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Attitude of family medicine residents toward team-based care in primary healthcare centers in Saudi Arabia

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Abstract:

BACKGROUND: Team-based care (TBC) is becoming the standard method of delivering primary care services in Saudi Arabia. Family medicine residents are considered the future leaders who will apply the Saudi Ministry of Health (MOH) strategic transformation plans in practice. The aim of this study was to assess the attitude of family medicine residents toward TBC and the factors associated with their current attitudes.

MATERIALS AND METHODS: A cross-sectional study was conducted between February and April 2022. The study targeted all Family Medicine residents rotating in primary healthcare centers of the Saudi MOH. A web-based survey was built using a modified version of the Attitudes Toward Health-Care Teams Scale. Data was analyzed using SPSS. Mann-Whitney U test and analysis of variance (ANOVA) were performed to compare mean attitude scores between various study variables.

RESULTS: The overall mean attitude score was 2.71; the mean scores for attitudes toward team value, team efficiency, and physicians shared role were 3.94, 2.47, and 1.71, respectively. The residents who had received TBC training had significantly higher mean scores for attitudes toward team value subscale compared to those who had no training (4.09 vs. 3.87, $P = 0.038$). Similarly, the mean score for same attitude subscale was significantly higher among those who practice TBC compared to those who do not (4.08 vs. 3.85, $P = 0.038$).

CONCLUSION: The residents exhibited an overall positive attitude, especially toward team value; however, their understanding of physicians' shared role in the team should be improved by training and practice with role models.

Keywords:

Family medicine, primary care, residency training program, Saudi Arabia, team-based care

Introduction

Healthcare improvement is one of the fundamental objectives of the ambitious Saudi Vision 2030. Therefore, one of the executive programs of this project focuses on the transformation of healthcare. The program's strategic goals include: improving access to health-care services, enhancing the quality and efficiency of services, and promoting preventive healthcare.^[1] The newly developed Model of Care, shown in Figure 1, is one of the transformation

initiatives that seek to empower people to take control of their health by providing them with knowledge and allowing them to participate in their health management plan, integrating the health-care system from the people's perspective, focusing on health and prevention rather than simply curing diseases and taking a patient-friendly and outcome-focused approach to provide services.^[2] This model envisions a healthcare system with citizens active at its center. All citizens can access the six systems of care: urgent care, planned care, chronic care, last phase, wellness care, and safe birth. Each of these systems is delivered at different levels

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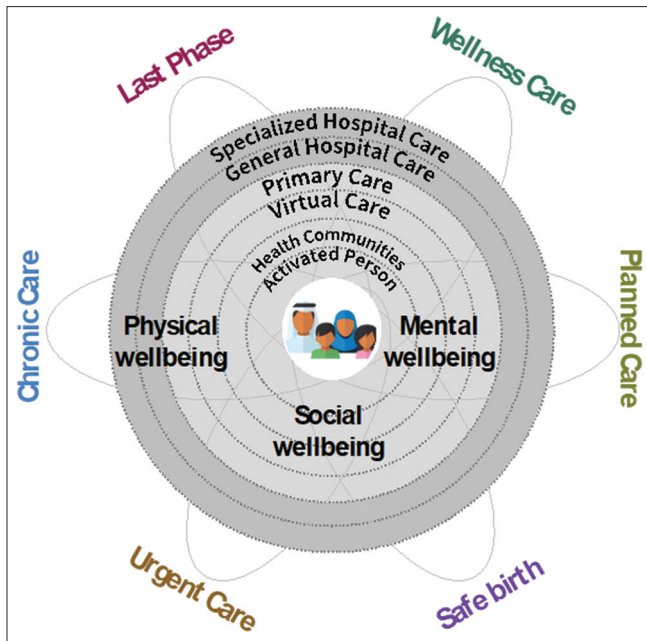


Figure 1: The new model of care^[2]

of the health services, with primary care at the center of the delivery.

