4 was considered as high burnout persons, and lastly score of 5.5 and above was labeled as very high burnout status.<sup>[13]</sup> For efficient primary health care services, provisions can be achieved through family medicine educational programs; strong mental health status of the residents is needed, and it acts as an indirect determinant of the health of the residents.

### Inclusion criteria

R3 and R4 residents who had finished or ended their training on September 30, 2022, from all SBFM programs based on our study criteria.

### Exclusion Criteria

R1 and R2 residents were excluded.

Noncooperative and not interested in the current study were excluded.

Transferred residents from other programs to the current program were excluded as they are not continuously studied in one place as 3 years/4 years in any residency program.

### Statistical analysis

For the continuous variables, means, and standard deviations were calculated. For inferential analysis, *t*-test and Chi-square test were applied.

### Ethical considerations

Before the initiation of the study, ethical committee approval was taken from the Qassim Regional Ethics Committee (H-04-Q-001) with approval number 607-44-4160. Oral informed consent was taken from each and every participant before sharing the link. Data confidentiality was maintained, and personal information was kept confidential.

## Results

Of the 340 eligible participants contacted for the survey, 183 fresh graduates of the Saudi Board Family Medicine Program responded by completing the questionnaire. Thus, the survey response rate was 53.8% (183/340). Seventy-five participants belonged to a 3-year residency program, whereas 108 respondents had completed a 4-year residency program. The demographic characteristics of the participants are shown in Table 1. The overall mean age of the participants was 30.35 ( $\pm 2.24$ ) years; 3-year program residents were younger ( $29.53 \pm 0.26$ ) as compared to 4-year program residents ( $30.91 \pm 0.21$ ). Males (50.3%) and females (49.7%) had almost equal representation. More than half of the participants (53.8%) had joined the residency

program immediately after the internship and had no practical clinical experience. During residency, major health issues needing hospitalization were reported by 15.8% ( $n = 29$ ) of the participants, whereas financial issues were faced by 30.1% ( $n = 55$ ) of respondents. Out of the total 182 participants who responded, 123 (67.6%) had passed the final exam; the pass percentage was 69.3% ( $n = 52$ ) for the 3-year residency program and 66.4% ( $n = 71$ ) for the 4-year program.

The participants were asked questions to determine their perception of achieving SaudiMED-FM 2020 competencies during the residency training [Figure 1]. The highest proportion (80%) of respondents agreed to gain competency in effective communication and collaboration, followed by learning professionalism (77%) and becoming a scholar with a lifelong commitment to learning and teaching (76%).

Out of the total possible score of 30, overall mean score for perceived achievement of SaudiMED-FM 2020 competencies was  $23.06 \pm 5.52$  (3-year program:  $23.02 \pm 5.53$ ; 4-year program:  $23.09 \pm 5.54$ ). Among the individual items (maximum possible score = 5), the highest mean score ( $4.02 \pm 1.09$ ) was for achieving competency in effective communication and collaboration, followed by professionalism ( $3.92 \pm 1.15$ ). Gaining required medical knowledge had the lowest mean score ( $3.72 \pm 1.03$ ). Table 2 displays the mean scores for individual SaudiMED-FM 2020 competencies achievement during the training, stratified by the type of residency program. There was no statistically significant difference between 3-year and 4-year program residents in perceived achievement of any of the six competencies.

The respondents' opinion was obtained about the revised curriculum regarding the incorporation of advanced courses in Weekly Academic Day Activity (WADA) and the addition of volunteer activities in the curriculum. More than half of the residents from 3-year (53.4%) and 4-year (51.5%) residency programs agreed that incorporating advanced courses in WADA benefits the residents. In contrast, only slightly more than a quarter agreed that the addition of volunteering activity is valuable to the residency program.

On enquiring about the effect of COVID-19 on residency training, 73.3% of the 3-year program residents and 64.5% of the 4-year program residents agreed to the negative impact of COVID-19 on their training. Out of the total maximum possible score of 5, the overall mean score for negative impact of COVID-19 on residency training was  $3.86 \pm 1.16$  (3-year program:  $4.04 \pm 1.19$ ; 4-year program:  $3.73 \pm 1.12$ ).

