



Original Article

# Perception of tertiary care clients toward the availability of physical therapy service at primary health care centers in Saudi Arabia: a cross-sectional survey

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**Abstract.** [Purpose] To explore the views of clients referred for physical therapy in a tertiary care setting regarding the integration of physical therapy service at primary health care centers. [Participants and Methods] A self-administered questionnaire was distributed to eligible Saudi clients. The questionnaire consisted of three sections including demographic information section; closed-ended section with 6 Likert scale items on the perceptions of potential advantages of physical therapy service at the primary health care level; and open-ended section on potential disadvantages and barriers of implementing physical therapy service. The surveys were described and analyzed quantitatively and qualitatively. [Results] A total of 412 participants were included in the analysis (56.8% females). Participants' mean age was  $35.7 \pm 21.9$  years; 67.2% were Riyadh city residents; and 38.1% had musculoskeletal conditions. Seventy-five percent responded in support for the availability of physical therapy service at the primary health care level. Demographic characteristics had no effect on the level of support to the service availability. [Conclusion] The results of this survey demonstrated high positive support for the integration of physical therapy service at primary health care centers in Saudi Arabia. However, challenges and barriers identified by the study results require attention when physical therapy services are to be established.

**Key words:** Primary health care, Perception, Saudi Arabia

(This article was submitted Oct. 17, 2019, and was accepted Feb. 25, 2020)

## INTRODUCTION

Primary health care (PHC) is the foundation of the health care systems with emphasis on the provision of services for all people along the continuum of health, from promotion to curative and rehabilitative care<sup>1, 2</sup>. The contemporary concept of PHC as an organization identifies the values of multidisciplinary team collaboration based on the local population health needs<sup>3, 4</sup>. Physical therapy (PT) service is commonly offered across different health care settings such as at the secondary and tertiary level hospitals, long-term care facilities, private clinics, home care, and sports rehabilitation centers<sup>5</sup>. The need to integrate physical therapists with the multidisciplinary PHC team to offer individual or group-based PT service within the PHC environment has been suggested<sup>6–8</sup>.

PT is frequently prescribed as the treatment of choice for various neuromusculoskeletal disorders covering a broad scope of patient population of all ages through safe and cost-effective conservative care<sup>9</sup>. Physical therapists are uniquely positioned, being clinically competent, to contribute in the prevention of chronic non-communicable diseases through the prescription of appropriate exercise and physical activity programs for both individuals and communities<sup>10, 11</sup>. The large body of evidence recommending the inclusion of physical therapists within PHC teams have demonstrated several positive

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outcomes, including improved patient satisfaction<sup>12, 13</sup>); cost-effectiveness<sup>14, 15</sup>); earlier access time for PT services<sup>16</sup>); fewer inappropriate referrals to specialists<sup>17, 18</sup>) and; patient-related outcomes, such as quality of life and health promotion<sup>12, 19, 20</sup>).

In Saudi Arabia, the Ministry of Health (MOH) considers PHC a major strategic focus for the development of health care services to provide preventive, curative, and rehabilitative services<sup>2</sup>). The development in the health care service is demonstrated by the expanding number of PHC facilities to 2,393 centers in 2017, with the inauguration of 468 centers during the past decade<sup>21</sup>). Saudi Arabia is divided into 20 health regions with approximately 2,250,000 km<sup>2</sup> land space, and a total estimated population size of over 32.5 million with an annual population growth rate of 2.52%<sup>22</sup>). Efficient utilization of health care services is necessary to confront the rapid social, economic, and urbanization growth through improved access to PHC<sup>23</sup>).

In line with the Saudi 2030 Vision, the MOH has recently introduced a new model of PHC delivery to ensure residents' early access to health care services in their community, and to relieve the dependence on secondary and tertiary level care. The MOH commenced the planning and establishment of government-owned corporation with five regional health companies to manage and operate a cluster of hospitals together with PHC centers as part of a National Transformation Program, to improve the quality and coordination of health care services<sup>24, 25</sup>).

