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RESEARCH ARTICLE

RATE OF CHANGING SPECIALTY AND ITS DETERMINANTS AMONG PREVENTIVE MEDICINE RESIDENTS IN SAUDI ARABIA 2023

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Abstract

Introduction: This study explores the impact of changing specialties on medical residents, including increased workload for remaining residents and missed opportunities for other postgraduates. The lack of similar studies in Saudi Arabia, particularly in the Makkah region, motivates this research to measure the rate and determinants of specialty changes. The goal is to reduce the impact on residents and centers, improve the matching system, and aid future postgraduate specialization choices.

Methodology: Cross-sectional study Analytic type was carried out using a online questionnaire. A simple random sampling technique was performed by the stat trek website to select the candidates. SPSS version 26 was used for data entry analysis.

Results: This research study evaluated preventive medicine residents in Saudi Arabia who changed their specialty previously. A significant majority of 67.3% had prior experience as GPs. Among the residents surveyed, 3.5% had a duration of work as a resident of less than 1 year. The majority of residents, comprising 23.9%, had worked for 1 year. Regarding the residents who had previously changed their specialization or withdrew from a specialization program, the majority (86.7%) had not changed their specialization or withdrawal. However, 8.0% had changed their specialty, and 5.3% had withdrawn from a specialization program. Reasons for changing specialty included work-life balance (34.8%), mismatched interests (39.1%) and suffering from health problem (4.3%). Gender showed a significant association with changing specialty, majority of female (60%) withdraw from the specialty ($p = 0.021$).

Conclusion: This study findings underscore the importance of addressing factors such as work-life balance and career aspirations to improve resident satisfaction and retention. Medical institutions and policymakers should consider these findings when designing interventions and support systems aimed at enhancing the professional development and well-being of residents in Preventive Medicine. Further research is warranted to explore the underlying factors contributing to specialty changes and to develop targeted strategies for retaining residents in their chosen fields.

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Introduction:-

Changing specialty is defined as transition from a program to another (1), these transitions have a direct effect on centers that the residents withdraw from leading to disruption and increase work load on the remaining residents (2), and has an effect also on the other postgraduates those who lost their chances in the matching. A study in USA conducted in 2019 showed that the highest mean attrition rate was among Psychiatric residents followed by General Surgery residents and Pathology residents and the lowest mean rate was among Emergency Medicine residents, Internal medicine residents and Radiology residents respectively (3). According to another study in USA 2013, the most commonly chosen specialties among residents who transition to another specialty, were Family Medicine, Emergency Medicine and Internal Medicine (4). In a study conducted in 2018 among General Surgery residents, they found that the residents those who were not expecting to work more than 80 hours/week and have a stressed life style as a resident have increased likelihood ratio (5), Other reasons has been identified in several studies among different specialties including preference of another specialty, limited employment chances and family related concerns (6,7). The change of specialization seems to be the most common cause of attrition (6), in the same time the investigator failed to reach any similar studies in Saudi Arabia, therefore this study aimed to measure the rate and identify the determinants of specialty changing among Preventive Saudi board residents of Preventive medicine, to help in reducing its impact on centers and residents in the future and to help in improving the matching system and postgraduate choices of their future specialization.

Methodology:-

Study design is cross-sectional study analytic type which has been carried out using an online questionnaire on 227 candidatesfrom Saudi Preventive Medicine programs, those candidates have been chosen bysimple random sampling technique that was performed by stat trek website. Inclusioncriteriaincludeall Residents from Preventive Medicine programs across the Kingdom. The primary outcome is rate of changing of specialization among Saudi board residents and the independent variables are Age, gender, nationality, life style, level of education, marital status, excessive work hours, preference, family related concerns, perceived post program employment chances, and medical and health issues. Data Analysis done using (**SPSS**) version 26 the most recent version of statistical computer program used for data entry analysis, with a P –value **< 0.05** considered as a significant, appropriate statistical test has been considered, such as chi-square and T-test.Ethical approval obtained from the Ministry of health IRP committee. written consent obtained from all participants.