Unfortunately, the current primary healthcare centers (PHCs) systems are inadequate or unsuitable owing to the changes in the demographic characteristics of the population, chronic disease patterns, and risk factors.^[3] In addition, many challenges interfere in the proper implementation of the new model of care pathways in primary care. The reasons for this are as follows: The quality and delivery of care are varied; standardized clinical guidelines are lacking; pathway management is poor; referrals are inappropriate; and communication among providers, clinicians, and patients is poor.^[2] Insufficient access and lack of effectiveness have been reported in both clinical and interpersonal care.^[4] In addition, patients are dissatisfied with the thoroughness and continuity of care.^[5]

In response to these challenges, the Assistant Deputy for Primary Healthcare at the Saudi Ministry of Health (MOH) proposed the team-based care (TBC) approach as part of the agenda for reform of PHC to be in line with the Saudi Vision 2030 goals and to ensure further implementation of the new model of care and the enhanced primary care initiatives envisioned in the ministry's strategy. TBC aims to expand primary care from a reactive service for ill patients to a proactive service for all. The nature of primary care and family medicine practice include the collaboration and integration of care of different disciplines, such as nursing, health coaching, and care coordination. Under TBC, each health-care team is accountable for

the health outcomes of approximately 2000 individuals and is the first point of contact for most health-related issues. Therefore, all TBC members are expected to work collaboratively to identify population needs, understand their culture, and manage their health by offering holistic and integrated care that shifts the focus from disease-based care to community-based care with a citizen-centric approach to the delivery of preventive and therapeutic interventions. Thus, the health system can improve patient experience, facilitate the development of longitudinal patient-provider relationships, ensure continuity of care, reduce costs, and improve health outcomes.^[2] Studies have reported the several benefits of implementing TBC in healthcare systems, such as better access to care, increased effectiveness and efficiency of delivered care, increased job satisfaction, and safer working environment.^[6,7]

For health-care teams to work effectively, appropriate knowledge, skills, and attitude competencies must be ensured. Moreover, how affection between team members affects teamwork should be considered.^[8-10] The interrelation between behavior, cognition, and attitudes affects teamwork more than knowledge and skills because team members can anticipate each other's needs, adjust to the changing environment and each other's actions and develop a mutual understanding of identifying and correcting errors.^[10] However, data show that physicians report lower scores than other professions, such as nursing, social work, and pharmacy, in their attitudes toward different aspects of teamwork such as interprofessional healthcare teams, teamwork value, and team efficiency.^[11,12]

In Saudi Arabia, TBC is becoming the standard method of delivering primary care services and has recently been established under the "A Physician for Every Family" project, which empowers family physicians to create and lead teams. Residents in board training, a 3–4-year postgraduate program, are considered the future leaders of this transformational project. However, most studies on TBC and inter-professional teamwork have been conducted in the academic settings and have targeted interprofessional education readiness and attitude of undergraduate students.^[13-16] Therefore, this study was conducted to (1) assess the attitude of family medicine residents toward TBC in the context of value, efficiency, and physician's role and (2) explore factors associated with their current attitudes.

Materials and Methods

A cross-sectional study was conducted between February and April 2022. The study targeted all family medicine residents of both genders (male and female) and all levels (R1–R4), rotating in PHCs of the Saudi

MOH during the study period. Rotating residents from other specialties were excluded. Ethical approval was obtained from the Institutional Review Board vide Letter No. 22-08M dated 13/02/2022 and informed written consent was taken from all the participants in the study.

According to the Higher Education Studies of Family Medicine program of the Saudi MOH, the total number of residents enrolled in the program at PHC was 1474.^[17] Therefore, the sample size calculated using OpenEpi, version 3, was 305. All family medicine residents (1474) received a link to a web-based, self-administered survey through E-mail. The link was closed once the target sample size was achieved. The web-based survey was built on Google Forms with the following two sections: (1) Demographic and PHC data with gender, residency level, the region in Saudi Arabia the residency program belongs to, governance (if the PHC follows a cluster or regional health directorate), availability of zone/network, TBC training status, TBC experience, and duration of practice and (2) A modified version of the attitudes toward healthcare teams (ATHCT) scale modified by Leipzig *et al.*, was used in this study.^[11] This version consists of 21 items on a 6-point scale used to explore the attitudes of 591 postgraduate trainees from 20 different professions, including medicine, nursing, and social work. It is composed of three subscales: team value (11 items), team efficiency (5 items), and physician's shared role in the team (5 items). The responses for the item range were listed on 6-point Likert scale (0 = strongly disagree, 1 = disagree, 2 = slightly disagree, 3 = slightly agree, 4 = agree, and 5 = strongly agree).