Currently, some PHC centers were designated to provide oral health care, emergency services, nutrition clinics, counseling and anti-smoking clinics, and other specific medical consultation services in addition to the standard general medical services. However, PT is not part of these PHC services. Public PT service is only available at secondary and tertiary level hospitals which leads to difficulty and delay in patients' access to the service.

Clients perspectives and opinions can be of great value to help in planning future or modifying current health care policies and services. A good understanding of the client's views regarding the availability of PT service at PHC will contribute in better planning for future implementation and utilization of the service. Therefore, the purpose of the current study was to explore the perception of Saudi clients referred for PT service at a public tertiary care level hospital, regarding the potential availability of PT service at the PHC.

## PARTICIPANTS AND METHODS

We carried out a cross-sectional survey to establish, quantitatively, the participants' perspectives on the availability of PT service at PHC. In addition, we conducted a qualitative descriptive analysis, based on a secondary analysis of the open-ended survey data, using thematic content analysis to synthesize the participants' views on the availability of PT service within PHC. Ethical approval of the study was granted by the Institutional Review Board of King Fahad Medical City (KFMC) (IRB Log Number: 17-236). A cover invitation and consent letter were attached to the questionnaire highlighting the objectives of the study and ensuring that all personal details of participants will remain anonymous.

A cross-sectional survey using a self-administered questionnaire was developed by the authors based on clinical experience and relevant literature<sup>26, 27</sup>). An expert panel of five physical therapists in different specialties, each with more than 10 years of professional experience, was formed to review the instrument. The questionnaire was then modified based on the panel recommendations. A convenience sample of 46 non-participating clients were asked to complete the pre-final version of the questionnaire to provide feedback on the clarity and cohesion of the instrument, feedback was considered in the final version. The internal consistency of the survey questionnaire estimated by Cronbach's alpha was 0.803, indicating adequate acceptance.

The questionnaire consisted of three sections. The first section was used to obtain socio-demographic details in the form of age, gender, area of residence, educational, employment and marital profile. The second section consisted of six 5-point Likert scale items, with 5 indicating "strongly agree", and 1 indicating "strongly disagree". The scale was designed to obtain participants' perceived agreement with the potential advantages of PT service within PHC; with a maximum of 30 points total score. The third section were open-ended questions intended to elicit participant's views on potential barriers or disadvantages of implementing such service.

The final version of the questionnaire was distributed over a 3-month period from September to December 2017 to eligible clients. The targeted participants were adult or pediatric Saudi clients that were already being followed-up or newly referred to the outpatient PT service at KFMC. Parents of pediatric clients or an attending family member of illiterate clients were asked to complete the survey on their behalf. The targeted participants were recruited during their appointment registration at the PT outpatient clinics receptions; the data obtained were manually checked by the assigned research assistant for completeness. The sample size was calculated with the sample size calculator for prevalence studies to consider approximately 3,550 population of annually referred clients regarding the availability of PT service with presumed 50% tested perception at 95% confidence interval (CI), 5% margin of error, and 80% power to detect such difference. An estimated sample of 347 clients inflated by a non-response rate of 20%, required 416 clients for this study, and were selected by convenience sampling.

Descriptive statistics for all demographic characteristics were generated as frequencies and percentages for categorical variables and mean with standard deviation (SD) for continuous variables. Chi-square statistics were computed to compare responses between the perceived support of PT service availability at PHC and demographic characteristics. One-way analysis of variance (ANOVA) and independent t-test were performed to compare the mean of perceived agreement score with advantages of PT at PHC according to the demographic characteristics studied. Probability values less than 0.05 were

regarded as statistically significant throughout all analyses. Participants with more than 75% missing data from the questionnaire were excluded from the analyses. Data analysis was performed using the Statistical Package for the Social Sciences, version 23 (SPSS Inc., Chicago, IL, USA).

Participants' statements were analyzed by thematic content analysis, a method used to identify, analyze, and report themes within data, where categories or concepts are derived from the data in a deductive or inductive manner<sup>28</sup>. These categories or concepts serve to represent the data by providing new insights and knowledge, with the outcome as a condensed and wide description of the studied phenomenon<sup>29</sup>.