Figure 2 displays the residents' level of burnout during residency training. Of the total 183 respondents, 57 (31.1%) were categorized as being in the 'state of burnout', 19 (10.4%) having 'serious burnout' whereas 22 (12%) had 'extremely serious burnout'.

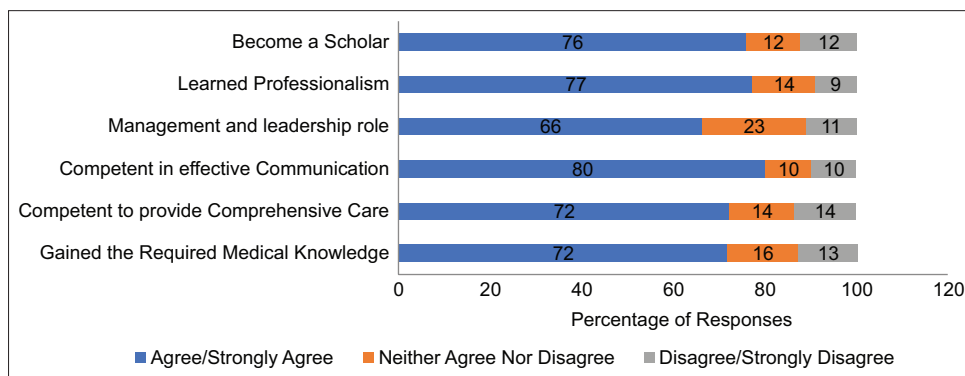
Out of the total possible score of 70, the overall mean score for burnout was  $37.09 \pm 12.88$  (3-year program:  $35.87 \pm 13.74$ ;



**Table 1: Sociodemographic Characteristics of Study Participants (n=183)**

Study Participants' Characteristics	Total		3-year Residency Program (n=75)		4-year Residency Program (n=108)		P
	No.	%	No.	%	No.	%	
Age (years): Mean±SD	30.35±2.24		29.53±0.26		30.91±0.21		<0.0001*
Duration of medical practice (n=182)							
None	98	53.8	42	56	56	52	0.918
1 year or less	32	17.6	13	17	19	18	
1 to 5 years	37	20.3	15	20	22	21	
6-10 years	15	8.2	5	7	10	9	
Gender							
Female	91	49.7	40	53	51	47	0.416
Male	92	50.3	35	47	57	53	
Job type							
Permanent	88	48.1	27	36	61	56	0.011*
Training Contract	92	50.3	47	63	45	42	
Other	3	1.6	1	1	2	2	
Marital Status							
Single	68	37.2	36	48	32	30	0.021*
Married	109	59.6	36	48	73	68	
Divorced/widow	6	3.3	3	4	3	3	
Having Children							
No	98	53.6	48	64	50	46	0.018*
Yes	85	46.4	27	36	58	54	
Living with Family							
No	25	13.7	14	19	11	10	0.100
Yes	158	86.3	61	81	97	90	
Current Smoker (n=182)							
No	137	75.3	52	70	85	79	0.195
Yes	45	24.7	22	30	23	21	
Past Smoker (n=182)							
No	155	85.2	62	83	93	87	0.427
Yes	27	14.8	13	17	14	13	
Major health issues needing hospitalization							
No	154	84.2	67	89	87	81	0.110
Yes	29	15.8	8	11	21	19	
Financial Issues							
No	128	69.9	57	76	71	66	0.137
Yes	55	30.1	18	24	37	34	

\*Statistically significant at P≤0.05



**Figure 1: Study Participants' Percentage of Responses regarding perceived achievement of SaudiMED-FM 2020 competencies during the training**

4-year program: 37.93 ± 12.23). Among the individual items regarding burnout (maximum possible score = 7), the highest mean score was for 'tired' (4.49 ± 1.41), followed

by 'disappointed' (4.09 ± 1.49) and 'depressed' (4.0 ± 1.74). The lowest mean score was for 'feeling worthless/like a failure' (3.08 ± 1.77).