Internal consistency was checked using Cronbach's alpha test (a test of 0.7 is considered adequate). The SPSS package version 21 (IBM Corp, Armonk, NY) was used for the data analysis. For each subscale, the mean of each item was scored out of 5, and the total mean of each subscale was calculated. Next, the means of all three subscales were summed up and converted to the overall mean. To unify the scoring process to reflect a positive attitude, we inverted the coding of five team efficiency items (1, 8, 10, 12, and 15) and four of the physician's shared role items (4, 6, 16, and 18) [Table 1]. Analysis of variance was performed to test for differences between the study variables with respect to the three subscales. Statistical significance was set at $P < 0.05$.

Results

The respondents were 306 (100.3%). All participants completed three subscales of the ATHCT scale. The data of the three subscales were checked for internal consistency using Cronbach's alpha test. The score was adequate for attitudes toward team efficiency (0.731) and

Table 1: Attitude of family medicine residents toward healthcare teams items

Statements
1. Working in teams unnecessarily complicates things most of the time.
2. The team approach improves the quality of care to patients.
3. Team meetings foster communication among team members from different disciplines.
4. Physicians have the right to alter patient care plans developed by the team.
5. Patients receiving team care are more likely than other patients to be treated as whole persons.
6. A team's primary purpose is to assist physicians in achieving treatment goals for patients.
7. Working on a team keeps most health professionals enthusiastic and interested in their jobs.
8. Patients are less satisfied with their care when it is provided by a team.
9. Developing a patient care plan with other team members avoids errors in delivering care.
10. When developing interdisciplinary patient care plans, much time is wasted translating jargon from other disciplines.
11. Health professionals working on teams are more responsive than others to the emotional and financial needs of patients.
12. Developing an interdisciplinary patient care plan is excessively time-consuming.
13. The physician should not always have the final word in decisions made by health care teams.
14. The give and take among team members helps them make better patient care decisions
15. In most instances, the time required for team meetings could better be spent in other ways.
16. The physician has the ultimate legal responsibility for decisions made by the team.
17. Hospital patients who receive team care are better prepared for discharge than other patients.
18. Physicians are natural team leaders.
19. The team approach makes the delivery of care more efficient.
20. The team approach permits health professionals to meet the needs of family caregivers as well as patients.
21. Having to report observations to the team helps team members better understand the work of other health professionals.

attitudes toward team value (0.916) subscales. However, the results of the test were low (0.31) for the attitudes toward physician's shared role on team subscale.

Table 2 shows that both genders and resident levels were represented in the sample. It also shows that over half of the residents (57.5%) practiced within a health cluster and 53% had a functioning network. Approximately one-third (35.6%) had had training on TBC and 40.8% were practicing or had previously practiced TBC. However, for the highest proportion of participants (44.8%), the practice lasted for <3 months.

Table 3 shows the mean score for each item on the three subscales of attitude, the overall mean score for each subscale, and the overall mean score for attitude. For all results, higher scores reflected positive attitudes

Table 2: Characteristics of family medicine residents having rotations at primary healthcare centers under MOH, Saudi Arabia, 2022 (n=306)

Characteristics	N(%)
Gender	
Male	161 (52.6)
Female	145 (47.4)
Age groups	
25-29	243 (79.4)
30-34	55 (18)
35-39	6 (2)
45-49	2 (0.7)
Residency level	
R1	65 (21.2)
R2	78 (25.5)
R3	97 (31.7)
R4	66 (21.6)
Affiliation of the training program	
program under Saudi MOH	302 (98.7)
Non-MOH	4 (1.3)
Governance	
Cluster	176 (57.5)
RHD	130 (42.5)
Functioning network	
Yes	162 (53)
No/I do not know	144 (47)
Received training on TBC	
Yes	109 (35.6)
No	197 (64.4)
Practising TBC	
Yes	125 (40.8)
No	181 (59.2)
Duration of practicing TBC (125 participants)	
<3 months	56 (44.8)
3-8 months	33 (26.4)
9-12 months	5 (4)
>1 year	31 (24.8)

MOH=Ministry of Health, RHD=Regional Health Directorate, TBC=Team-based care

toward the item or subscale. The overall mean score of the attitude was 2.71 out of 5 points, slightly above the mid-point of 2.5. The mean score for the attitudes toward team value subscale was the highest compared with the other attitude subscales (3.94). Almost all attitudes toward team value subscale items showed a high mean score above 3.5. The mean score for the attitudes toward team efficiency subscale was 2.47, close to the scale's mid-point, while the mean score for the attitudes toward physician's shared role on team subscale was only 1.71.