A descriptive theme was defined as a topic that can provide key details related to participants' perception<sup>30</sup>. Themes were identified as having captured an essential element of the participants' views regarding PT at PHC and not necessarily the most frequent topics within the sample. Themes were created to represent the best concept of the sample. We followed the process outlined by Elo and Kyngäs<sup>29</sup> to synthesize the results. The analysis of the thematic content consisted of three phases: the development of descriptive themes together with the creation of mutually exclusive rules for inclusion, statement by statement coding done by the researcher and organization of the statements into meaningful themes by the same researcher. Four descriptive themes were developed and re-assessed to ensure that they worked with, and represented the data. Lastly, appropriate and compelling examples was selected, with context, to represent each theme.

## RESULTS

A total of 420 questionnaires were distributed, 412 were eligible for analysis (56.8% females). Eight respondents were excluded due to missing data exceeding 75%. Participants' mean age was 35.7 ± 21.9 years. Most of the participants were residents of Riyadh (67.2%), and the rest were living in different geographical regions of Saudi Arabia. Almost three-quarters of the respondents were married. Musculoskeletal conditions were the most frequent reason for seeking PT service accounting for 38.1%. Refer to [Table 1](#) for detailed description of the sample characteristics.

Seventy-five percent of the participants preferred the availability of PT service at PHC centers neighboring their area of residence. There was no relationship between any of the demographic characteristics and level of support of PT availability at PHC ( $p > 0.05$ ), ([Table 2](#)).

The mean score of the perceived agreement regarding advantages of PT service at PHC was 24.1 ± 4.6. More than 80% of the participants reported that PT service at PHC help to treat their current health condition. Participants agreed or strongly agreed that PT at PHC can reduce the time and effort to follow-up on their current health condition (8%). Also, 78.8% reported that it can provide earlier access to care. However, fewer (68.7%) agreed or strongly agreed that it reduces the need for medication prescription ([Table 3](#)).

The association of demographic variables with the mean score of perceived agreement with advantages of PT at PHC showed that the married and participants with musculoskeletal conditions had a higher mean score ( $p = 0.007$ ,  $0.044$  respectively). Also, participants who were in support of the availability of PT service at PHC had a higher mean score ( $p < 0.000$ ) ([Table 4](#)).

A total of 261 participants completed the two open-ended questions of the survey to articulate the disadvantage and barriers of PT service at PHC. Nearly 69% of the respondents were from Riyadh and 54% of them were female.

The survey elicited a total of 152 statements from all participants (patients and caregivers). Of these, 26 were removed because they were out of scope or were unclear. Statements that only expressed the research question were included for the thematic content analysis. Overall, 126 remaining statements were included for the thematic content analysis with an 81% agreement level. Four major descriptive themes were identified as being central to the participants' views of PT at PHC. A thematic diagram of the analytical framework is represented in [Fig. 1](#).

Theme 1. Availability of the PT service at PHC

**Table 1.** Participants characteristics

	n (%)
Age (years)	
0–14	83 (20.1)
15–45	135 (32.8)
46–75	125 (30.3)
76–100	11 (2.7)
Missing	39 (9.5)
Gender	
Male	166 (40.3)
Female	234 (56.8)
Missing	51 (12.4)
Marital status	
Married	265 (64.3)
Single	96 (23.3)
Missing	51 (12.4)
Employment	
Employed	129 (31.3)
Unemployed	221 (53.6)
Missing	62 (15.0)
Education	
Illiterate	66 (16.0)
Year 1–12	150 (36.4)
Higher education	133 (32.3)
Missing	63 (15.3)
Residence	
Riyadh	277 (67.2)
Outside Riyadh	99 (24)
Missing	36 (8.7)
Diagnosis	
Musculoskeletal	157 (38.1)
Pediatric	116 (28.2)
Neurological	56 (13.6)
Women health	33 (8.0)
Other	11 (2.7)
Missing	39 (9.5)

