



Research Article

Assessing Confidence of Family Medicine Residents in Performing Digital Rectal Examination in Jeddah, Saudi Arabia

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Abstract

Issue: Cancer incidence in Saudi Arabia has been increasing in the last decade. Prostate cancer incidence increased up to 8-fold between 1990-2016. The skills of primary care practitioners in performing Digital Rectal Examinations (DREs) are becoming necessary for detecting the early stages of prostate cancer. **Evidence:** Digital Rectal Examination (DRE) is an essential part of clinical evaluation for family medicine physicians. Several studies looked at this issue. In one study, they assessed the knowledge and perception of family medicine residents in digital rectal examination done on 217 residents showed that one-third of respondents did not receive any feedback or teaching for DRE technique. About 71% of respondents showed their inability to identify the nature of abnormal findings on DRE (2). **Implications:** This study was aimed to assess the confidence of family medicine residents in performing DRE, to improve family medicine residents' qualification in detecting early stages of prostate cancer and improve patient outcome through assessment tool in the form of valid questionnaires done before and after teaching session on DRE exam simulation. We want to develop a recommendation to use simulation as a core in the curriculum in family medicine training program in Saudi Arabia.

Keywords: Digital rectal examination; Confidence; Family medicine; SDG 4: Quality education

Introduction

The incidence of cancers in Saudi Arabia is increasing in the last decade. The Prostate cancer incidence increased up to 8-fold between 1990-2016 [1]. A primary care practitioner is an essential part of any health care system. He sees people that have common medical problems and assess the urgency of medical problems. Anorectal conditions are considered as one of the commonest cases in primary care setting. Appropriate history taking and physical examination are important to differentiate between benign and malignant or emergency cases. The Digital Rectal Examination

(DRE) is a necessary part in evaluating those conditions. Some several studies looked at this issue; in one study, they assessed the knowledge and perception of family medicine residents in digital rectal examination. 217 residents (25%) responded to the survey during the training, one-third of respondents did not receive any feedback or teaching for DRE technique. About 71% of respondents showed their inability to identify the nature of abnormal findings on DRE [2].

The skill of performing DRE is inadequate. Studies done in final years of medical students and interns showed that no experience of DRE was reported in 24%, with mannequin-only experience in 20% [3-6]. DRE is an important tool for detecting early stages of prostate cancer, while waiting for high PSA levels

most likely associated with worse outcome. Therefore, I propose that adding simulation in family medicine training program would improve their skills and help in detecting early stages of prostate cancer [7].

Family physicians are extremely important in any health care system, and the first one interacting with the patients [8]. It is important to be highly qualified to picking up serious diseases in the beginning on the illness. One of the domains in Saudi Arabia vision 2030 is creating a strong primary health care centers and physicians. As far as we know there are no studies done in Saudi Arabia assessing DRE skills in family physicians.

The aim of the study is to assess the confidence of family medicine residents in performing DRE, to improve family medicine residents' qualification which consequently detecting early stages of prostate cancer and improve patient outcome. We want to develop a recommendation to use simulation as a core in the curriculum in family medicine training program in Saudi Arabia.

Data and Methods

Study Setting and Recruitment

This prospective cohort study was conducted among family medicine residents at National Guard Health Affairs (NGHA) - Jeddah, Saudi Arabia. A group of family medicine residents in the NGHA program was given a teaching session about DRE. With inclusion, criteria being residents of all levels (R1-R4) of family medicine in NGHA program in Jeddah, Saudi Arabia and exclusion criteria being residents who did not fill the consent form. Participants were recruited through Director or RTP of family medicine residency program in NGHA – Jeddah, Saudi Arabia.

Data Collection

A modified questionnaire from the previous studies published by Lawrentschuk and Bolton [4-5] assessed resident evaluation in performing a DRE. Prior to the standard teaching, all residents filled out the survey about DRE to assess their confidence and satisfaction with pre-teaching and post-teaching questionnaires.

Statistical Analysis

Descriptive statistics were used to elaborate the proportion of responses for each respondent. Values were computed and reported as numbers and percentages for all categorical variables, whereas mean and standard deviation were used to describe all continuous variables. Paired t-test was conducted to determine the differences in the score confidence before and after the teaching session. In addition, an independent sample t-test was performed to determine the differences in the overall confidence and the number of DRE performed between males and females. Statistical significance was identified at $p < 0.05$. All statistical analyses were carefully done using Statistical Packages for Software Sciences (SPSS) version 26, Armonk, New York, IBM Corporation.