Table 4 shows the differences between the subgroups of respondents regarding the mean scores for the three subscales of attitudes and overall attitudes. A nonparametric Mann-Whitney *U*-test was used to test the differences because of the normal distribution of the data. The results showed that those who had had

TBC training had significantly higher mean scores for the Attitudes Toward Team Value subscale than those who had no training (4.09 vs. 3.87, $P = 0.038$). Similarly, the mean score was significantly higher for those who practiced TBC than those who did not, for the same attitude subscale (4.08 vs. 3.85, $P = 0.038$). However, gender, residency level, being under a cluster, presence of a functioning network, and duration of practising TBC, all had no significant effect on the attitude mean scores.

Table 5 shows the difference between the subgroups of the respondents regarding the duration of TBC practice of the 125 respondents who stated that they had previously or were currently practising TBC. No significant difference was detected between those who had practiced for a short period of 3 months compared to those who had practiced for more than 3 months.

Discussion

TBC is considered a transformational development in primary care in many countries. This study provides a deep insight into how postgraduate trainees in family medicine who rotate in PHC react to the concept of team care. It also explores the factors that contribute to their current attitudes. The TBC project leaders can, therefore, use this information in their current and future plans.

Reform plans of the Saudi healthcare including the introduction of clusters to develop into accountable care organizations by 2030 are currently being made. In addition, primary care networks to support primary care reform have also been launched. Therefore, residents rotating in PHCs with functioning networks can be exposed to more collaborative and integrative care environments to adopt a citizen-centric approach to the delivery of patient care.^[18]

The residents showed a positive attitude toward team value, which was the highest compared with the other attitude subscales. Similarly, Baatar *et al.*, reported that the mean score of health-care professionals for the quality of care at faculty level at the Mongolian National University of Medical Sciences was significantly higher than the mean score for team efficiency.^[19] Moreover, the item stating that TBC positively affects the quality of care scored the highest (4.41 out of 5) of other items in this subscale. This was statistically significantly related to the residents' TBC training and practice status, but there is no prestatus assessment to confirm this relationship. However, a previous study found that medical students' attitudes toward team values significantly improved following interprofessional educational activity.^[20]

Table 3: Mean scores for attitude towards healthcare teams by subscales among family medicine residents, Saudi Arabia, 2022 (n=306)

Attitude sub-scale	Items	Mean	SD
Attitudes toward team efficiency	Working in teams unnecessarily complicates things most of the time	2.99	1.61
	Patients are less satisfied with their care when it is provided by a team	2.91	1.58
	When developing interdisciplinary patient care plans, much time is wasted translating jargon from other disciplines	2.15	1.29
	Developing an interdisciplinary patient care plan is excessively time-consuming	2.20	1.31
	In most instances, the time required for team meetings could better be spent in other ways	2.09	1.38
Attitudes toward team value	Mean attitudes toward team efficiency	2.47	1.00
	The team approach improves the quality of care to patients	4.41	0.91
	Team meetings foster communication among team members from different disciplines	3.92	1.10
	Patients receiving team care are more likely than other patients to be treated as whole persons	3.98	1.08
	Working in a team keeps most health professionals enthusiastic and interested in their jobs	4.01	1.10
	Developing a patient care plan with other team members avoids errors in delivering care	4.07	1.09
	Health professionals working in teams are more responsive than others to the emotional and financial needs of patients	3.57	1.15
	The give and take among team members helps them make better patient care decisions	3.91	1.17
	Hospital patients who receive team care are better prepared for discharge than other patients	3.70	1.20
	The team approach makes the delivery of care more efficient	3.99	1.09
	The team approach permits health professionals to meet the needs of family caregivers as well as patients	3.90	1.09
	Having to report observations to the team helps team members better understand the work of other health professionals	3.93	1.02
	Mean attitudes toward team value	3.94	0.81
Attitudes toward physician's shared role on team	Physicians have the right to alter patient care plans developed by the team	1.61	1.27
	A team's primary purpose is to assist physicians in achieving treatment goals for patients	0.89	0.98
	The physician should not always have the final word in decisions made by healthcare teams	2.71	1.34
	The physician has the ultimate legal responsibility for decisions made by the team	1.90	1.26
	Physicians are natural team leaders	1.45	1.29
Overall attitude	Mean attitudes toward physician's shared role on team	1.71	0.64
	Mean overall attitude	2.71	0.42