Results:-

Sociodemographic and other general information regarding Preventive medicine residents of KSA evaluated for Changing or Withdrawal from their previous Specialty

Table 1 shows sociodemographic and general information about current preventive medicine residents in Saudi Arabia who were evaluated for changing their previous specialty. The study included a total of 226 residents, all of whom were Saudi nationals. Among the residents, **40.7%** were female, while **59.3%** were male. In terms of age, the majority fell within the 25-30 years bracket, accounting for **63.7%** of the participants. The 31-35 years group represented **23.9%** of the residents, while those aged 36-40 years comprised **12.4%** of the total. Regarding marital status, the largest proportion of residents were married with children, making up **45.1%** of the participants. Married individuals without children constituted **15.0%,** while single residents accounted for **38.9%** of the total. Only a small percentage of residents were divorced **(0.9%).** In terms of the highest educational degree, the majority of residents held a bachelor's degree, amounting to **89.4%**. A small portion possessed a diploma **(0.9%)**, and **9.7%** had obtained a master's degree. Regarding the residents who had worked as general practitioners (GPs) before joining the Saudi Specialization Program, a significant majority of **67.3%** had prior experience as GPs, while the remaining **32.7%** did not have such experience.

Table 1:- Sociodemographic and other general information regarding Preventive medicine residents of KSA evaluated for changing previous Specialty.

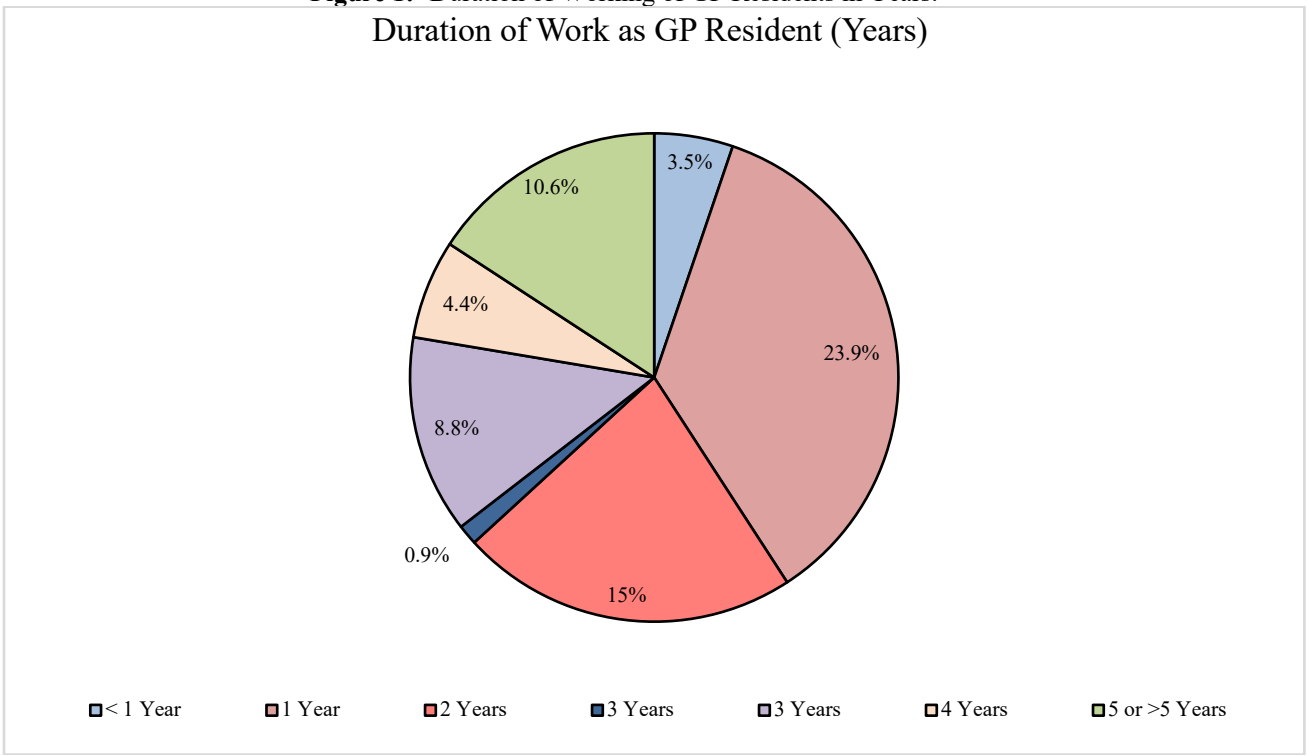
		Frequency (n=226)	Percent
Gender	Female	92	40.7