**Table 2.** The association of participants' characteristics and the support of PT at PHC

	Do you support the availability of PT at PHC close to you?		p value
	Yes	No	
	n (%)	n (%)	
Gender			0.439
Male	128 (77.1)	38 (22.9)	
Female	171 (73.7)	61 (26.3)	
Marital status			0.786
Married	199 (75.1)	66 (24.9)	
Single	70 (73.3)	25 (26.3)	
Employment			0.714
Employed	99 (76.7)	30 (23.3)	
Unemployed	165 (75)	55 (25)	
Education			0.07
Illiterate	49 (74.2)	17 (25.8)	
Year 1–12	150 (70)	45 (30)	
Higher education	108 (81.8)	24 (18.2)	
Residence			0.185
Riyadh	211 (76.45)	65 (23.55)	
Outside Riyadh	69 (69.7)	30 (30.3)	
Diagnosis			0.928
MSK	118 (75.6)	38 (24.4)	
Neurological	42 (75)	14 (25)	
Pediatric	89 (77.4)	26 (22.6)	
Women's health	23 (69.7)	10 (30.3)	
Others	8 (72.7)	3 (24.5)	
Is there a PHC center close to your residence?			0.098
Yes	175 (77.4)	51 (22.6)	
No	115 (70.1)	49 (29.9)	
I don't know	16 (88.9)	2 (11.1)	
Do you follow-up with the PHC center close to your residence?			0.545
Yes	120 (73.2)	44 (26.8)	
No	182 (75.8)	58 (24.2)	

PHC: Primary health care; PT: Physical therapy, MSK: Musculoskeletal.

Most participants expressed their need to have a PT service at PHC in their area of residence because they believe it would be a convenient and valuable addition to the existing PHC. Not only would this help to ensure early access to PT service, but also to potentially alleviate some of the burden placed on residents as they always have to seek for medical care and PT service outside their communities at the central hospitals.

*“It is great to have PT service close to the community residents for quick access because the city has become overcrowded and the hospital is located far from some patients. So, PT service at PHC could help to serve the purpose.”*

Participants also reported that transportation to and from the hospital to receive PT service several times a week remained a troublesome challenge especially for older adults and people without transportation. However, they suggest that having closer PT service would relatively make access to care more convenient.

*“I do not see that there are disadvantages, having a rehabilitation service available in the local community may reduce the burden on the major hospitals and centers.”*

Consequently, participants thought that the PT service was limited to the private sector and was very expensive. They also expressed the desire to have readily accessible and affordable service for all residents, especially for children.

*“Unfortunately, this service does not exist in our country and is available only in the private sector, which increases the financial burden on the patient and their families. I wish that these services be available for all residents including children.”*

#### Theme 2. PHC building structure

Participants believed that the current PHC centers were not ready to accept nor provide PT service to the clients due to inaccessibility, as well as environmental and structural barriers. The buildings were not designed for wheelchair users.

*“The current buildings are not suitable for disabled and wheelchair users, many of the current buildings are rented*

**Table 3.** Perceived agreement with advantages regarding PT service at PHC

QUESTION	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
	n (%)	n (%)	n (%)	n (%)	n (%)
Do you think the availability of PT service at PHC helps to treat your current health condition?	227 (55.1)	107 (26.0)	62 (15.0)	11 (2.7)	3 (0.7)
Do you think the availability of PT service at PHC reduces the need for additional radiological investigations and diagnostic testing?	115 (27.9)	114 (27.7)	131 (31.8)	42 (10.2)	8 (1.9)
Do you think the availability of PT service at PHC reduces your need for medication?	141 (34.2)	142 (34.5)	99 (24.0)	24 (5.8)	3 (0.7)
Do you think that the availability of PT service at PHC facilitates your access to health care instead of secondary or tertiary level care?	167 (40.5)	158 (38.3)	53 (12.9)	20 (4.9)	3 (0.7)
Do you think that the availability of PT service at PHC reduces the time and effort to follow up on your health condition?	213 (51.7)	137 (33.3)	37 (9.0)	14 (3.4)	2 (0.5)
Do you think that the availability of PT service at PHC has a role in the prevention of chronic diseases (non-infectious) such as cardiovascular disease, overweight and diabetes?	147 (35.7)	126 (30.6)	111 (26.9)	16 (3.9)	3 (0.7)