SD=Standard deviation

The team efficiency subscale result, which is slightly below the midpoint, can be correlated with the nature of the negative items. Similarly, in Leipzig *et al.*, the postgraduate medical residents scored lower than nurse practitioners and social workers in the team efficiency subscale.^[11] Moreover, although residents did not think teamwork complicated things unnecessarily, they preferred to spend time on activities other than team meetings. This might be due to a lack of appreciation of the importance of team meetings and communication or the lack of a role model leader who would conduct effective and productive clinical meetings. However, team meetings have been proven to contribute to better patient assessment and management, but there is no clear evidence of their impact on clinical outcomes.^[21]

The internal consistency of the physicians' shared role subscale was unsatisfactory, although the ATHCT scale was validated in different settings, with a Cronbach's α of more than 0.75.^[11,22,23] Besides, the residents' attitudes toward the items of this subscale were negative. Interestingly, although four out of the five items in this subscale were negative in nature, residents exhibited a positive attitude toward the only positive statement,

which states that the physician should not always have the last word in decisions made by healthcare teams. This result could be due to the limited experience of residents with leadership, attending physicians' regulations, legal policies, and privileges. Similarly, several studies have reported a significantly less positive attitude toward physicians' shared roles in a team, which indicates that physicians prefer centrality rather than shared decisions.^[11,24]

The degree of residents' participation in TBC indicates that they are willing to be part of this transformational project; however, what is required is formal training on all aspects of team care, including medicolegal issues, accountability, shared responsibility, and communication skills. This would be better introduced in the early stages of professional training, such as in the undergraduate stage when TBC would be formalized in the curriculum as theory and practice. The literature shows that the likelihood of working in a primary care facility with TBC practice is 5.7 times higher for postgraduate family medicine residents who were trained for TBC.^[25] Therefore, organizations can attract and retain the workforce by

Table 4: Comparison of mean total score and subscale scores for the attitude towards team based care by demographic characteristics of the family medicine residents, Saudi Arabia, 2022