	Male	134	59.3
Age	25-30 Years	144	63.7
	31-35 Years	54	23.9
	36-40 Years	28	12.4
Nationality	Saudi	226	100.0
Marital Status	Divorced	2	.9
	Married with children	102	45.1
	Married without children	34	15.0
	Single	88	38.9
Highest Educational Degree	Bachelor's degree	202	89.4
	Diploma	2	.9
	Master's degree	22	9.7
Worked As GP before joining Saudi Specialization Program	No	74	32.7
	Yes	152	67.3

Duration of Working of GP Residents in Years

Among the residents surveyed, **3.5%** had a duration of work as a resident of less than 1 year. The majority of residents, comprising **23.9%,** had worked for 1 year. The next significant group consisted of residents who had worked for 2 years, making up **15%** of the total. Further is shown in **Figure 1**.

Figure 1:- Duration of Working of GP Residents in Years.



Current Specialization information of Preventive medicine residents of KSA evaluated for changing the previous Specialty to join Preventive Medicine

Table 2 shows the current specialization status of preventive medicine residents in KSA (Kingdom of Saudi Arabia) who are being evaluated for a potential change in their previous specialty. Regarding the current training level of the residents, **23.0%** were in their first training level, while **22.1%** were in their second and fourth training levels. The largest group, comprising **32.7%,** was in their third training level. In terms of the rank of preventive medicine in their preference list when applying for the specialization program, **63.7%** of residents ranked it as their first choice. For **19.0%** of residents, it was their second choice, and **16.8%** ranked it as their third choice or lower. A small percentage of residents **(2.7%)** did not know the rank. When it comes to receiving training in preventive medicine during their study or internship, which could be the most important factor for changing their previous specialty, and joining their current preventive medicine specialty, **82.3%** of residents did not receive such training, while **17.7%** did. Regarding work experience in preventive medicine before joining the preventive medicine specialization program, **73.5%** of residents had no prior work experience, while **26.5%** did have prior experience. Regarding the residents who had previously changed their specialization or withdrew from a specialization program, the majority **(86.7%)** had not changed their specialization or withdrawn. However, **8.0%** had changed their specialty, and **5.3%** had withdrawn from a specialization program. Regarding the residents' current desire to change or withdraw from their specialization, majority **(94.7%)** did not desire a change or withdrawal, while **5.3%** did express a desire for a change or withdrawal.