Among the total 183 respondents, 58 (31.7%) were satisfied, whereas 9 (4.9%) were extremely satisfied professionally. In contrast, 10.4% (n = 19) and 5.5% (n = 10) of respondents were dissatisfied and extremely dissatisfied professionally [Figure 3].

Out of the total possible score of 35, the overall mean score for professional satisfaction was  $21.84 \pm 7.12$  (3-year program:  $22.04 \pm 7.08$ ; 4-year program:  $21.71 \pm 7.18$ ). Among the individual items regarding professional satisfaction (maximum possible score = 7), the statement, “So far, I have got important things I want in professional life” had the highest mean score ( $4.66 \pm 1.62$ ), whereas “If I could live my professional life over, I would change almost nothing” had the lowest mean score ( $4.08 \pm 1.71$ ).

We compared the academic performance, perceived competencies, burnout, and satisfaction with professional life, of the 3-year and 4-year program residents. There was no statistically significant difference ( $P = 0.673$ ) in the final exam results of a 3-year residency program and a 4-year residency program. On analyzing the factors associated with the final results of the respondents, passing the final exam was statistically significantly

associated with gender ( $P = 0.05$ ). On comparing the final exam results based on clinical experience, there was no statistically significant ( $P = 0.349$ ) difference between those residents who did not have any clinical experience in comparison to those who had practical clinical experience prior to admission to the residency program. The findings remained the same when data were analyzed separately for 3-year and 4-year program residents. On comparing the exam results based on job type (training contract vs. permanent contract), overall, there was no statistically significant ( $P = 0.87$ ) difference in the final exam results of those who had training contracts in comparison to those who had permanent contract. The results were different for R3 and R4 on stratifying data according to residency year. For R3, 76.6% of those with a training contract passed compared to 55.6% of those with a permanent contract, and the result was borderline statistically significant ( $P = 0.06$ ). In contrast, among R4, 72.1% of those having permanent contracts passed as compared to 59.1% of those having training contracts ( $P = 0.162$ ).

Table 3 details the factors associated with the final exam results. Passing the final exam was statistically significantly associated with

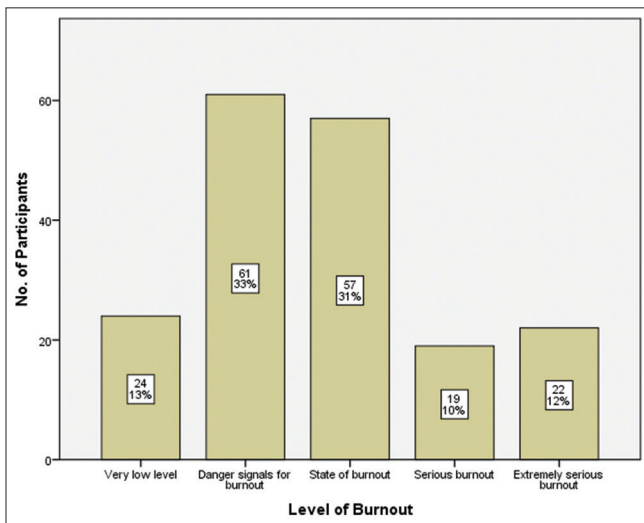


Figure 2: Level of Burnout among study participants (n = 183)

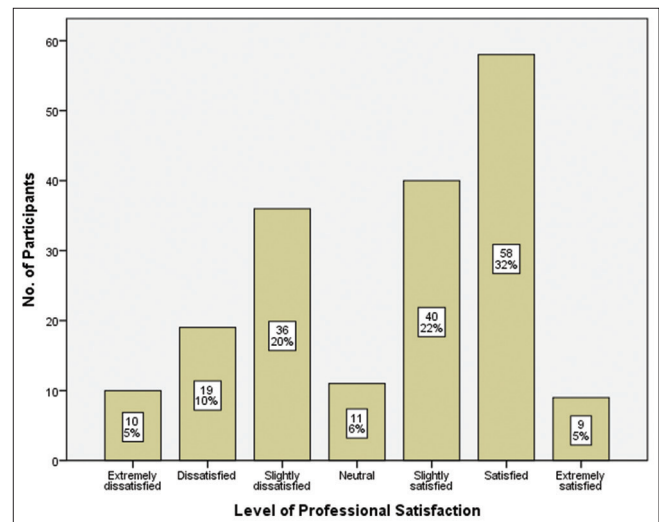


Figure 3: Level of Professional Satisfaction among study participants (n = 183)