Results

Thirty-eight family medicine residents were enrolled, with 19 males and 19 females. Table 1 presents the results of the survey before and after DRE teaching sessions. Before the DRE session, 39.5% performed at least 1 to 2 DRE. Only 7.9% strongly agreed when asked about their confidence in using DRE, and only 10.5% strongly agreed about clinical exposure to DRE during their residency training. After the teaching sessions, the majority (60.5%) strongly agreed that they feel more confident in understanding the indication to do DRE. 60.5% strongly agreed that it gives them more confidence in their techniques, and 42.5% strongly agreed that it increased their confidence to accurately assess findings when performing DRE.

Question before teaching	N (%)
Gender	
Male	19 (50.0%)
Female	19 (50.0%)
How many digital rectal examinations (DREs) have you performed to date?	
0	0
1-2	15 (39.5%)
3-4	12 (31.6%)
5-9	07 (18.4%)
≥10	04 (10.5%)
Prior to today, I was confident in my ability to perform and accurately assess.	
Strongly disagree	03 (07.9%)
Disagree	06 (15.8%)
Neutral	16 (42.1%)
Agree	10 (26.3%)

Strongly agree	03 (07.9%)
Prior to today, clinical exposure to digital rectal examination in my training?	
Strongly disagree	01 (02.6%)
Disagree	09 (23.7%)
Neutral	11 (28.9%)
Agree	13 (34.2%)
Strongly agree	04 (10.5%)
Total Pre-score (mean \pm SD)	9.34 \pm 2.64
Statement after teaching	
After DRE session, I feel more confident in understanding the indications to do DRE	
Strongly disagree	01 (02.6%)
Disagree	0
Neutral	03 (07.9%)
Agree	11 (28.9%)
Strongly agree	23 (60.5%)
After DRE session, I feel more confident in my techniques when performing DRE	
Strongly disagree	01 (02.6%)
Disagree	0
Neutral	01 (02.6%)
Agree	13 (34.2%)
Strongly agree	23 (60.5%)
After DRE session, I feel more confident in my ability to accurately assess findings when performing DRE	
Strongly disagree	01 (02.6%)
Disagree	0
Neutral	06 (15.8%)
Agree	15 (39.5%)
Strongly agree	16 (42.1%)
Total Post-score (mean \pm SD)	13.1 \pm 2.32

Table 1: Results of the survey before and after digital rectal examination (DRE) teaching (n=38).

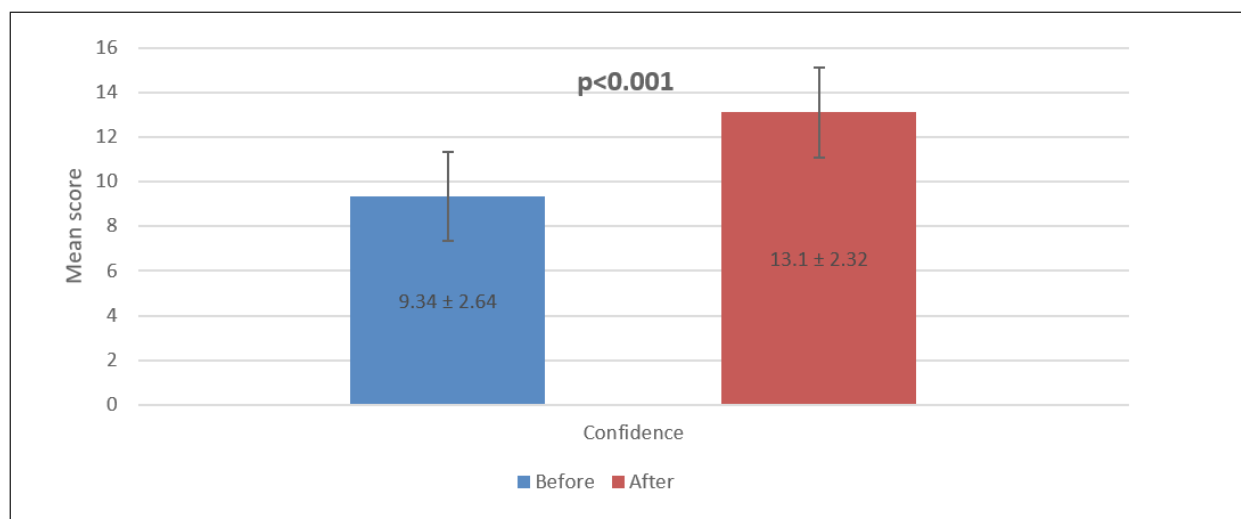


Figure 1: Paired sample t-test of confidence total score before and after the teaching session.