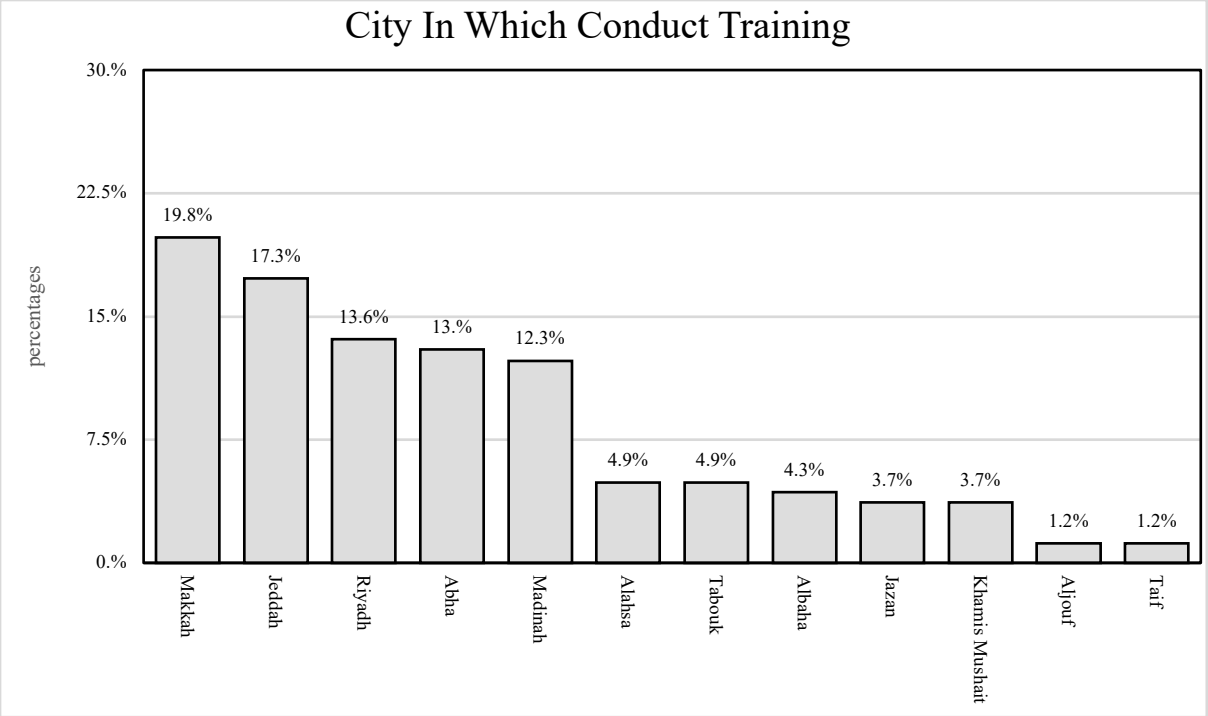
Table 2:- Current Specialization information of Preventive medicine residents of KSA evaluated for Changing Specialty.

		Frequency (n=226)	Percent
Current Training Level	First	52	23.0
	Second	50	22.1
	Third	74	32.7
	Fourth	50	22.1
Rank of Preventive Medicine in Preference List when Applying for Specialization Program	Don't Know	6	2.7
	1st	144	63.7
	2nd	43	19.0
	3rd or More	38	16.8
Received Training in Preventive Medicine during Study or Intern	No	186	82.3
	Yes	40	17.7
Work in Preventive Medicine before Joining Preventive Medicine	No	166	73.5
	Yes	60	26.5
Currently Desire to Change or Withdrew from Specialization	No	214	94.7
	Yes	12	5.3

City of Preventive Medicine Residents in which they currently conduct Training

Figure 2 shows the cities where preventive medicine residents are currently conducting their training. Among the cities mentioned, the highest percentage of residents conducting their training is in Makkah, accounting for **19.8%.** Jeddah follows closely with **17.3%** of residents training there. Riyadh is the next significant city, with **13.6%** of residents conducting their training there. Further are shown in **Figure 2**. **Table 4** shows the association of city with the changing and withdrawal rate.

Figure 2:- City of Preventive Medicine Residents in which they currently conduct Training.



Important Features about Current Preventive Medicine Residents who changed their previous Specialty

Table 3 shows different features of current Preventive Medicine residents who made a change in their previous specialty in order to join preventive medicine. Out of a total of 226 respondents, **86.7%** (196 residents) did not change or withdraw from a specialized program, while **13.3%** (30 residents) did make such a change. Among those who had previously changed specialization or withdrew from a specialization program, **8.0%** (18 residents) changed their specialty, while **5.3%** (12 residents) chose to withdraw altogether. The reasons cited for changing specialty varied among the residents. The most common reason, with **34.8%** (16 residents), was the inability to balance work and social life. Another significant factor was the mismatch between the nature of work and personal aspirations and interests, accounting for **39.1%** (18 residents) of responses. A small proportion, **4.3%** (2 residents), reported suffering from a health problem, while **21.7%** (10 residents) had other reasons for the change. Regarding the residents' previous specialties before changing or withdrawing, the distribution was as follows: Emergency Medicine (20 residents, **6.6%**), General Surgery (2 residents, **6.6%**), Internal Medicine (8 residents, **26.6%**), OBGYN (4 residents, **13.3%**), Pediatrics (6 residents, **20%**), and Radiology (4 residents, **13.3%**). Other features are shown in **Table 3.**