Table 2: Study Participants’ perceived achievement of SaudiMED-FM 2020 Competencies during the Training\*

Statement	Type of residency program	n	Mean	Std. deviation	P
I gained the required Medical Knowledge to proficiently care for a diverse patient population with a variety of healthcare needs	3-year	73	3.67	1.08	0.567
	4-year	101	3.76	1.00	
I feel competent to provide quality, comprehensive, compassionate, and coordinated Patient Care	3-year	73	3.74	1.09	0.527
	4-year	104	3.85	1.10	
I am competent to have effective communication and collaboration	3-year	75	4.12	1.05	0.31
	4-year	107	3.95	1.11	
I can successfully take up a Management and Leadership role	3-year	74	3.76	1.03	0.775
	4-year	107	3.71	1.10	
I have learned Professionalism and commitment to ethical standards	3-year	73	3.88	1.25	0.672
	4-year	104	3.95	1.08	
I have become a Scholar having a lifelong commitment to learning personally and educating others	3-year	73	3.84	0.99	0.827
	4-year	105	3.80	1.12	

\*Total possible Score Range: 1–5

burnout ( $P = 0.002$ ) and professional satisfaction ( $P = 0.017$ ). Moreover, passing the final exam had a borderline statistically significant association ( $P = 0.057$ ) with perceived competency scores.

On comparing the 3-year versus 4-year residency program, there was no statistically significant difference between perceived competency scores and professional satisfaction scores. Although not statistically significant, the mean burnout score ( $37.93 \pm 12.23$ ) was slightly higher among 4-year program respondents as compared to the respondents of 3-year residency programs ( $35.87 \pm 13.74$ ). Burnout was statistically significantly associated with gender ( $P = 0.031$ ), professional satisfaction ( $P = 0.006$ ), and financial issues during the residency ( $P = 0.001$ ).

Respondents' perceived competencies had a statistically significant association with professional satisfaction ( $P < 0.0001$ ), whereas there was a borderline significant association with the final result ( $P = 0.057$ ) and gender ( $P = 0.059$ ).

Professional satisfaction was significantly associated with burnout ( $P = 0.006$ ). Although mean professional satisfaction scores were slightly higher among females and those with no major health issues or financial difficulties, the differences were not statistically significant.

Those who passed the final exam had lower burnout ( $P = 0.002$ ), perceived themselves as more competent ( $P = 0.057$ ), and were more professionally satisfied ( $P = 0.017$ ) as compared to those who could not pass the final exam. The higher the perceived competency, the more professional satisfaction ( $P < 0.0001$ ), and the lower the burnout ( $P = 0.006$ ).

Suggestions and recommendations from the residents were also obtained about important aspects of the residency program. When asked about suggested research requirements for the residency program, around 62% of respondents recommended only a research proposal; 33% recommended a full thesis, whereas 5% had other suggestions including the omission of research altogether. Although responding to recommendations for the duration of the residency program, 61% of respondents recommended 4-year residency program, 35% recommended

3-year residency training, whereas less than 3 years was recommended by 4% of the participants.

On asking about suggestions for improvement of the SBFM Residency Program, the highest proportion of suggestions were regarding improvement of clinical rotations by focusing on the family medicine rotations, followed by suggestions regarding changes in examinations and evaluation methods. Improvement of primary health care centers by provision of resources, monitoring, and supervision was also suggested by the participants. Regarding future career priorities, the respondents' highest priority was working as a clinician, pursuing further studies, and working as a family medicine trainer.