Characteristics	Subclass	Characteristics	N	Mean	SD	Mean rank	P-value*
Gender	Team efficiency	Male	161	2.56	1.03	160.89	0.123
		Female	145	2.37	0.95	145.29	
	Team value	Male	161	3.91	0.83	151.13	0.621
		Female	145	3.98	0.77	156.13	
	Physician's shared role	Male	161	1.72	0.67	153.53	0.995
		Female	145	1.70	0.59	153.47	
Mean total	Male	161	2.73	0.44	157.29	0.430	
	Female	145	2.68	0.40	149.29		
Residency level	Team efficiency	R1 and R2	143	2.51	1.01	156.77	0.544
		R3 and R4	163	2.43	0.99	150.63	
	Team value	R1 and R2	143	4.02	0.75	161.24	0.151
		R3 and R4	163	3.87	0.85	146.71	
	Physician's shared role	R1 and R2	143	1.66	0.66	147.46	0.261
		R3 and R4	163	1.76	0.61	158.80	
Mean total	R1 and R2	143	2.73	0.42	157.95	0.410	
	R3 and R4	163	2.69	0.43	149.60		
Received training on TBC	Team efficiency	Trained	109	2.40	1.08	149.07	0.514
		Not trained	197	2.50	0.95	155.95	
	Team value	Trained	109	4.09	0.72	167.61	0.038
		Not trained	197	3.87	0.84	145.69	
	Physician's shared role	Trained	109	1.63	0.67	142.49	0.104
		Not trained	197	1.76	0.61	159.59	
Mean total	Trained	109	2.71	0.46	151.51	0.770	
	Not trained	197	2.71	0.41	154.60		
Presence of functioning cluster	Team efficiency	Cluster	176	2.48	1.04	154.34	0.847
		RHD	130	2.45	0.95	152.37	
	Team value	Cluster	176	4.03	0.73	161.18	0.077
		RHD	130	3.83	0.88	143.11	
	Physician's shared role	Cluster	176	1.66	0.58	145.26	0.057
		RHD	130	1.79	0.70	164.65	
Mean total	Cluster	176	2.72	0.45	155.77	0.602	
	RHD	130	2.69	0.39	150.43		
Functioning Network	Team efficiency	Network	162	2.41	0.99	145.84	0.107
		No network	144	2.53	1.01	162.12	
	Team value	Network	162	3.96	0.82	156.53	0.524
		No network	144	3.92	0.79	150.09	
	Physician's shared role	Network	162	1.68	0.62	149.19	0.364
		No network	144	1.75	0.65	158.34	
Mean total	Network	162	2.68	0.44	146.83	0.162	
	No network	144	2.74	0.41	161.00		
Practising TBC	Team efficiency	Practice	125	2.37	1.08	146.28	0.234
		No	181	2.53	0.94	158.49	
	Team value	Practice	125	4.08	0.71	166.11	0.038
		No	181	3.85	0.85	144.79	
	Physician's shared role	Practice	125	1.7	0.6	146.33	0.236
		No	181	1.75	0.6	158.45	
Mean total	Practice	125	2.70	0.46	150.76	0.652	
	No	181	2.71	0.40	155.40		

*Mann Whitney U test. RHD=Regional health directorate, SD=Standard deviation, TBC=Team-based care

incorporating TBC training into their family medicine postgraduate curricula. Moreover, practicing TBC can help residents develop their unique patient care skills to achieve primary care principles, such as continuity of care, comprehensive and coordinated care, and a

patient-centered approach. In addition, if they become team leaders, they will have the chance to have their own group of patients and be able to use a holistic approach to family medicine to help them develop their professional identity.^[26]

Table 5: Comparison of mean subscale scores for the attitude towards team based care by duration of practicing team based care among family medicine residents, Saudi Arabia, 2022

Variable	Subclass	Duration (months)	N	Mean	SD	Mean rank	P-value*
Duration of practising TBC	Team efficiency	<3	56	2.27	1.05	57.72	0.142
		3+	69	2.47	1.09	67.28	
	Team value	<3	56	4.0	0.67	58.91	0.255
		3+	69	4.1	0.75	66.32	
	Physician's shared role	<3	56	1.75	0.62	67.64	0.194
		3+	69	1.59	0.63	59.23	
Mean total		<3	56	2.67	0.48	59.21	0.091
		3+	69	2.73	0.45	66.08	

*Mann Whitney U test. TBC=Team-based care, SD=Standard deviation

We recommend that more studies be conducted on residents' current knowledge and practice to explore their understanding of the concept and principles of TBC and discover whether their current practice supports the development and improvement of their performance. Residents' satisfaction with TBC implementation in primary care facilities should also be measured. The sample of future studies can be broadened to include other non-MOH governmental healthcare sectors and nongovernmental primary care centers.

One of the limitations of this study is that ATHCT usually requires a pre- and post-assessment to measure and monitor the effects of training on team members' attitudes. However, this was used in a cross-sectional study. In addition, voluntary participation in this study could have influenced the results, which could not be controlled because the sample was not randomized. Moreover, difficulties with language might have affected residents' understanding of the scale items and influenced the overall result.

Conclusion

Knowing the attitudes of family medicine residents in a primary care setting toward TBC can help policy-makers improve their plans and decisions. The residents showed an overall positive attitude, especially toward team value; however, their understanding of physicians' shared role in the team could be improved with training and practice with role models. Residents can help establish TBC at their primary care centers and act as champions for this promising project to improve patient care and satisfaction.

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Conflicts of interest

There are no conflicts of interest.

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