Table 3:- Important Features about Current Preventive Medicine Residents who changed their previous Specialty for joining preventive medicine.

		Frequency (n=226)	Percent
Rate of Changed & Withdrew from Specialized Program	No	196	86.7
	Yes	30	13.3
Previously Changed Specialization or Withdrew from Specialization Program	No	196	86.7
	Yes, Changed Specialty	18	8.0
	Yes, Withdrew	12	5.3
Reason for Changing Specialty	Inability to Balance in Work & Social Life	16	34.8

	Work Nature & Mismatch with Aspirations & Interests	18	39.1
	Suffering from a Health Problem	2	4.3
	Other reasons	10	21.7
Previous Specialty before changing or withdrawing	Emergency medicine	6	20
	General surgery	2	6.6
	Internal Medicine	8	26.6
	OBGYN	4	13.3
	Pediatrics	6	20
	Radiology	4	13.3
Ranking of Previous Programs in Preference List at Time of Applying for Saudi Specialized Program	First	12	40.0
	Second	4	13.3
	Third	4	13.3
	Fourth	2	6.7
	Fifth	4	13.3
	Ninth	2	6.7
	I don't remember	2	6.7
Weekly Working Hour In Previous Specialty	40 - 50 Hours/Week	18	60.0
	>50 Hours/Week	12	40.0
Monthly On-Calls Shifts in Previous Specialty	6 On-Call Shifts/Month	10	33.3
	<6 On-Call Shifts/Month	7	23.3
	>6 On-Call Shifts/Month	7	23.3
	None	6	20.0
Pre-Call or Post-Call Rest Hours in Previous Programs	Both Pre & Post-Call Rest Hours	2	6.7
	Only Post-Call Rest Hours	8	26.7
	Only Pre-Call Rest Hours	4	13.3
	None	16	53.3
No. of monthly Shifts in Previous Specialty	<14 or 14 Shifts/Month	8	26.7
	15-20 Shifts/Month	6	20.0
	>20 Shifts/Month	2	6.7
	None	14	46.7
Health Problem Causing Change or Withdrew Specialty	Migraine	2	6.6

Association of Different Features and various reasons for Changing Specialty to Preventive Medicine among KSA Residents

Table 4 shows the associations between different features and reasons for changing or withdrawing from a previous specialty to join the current Preventive Medicine program.

Gender has a marginally significant association with the decision to change or withdraw from a previous specialty. Among the participants, a higher percentage of females (55.6%) changed their specialty compared to males (44.4%), and a higher percentage of females (66.7%) withdrew from their previous specialty compared to males (33.3%) **(p=0.050)**. Marital status does not show a significant association with the decision to change or withdraw from a previous specialty, although it's worth noting that individuals who were married with children had a higher percentage of withdrawals (83.3%). The educational status also does not show a significant association with the decision to change or withdraw from a previous specialty. There is no significant association between having worked as a General Practitioner (GP) before the specialization program and the decision to change or withdraw from a previous specialty. The current training level of the participants does show a significant association with the decision to change or withdraw from a previous specialty. Those in the first training level had a higher percentage of specialty changes (44.4%), while those in the fourth training level had a higher percentage of withdrawals (50%) **(p=0.025)**.