## Discussion

Our study compared academic performance, perceived competencies, burnout, and satisfaction with professional life among 3 years and 4 years Saudi Board Family Medicine program graduates. More than two-thirds of the study participants had passed their final exams. Generally, the respondents were satisfied with the achievement of SaudiMED-FM 2020 competencies and were professionally satisfied.

In our study, the majority (67.6%) of the participants passed the final exam. This overall pass rate is consistent with the overall national pass rates (66.5%) of family medicine residents. In the current study, the pass rates were slightly higher for the 3-year residency program (69.3%) than the 4-year program (66.4%). In contrast, the national pass rate for the 3-year residency program is lower than the 4-year program.<sup>[9]</sup>

Our study showed no statistically significant difference in the final exam results between the 3-year and 4-year family medicine residency programs. Similar to our study, Sullivan *et al.* (2023)<sup>[16]</sup> found no significant differences in examination scores of 3-year and 4-year residency programs; however, the residents in 4-year family medicine residency had significantly more scholarly output. In contrast, another study comparing family medicine in-training examination scores among residents trained in 3- versus 4-year programs reported significantly higher scores in the 4-year program than in the 3-year program.<sup>[17]</sup>

**Table 3: Factors associated with the Final Exam Results of the Residents**

	Final exam result	n	Mean	Std. deviation	t	P
Age (Years)	Pass	118	30.15	2.07	-1.71	0.089
	Fail	59	30.76	2.55		
Duration of medical practice (Years)	Pass	122	1.25	1.98	-1.006	0.316
	Fail	59	1.59	2.49		
Perceived competencies score (Total possible Score Range: 6–30)	Pass	122	23.68	5.13	1.918	0.057
	Fail	58	22.03	5.88		
Burnout Score (Total possible Score Range: 10–70)	Pass	123	34.90	11.28	-3.157	0.002 <sup>†</sup>
	Fail	59	41.09	14.40		
Professional Satisfaction Score (Total possible Score Range: 5–35)	Pass	123	22.86	6.39	2.419	0.017 <sup>†</sup>
	Fail	59	20.00	7.93		

<sup>†</sup>Statistically significant at  $P \leq 0.05$

The finding in the current study that a higher proportion of females had passed the final exam as compared to males is consistent with the exam results at the national level. Among 4-year program family medicine residents, 81% of females and 78% of males passed the written exam, whereas 83% of females and 65% of males passed the clinical exam in 2022. Among 3-year program residents, 83% of females and 77% of males passed the written exam, whereas 88% of females and 66% of males passed the clinical exam in 2022.<sup>[9]</sup>

Effective communication, collaboration, professionalism, and lifelong learning are vital competencies for successful family physicians. In our study, the majority of the respondents (80%) agreed to gaining competency in effective communication and collaboration, learning professionalism (77%), and becoming a scholar with a lifelong commitment to learning and teaching (76%). Moreover, perceived competencies were similar among 3-year and 4-year program graduates, with no significant difference between the perceived competency scores of 3-year and 4-year family medicine residency program graduates. Previous research has identified effective communication and collaboration as essential competencies for family medicine residents. A study published in the *Journal of Graduate Medical Education* highlighted the importance of communication skills in-training residents.<sup>[18]</sup> The residents who receive training in professionalism are expected to have higher levels of ethical behavior and greater confidence in their ability to provide patient-centered care. Similarly, lifelong learning is essential for the continued professional development of family medicine residents.

COVID-19 negatively impacted medical education and training worldwide. The current study also suggests that COVID-19 has had a negative impact on the residency training of family medicine residents, with a higher percentage of 3-year program graduates (73.3%) reporting negative impacts compared to 4-year program graduates (64.5%). These findings are consistent with previous research that has identified the negative impact of the COVID-19 pandemic on medical education, including residency training.<sup>[19,20]</sup> Globally, family medicine residents reported a decrease in clinical exposure, procedural training, and overall educational experience during the pandemic.<sup>[19,20]</sup> A possible impact of COVID-19 on the performance of the family medicine residents is also reflected by their final results displayed on the SCHS website. A decline in the pass percentage can be noticed in both the clinical and written exam results. The pass percentage for written exams decreased from 92% and 87% in 2019 and 2020 to 77% and 79% in 2021 and 2022, respectively. For the clinical exam, the pass percentage decreased from 94% and 91% in 2019 and 2020 to 74% each in 2021 and 2022.<sup>[9]</sup>