In Figure 1, paired t-test indicates a significant increase in the confidence of family medicine residents in performing DRE after the teaching session ($p < 0.001$).

In Table 2, there were no significant variations in the confidence level of males and females before ($p = 1.000$) and after ($p = 0.731$) teaching sessions. Also, there was no significant difference between the number of DRE performed and gender ($p = 0.529$).

Factor	Male Mean \pm SD	Female Mean \pm SD	P-value [§]
Pre confidence score	9.37 \pm 2.87	9.37 \pm 2.48	1.000
Post confidence score	13.3 \pm 1.88	13.0 \pm 2.73	0.731
Number of DRE performed	4.02 \pm 3.06	3.47 \pm 2.52	0.529
[§] P-value has been calculated using independent sample t-test.			

Table 2: Differences in the overall confidence score and the number of DRE performed between males and females (n=38).

Discussion

This study evaluates the effectiveness of DRE teaching sessions in the confidence level of family medicine residents when performing DRE. This study's findings revealed a significant improvement in the confidence levels of the family medicine residents when performing DRE after the teaching sessions. The overall mean confidence score before the teaching session was 9.34 points, increasing to 13.1 points post-teaching sessions ($p < 0.001$). In Australia [4], 92% of the final-year medical students expressed that they received education on performing DRE, with 81% reporting receiving a tutorial regarding plastic models technique, and despite that, 79% of this group said this teaching was beneficial, only 52% among those who found the tutorial helpful were able to carry out a DRE post-tutorial session. However, in Canada [6], comparing the knowledge of DRE between students who received lectures and presentations (control group) versus students who received the same methods plus further training from a rectal teaching associate (experimental group). Findings suggest that both groups' mean knowledge scores increased significantly after the training (18.73 to 22.32, $p < 0.001$). However, the experimental group scored higher on the Objective Structured Clinical Exam (OSCE) (27.52 versus 23.80, $p = 0.001$) and rated the rectal teaching associate as a more effective DRE method. The outcome of our study suggests that teaching sessions prior to performing DRE among the residents may yield better confidence levels among them. Hence, it is worth implementing this type of education method, considering the evidence found in this study.

Data in our study suggest that the confidence levels of male and female residents were comparable before and after teaching sessions. Furthermore, comparing the number of DRE performed between male and female residents, our results yield insignificant results ($p = 0.529$), indicating similar number of DRE performed in both groups. This observation is consistent with the report of Dakum, et al. [9], wherein the number of performed DRE did not vary significantly between age and gender.

Prior to DRE teaching sessions, only 7.9% strongly agreed with their confidence to perform and accurately assess using DRE; however, after the sessions, the confidence increased to 42.1%. Similarly, in post-intervention, most residents felt more confident in understanding the indication to perform DRE and were adept with their techniques. Our results seem to be better than the study of Bussi res, et al. [2]. Based on their accounts, during the course of training, one-third of trainees did not receive any supervision for or feedback on the DRE-related techniques, and 71% demonstrated a lack of knowledge to identify the nature of abnormal examination findings at least once during their training. Similarly, Eziyi, et al. [10] indicated less confidence among the final year medical students when providing an opinion regarding the findings of DRE, as only 3.9% were very confident, although 82.7% showed reasonably confident. However, in a study by Nwachukwu [11], some misconceptions were seen among medical students. Accordingly, researchers documented that 19% of the students do not believe that DRE is for medical students, and approximately 20% were of the opinion that their choice of future specialty influences their attitude toward DRE.

All our residents performed DRE, with 39.5% performing at least twice throughout their careers. Prior to the training session, 44.7% (agree: 34.2%; strongly agree: 10.5%) reported clinical exposure to DRE during residency training. In Ireland [3], medical students who had no experience of DRE have been reported at 24%, with mannequin-only experience in a further 20%. The author added that the most common reason for the limited exposure was the misunderstanding that the medical students were not allowed to perform DRE on patients (51%). In Nigeria [9], a higher number of final year medical students (80.3%) have done at least 1 to 5 DRE; however, there were about 2.4% had never done such type of examination.

Conclusion

The confidence level in performing digital rectal examinations of family medicine residents improved significantly after the teaching session. However, the satisfaction of teaching

sessions seems to have a similar effect on both male and female residents. In addition, all family medicine residents had experience in performing DRE regardless of gender. This study provides evidence that teaching sessions are crucial for improving the confidence level of family residents in conducting DRE. Thus, we support the full implementation of such teaching to increase residents' awareness, satisfaction, and confidence toward DRE.

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