Receiving preventive medicine training during the year of study or internship and working in preventive medicine before joining the specialty program do not show significant associations with the decision to change or withdraw from a previous specialty. The rank of Preventive Medicine at the time of applying to the Saudi Specialization Program does show a significant association with the decision to change or withdraw from a previous specialty. Participants who ranked Preventive Medicine as their first choice had a higher percentage of specialty changes (66.7%), while those who ranked it as their second choice had a higher percentage of withdrawals (50%) **(p=0.023)**. Participants who reported a desire to change or withdraw from their current specialty did not show a significant association with any specific feature.

Table 4:- Association of Different Features and various reasons for Changing or Withdrawal from Previous Specialty to Current Preventive Medicine Program.

		No	Changed Specialty	Withdrawal	Sig. Value
Gender	Female	74(37.8)	10(55.6)	8(66.7)	0.050
	Male	122(62.2)	8(44.4)	4(33.3)	
Marital Status	Divorced	2(1)	0(0)	0(0)	0211
	Married with children	83(42.3)	9(50)	10(83.3)	
	Married without children	31(15.8)	3(16.7)	0(0)	
	Single	80(40.8)	6(33.3)	2(16.7)	
Educational Status	Bachelor's degree	174(88.8)	16(88.9)	12(100)	0.788
	Diploma	2(1)	0(0)	00()	
	Master's degree	20(10.2)	2(11.1)	0(0)	
Worked as GP before Specialization Program	No	66(33.7)	6(33.3)	2(16.7)	0.475
	Yes	130(66.3)	12(66.7)	10(83.3)	
Current Training Level	First	44(22.4)	8(44.4)	0(0)	0.025
	Second	44(22.4)	2(11.1)	4(33.3)	
	Third	68(234.7)	4(22.2)	2(16.7)	
	Fourth	40(20.4)	4(22.2)	6(50)	
Receive Preventive Medicine Training during year of Study or Intern	No	158(80.6)	16(88.9)	12(100)	0.174
	Yes	38(19.4)	2(11.1)	0(0)	
Work in Preventive Medicine before joining Specialty	No	140(71.4)	16(88.9)	10(83.3)	0.201
	Yes	56(28.6)	2(11.1)	2(16.7)	
Preventive Medicine Rank at time of applying to Saudi Specialization Program	Don't Know	4(2)	2(11.1)	0(0)	0.023
	1st	126(64.3)	12(66.7)	6(50)	
	2nd	35(17.9)	2(11.1)	6(50)	
	3rd or More	31(15.8)	2(11.1)	0(0)	

Currently have a desire to Change or Withdraw specialty	No	184(93.9)	18(100)	12(100)	0.379
	Yes	12(6.1)	0(0)	0(0)	
City of Training	Abha	13(9.3)	6(50)	2(20)	0.017
	Jeddah	26(18.6)	0(0)	2(20)	
	Makkah	24(17.1)	4(33.3)	4(40)	
	Riyadh	20(14.3)	2(16.7)	0(0)	
	Jazan	4(2.9)	0(0)	2(20)	
	Other	53(37.8)	0(0)	0(0)	
Reason for Changing Specialty	Lack of social life and inability to balance it with work life	0(0)	8(44.4)	4(33.3)	0.040
	Nature of the work and mismatch with your aspirations and interests	0(0)	6(33.3)	2(16.7)	
	Other reasons	0(0)	4(22.2)	4(33.3)	
	Suffering from a health problem	0(0)	0(0)	2(16.7)	
Previous Specialty	Emergency medicine	0(0)	4(22.2)	2(16.7)	
	General surgery	0(0)	0(0)	2(16.7)	
	Internal Medicine	0(0)	6(33.3)	2(16.7)	
	OBGYN	0(0)	2(11.1)	2(16.7)	
	Pediatrics	0(0)	2(11.1)	4(33.3)	
	Radiology	0(0)	4(22.2)	0	

Discussion:-

This research study focuses on presenting and analyzing the sociodemographic and general information of preventive medicine residents in Saudi Arabia who were evaluated for changing their specialty.