Burnout is a state of emotional exhaustion, depersonalization, and reduced personal accomplishment. It has been found to significantly predict decreased job satisfaction among medical professionals, including family medicine residents. The results of the present study suggest that burnout is a prevalent issue

among family medicine residents, with a significant proportion of respondents (31.1%) categorized as being in the state of burnout and a smaller percentage of respondents (10.4% and 12%) reporting serious or extremely serious burnout, respectively. There was a higher mean burnout score among 4-year program respondents than those of 3-year residency programs, although this was not statistically significant. The study also found that burnout was associated with gender, professional satisfaction, and financial issues during residency.

These findings are consistent with previous research on burnout among medical residents, which has identified high rates of burnout and associated negative outcomes, including decreased job satisfaction, reduced quality of patient care, and increased risk of medical errors and adverse events. A study by Alfaleh (2017) found high levels of emotional exhaustion, depersonalization, and personal achievement burnout among family medicine and internal medicine residents.<sup>[21]</sup> Among 2,509 residents belonging to a cohort of graduating family medicine residents in the United States, 36.8% met the burnout criteria.<sup>[22]</sup> Another study conducted in the United States in 2018 found that medical residents and fellows had a high prevalence of burnout, with around 60% of respondents reporting symptoms of burnout.<sup>[23]</sup> A study from Aseer, Saudi Arabia, reported the overall prevalence of burnout among family medicine residents as 84.2%.<sup>[8]</sup> Another study from Al-Madina, Saudi Arabia, reported 32% of the respondents with severe burnout.<sup>[24]</sup> Several factors were responsible for burnout among family medicine residents, including heavy workloads and frequent tests and examinations.<sup>[24]</sup> In addition, the COVID-19 pandemic has likely exacerbated burnout among medical residents, as they have faced increased demands and stress related to caring for patients during the pandemic.<sup>[25,26]</sup>

Efforts to address burnout among family medicine residents are critical to promoting their well-being and improving the quality of patient care. A variety of interventions have been proposed and implemented to address burnout among medical residents, including resident social activities, increased support and mentorship, and interventions aimed at improving work-life balance.<sup>[27]</sup> The finding in our study that around one-third of the respondents were dissatisfied with their professional life is a cause for concern, as burnout and dissatisfaction can lead to decreased job satisfaction, decreased quality of patient care, and early career exit.<sup>[26]</sup> It is important to address the factors contributing to burnout and dissatisfaction among family medicine residents to improve their well-being and patient care outcomes.

A significant finding in the present study is that many participants experienced health and financial issues during their residency. Although 15.8% of the residents reported major health issues requiring hospitalization, 30.1% faced financial issues. The findings on health problems and financial issues are concerning as residency is a demanding and stressful time that can take a toll on the physical and mental health of residents. Thus, the residents need access to adequate healthcare and financial support



to ensure they can manage their health and finances effectively during their residency period.

In the current study, an encouraging finding is that around two-thirds of family medicine graduates were satisfied with their professional life. No statistically significant difference existed between the professional satisfaction scores of 3-year and 4-year family medicine residency program graduates. Research regarding the professional satisfaction of residents is sparse; however, researchers have studied the satisfaction of family medicine residents with their training program. A study conducted in Riyadh, Saudi Arabia, in 2019 reported that 34% of family medicine residents had expressed satisfaction with their program overall.<sup>[28]</sup> Similarly, a study conducted in Qassim, Saudi Arabia, found a high level of residents' satisfaction with their residency program including trainers, program management, and various aspects of training.<sup>[29]</sup>

An interesting finding is the association between passing final exams and burnout, professional satisfaction, and perceived competency scores among family medicine residents. Research has shown that burnout and stress among residents can negatively affect their performance and patient care. Yilmaz (2018) found a strong correlation between lack of work satisfaction and burnout, anxiety, and depression.<sup>[30]</sup> The association between passing final exams and professional satisfaction could be due to several factors, including better engagement and motivation to learn, better support from the training program, and higher quality of training. The relationship between passing the final exam and perceived competency scores is also interesting. Although further research is needed to explore this relationship, residents who feel more competent in their clinical skills and knowledge may be more confident professionally and more likely to pass their final exams.

Our study found a significant association between the perceived competencies of family medicine residents and their professional satisfaction. Generally, residents who feel competent in their skills and knowledge are expected to have higher levels of job satisfaction and are more likely to have positive attitudes toward their training program. The association between perceived competency and professional satisfaction is consistent with previous literature, which has demonstrated that self-efficacy and confidence in one's abilities can positively impact job satisfaction.<sup>[31]</sup>

In our study, most (61%) respondents recommended a 4-year residency program. This recommendation is in line with the recommendations of the Accreditation Council for Graduate Medical Education (ACGME) and the American Academy of Family Physicians in the United States, which mandate that family medicine residency programs should be at least three years long with the option of a fourth year for residents who wish to pursue additional training in a particular area.<sup>[32,33]</sup>

Regarding the research requirement for the residency program, most respondents recommended a research proposal as

compared to a full thesis. Although the inclusion of a full research project requirement enhances the academic, analytical, and intellectual development of residents, it may also increase the workload of already overburdened residents. Therefore, it is important to strike a balance between academic and clinical demands in residency training.

The highest proportion of suggestions for improving the SBFM Residency Program were regarding improving clinical rotations. Clinical rotations hold a high importance in family medicine residency programs, and these rotations should be tailored to the needs of the residents and their future practice settings. Furthermore, the finding that the respondents' highest career priority was working as a clinician shows that family medicine residents value hands-on clinical training and opportunities for direct patient care. It also highlights the importance of ensuring residents are adequately trained for clinical practice through well-designed, resourceful clinical rotations.

### Limitations

This study has certain limitations. The questionnaire was self-administered via an electronic survey. Therefore, there is a possibility that study participants might not have clearly understood some questions. However, the questionnaire was pretested, and the respondents found it clear and understandable. As the competencies were self-reported, social desirability bias cannot be ruled out, and the participants might have over-rated some competencies. Finally, this study had convenience sampling, which may affect the generalization of the study; however, the demographic profile of the residents and the structure of family medicine programs are expected to be similar across the country, making it plausible to cautiously generalize the findings of our study.

### Conclusion

To conclude, more than two-thirds of the study participants had passed their final exams; the pass percentage was slightly higher in the 3-year residency program than in the 4-year residency program. Generally, the respondents were satisfied with the achievement of SaudiMED-FM 2020 competencies and were professionally satisfied. The level of satisfaction was similar for R3 and R4 residents. The majority of the respondents agreed that the Covid-19 pandemic had a negative impact on their residency training. More than half of the graduates had suffered from burnout during their residency training. Burnout was reported more by females and by those having financial issues. Moreover, those reporting burnout were less professionally satisfied than those without burnout.

More than half of the graduates recommended 4 years for the residency program. Most of the respondents' suggestions focused on improvement of clinical rotation as well as improvement in assessment methods. The respondents' highest priority was working as a clinician, pursuing further studies, and working as a family medicine trainer.

Overall, this study's results suggest no significant difference regarding academic performance, perceived competencies, and professional satisfaction among 3-year versus 4-year residency programs. Moreover, burnout, professional satisfaction, and perceived competency may play important roles in the performance and success of family medicine residents. By understanding the factors that influence their performance and satisfaction, policymakers can develop interventions to improve the quality of training programs and support the well-being of trainees.

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## Statement of ethics

Data were collected after obtaining the Institutional Ethical Committee certificate from the Qassim Regional Ethics Committee in accordance with the National Bioethics Committee, KACST, with approval number 607-44-4160. To our knowledge, no major ethical issues were involved in this research as we collected the perceptions from the residents. The authors gave importance to the participant data information and assured confidentiality of the individual information.

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## Conflicts of interest

There are no conflicts of interest.

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