In terms of sociodemographic characteristics, the study included a total of 226 residents. The gender distribution revealed a slight male predominance, with 59.3% of the residents being male. Regarding age, the majority of residents in our study fell within the 25-30 years age bracket (63.7%). Marital status among the residents revealed that the largest proportion was married with children, accounting for 45.1% of the participants. Education-wise, the majority of residents held a bachelor's degree (89.4%).

Moving on to the current specialization status of the residents, considerable proportion of residents were in their third training level (32.7%), followed by the first training level (23.0%). These findings indicate that a significant number of residents are still in the early stages of their specialization program. The preference ranking of preventive medicine as a specialty choice demonstrated that the majority (63.7%) ranked it as their first choice.

In terms of training and work experience, a substantial proportion of residents (82.3%) did not receive specific training in preventive medicine during their study or internship. This lack of exposure to the field might influence their decision-making process and may contribute to the desire for a specialty change. Additionally, a significant proportion of residents (73.5%) had no prior work experience in preventive medicine before joining the specialization program. This lack of prior experience might influence residents' perceptions and motivations for seeking a change in specialty.

It is noteworthy that the majority of residents in our study (86.7%) had not previously changed their specialization or withdrawn from a specialization program. This finding indicates a relatively stable career trajectory among the residents and suggests that most were committed to pursuing their chosen specialty. Regarding the current desire to change or withdraw from their specialization, the majority of residents (94.7%) did not express a desire for a change or withdrawal. This finding suggests that the residents have a positive outlook and are committed to their chosen specialty.

Regarding the duration of work as a resident, we found that the majority of residents (23.9%) had worked for 1 year, followed by 15% who had worked for 2 years. These findings are consistent with previous studies that have reported

similar trends in the duration of work among medical residents (9), (10). However, it is important to note that the duration of work can vary across different medical specialties and healthcare systems.

When examining the current specialization status of preventive medicine residents in KSA, we found that a significant proportion of residents were in their third training level (32.7%), followed by the first training level (23.0%). This suggests that the majority of residents in this specialty are still in the early stages of their training. Furthermore, a high percentage of residents (63.7%) ranked preventive medicine as their first choice when applying for the specialization program. These findings indicate a strong interest and commitment among residents towards preventive medicine as a specialty. Similar findings have been reported in previous studies on residents' specialty preferences and ranking (11), (12).

It is worth noting that a considerable proportion of residents (82.3%) did not receive training in preventive medicine during their study or internship. This highlights the need for enhanced opportunities for residents to gain exposure and experience in preventive medicine early in their medical education. Previous studies have emphasized the importance of incorporating preventive medicine training into the medical curriculum to better prepare future physicians for the growing importance of preventive healthcare (13), (14).

In the context of previous specialization information, the majority of residents (86.7%) had not changed or withdrawn from their specialized program, indicating a relatively stable career path. However, a small proportion (13.3%) had changed their previous specialization. The most common reasons for changing or withdrawing from a specialty were a mismatch between work nature and aspirations/interests (39.1%) and the inability to balance work and social life (34.8%). These findings align with previous studies that have identified similar reasons for specialty changes and withdrawals among medical residents (15).

In terms of the association between different features and the reasons for changing specialty to preventive medicine, we found a significant association with gender. Female residents were more likely to change or withdraw from the specialty compared to male residents. This finding is consistent with previous studies that have reported gender differences in specialty choices and changes among medical professionals (16), (17).

Limitations of this study include a relatively small sample size and potential biases associated with self-reported data. Future studies with larger and more diverse samples are warranted to validate and expand upon these findings. Additionally, qualitative research methods could provide deeper insights into the reasons for changing specialties and the experiences of preventive medicine residents in KSA.

Conclusion:-

This study findings underscore the importance of addressing factors such as work-life balance, career aspirations, and gender-specific challenges to improve resident satisfaction and retention. Medical institutions and policymakers should consider these findings when designing interventions and support systems aimed at enhancing the professional development and well-being of residents in Preventive Medicine. Further research is warranted to explore the underlying factors contributing to specialty changes and to develop targeted strategies for retaining residents in their chosen fields.

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