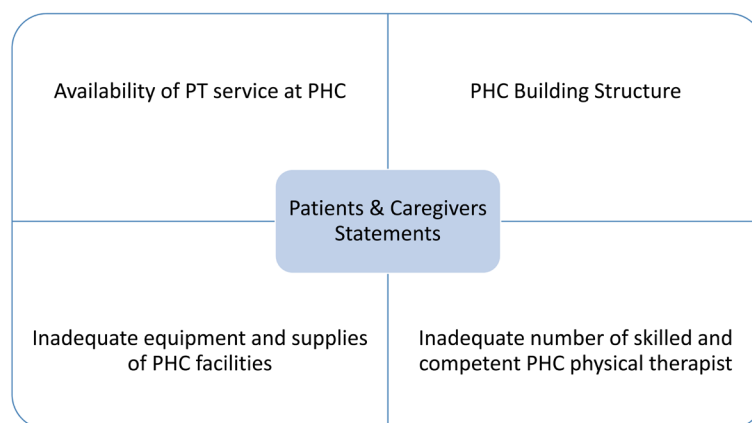
PHC: Primary health care; PT: Physical therapy.

**Table 4.** The association of the score of perceived agreement with participants' characteristics

	Score of perceived agreement with advantages of PT at PHC		
	Mean ± SD	95% CI	p value
Gender			0.64
Male	24.24 ± 4.95	(23.48–25.00)	
Female	24.02 ± 4.4	(23.45–24.58)	
Marital status			0.007*
Married	24.6 ± 4.37	(24.07–25.13)	
Single	23.13 ± 5.15	(22.08–24.17)	
Employment			0.66
Employed	24.09 ± 4.54	(23.29–24.88)	
Unemployed	24.31 ± 4.74	(23.68–24.94)	
Education			0.417
Illiterate	23.92 ± 4.93	(22.71–25.14)	
Year 1–12	23.87 ± 4.77	(23.10–24.64)	
Higher education	24.57 ± 4.46	(23.81–25.34)	
Residence			0.162
Riyadh	24.39 ± 4.31	(23.85–24.84)	
Outside Riyadh	23.57 ± 5.27	(22.36–24.80)	
Diagnosis			0.044*
MSK	24.30 ± 4.26	(23.63–24.97)	
Neurological	23.20 ± 4.90	(21.88–24.51)	
Pediatric	24.22 ± 4.91	(23.31–25.12)	
Women's health	25.18 ± 3.27	(24.02–26.34)	
Others	25.83 ± 5.85	(25.60–29.12)	
Do you support the availability of PT at PHC center close to you?			0.000*
Yes	24.84 ± 4.21	(24.37–25.32)	
No	22.06 ± 5.18	(21.05–23.07)	

\*Significant results.

PHC: Primary health care; PT: Physical Therapy; MSK: Musculoskeletal.



**Fig. 1.** Components of each theme of the thematic analysis.

house.”

Theme 3. Inadequate equipment and supplies at PHC facilities

Participants perceived PHC services as inadequate and of poor quality. They questioned whether PHC would have appropriate equipment to assess and treat the clients.

*“PHC centers located in different regions, especially at the peripheral areas have limited resources and equipment; the center is not capable of receiving simple cases; these cases are often referred to large hospitals.”*

Theme 4. Inadequate number of skilled and competent PHC physical therapists

Majority of the participants reported concerns about the availability of experts and skilled therapists and other members of their health care team at the PHC. They stated that experienced physical therapists are needed to meet patients’ demand for such service.

*“There are no PT at PHC, even if it is present it will not be effective because the skilled specialized therapist is not available.”*

*“Not qualified to the required level in terms of medical equipment and the presence of specialists.”*

## DISCUSSION

The purpose of this study was to explore clients’ perspectives regarding the potential availability of PT services at PHC in Saudi Arabia. Within this inquiry, we sought to have a more comprehensive understanding of the clients’ views. The study findings revealed PT to be perceived as a desirable and valuable service within PHC centers. This perception was supported with the participants’ agreement with the multiple potential advantages of this service integration, such as the reduction of additional radiological investigations, medications prescriptions, waiting time, and associated health care cost. Interestingly, the mean score of the perceived agreement with advantages of PT service at PHC was only associated with marital status, referral diagnosis category, and the support for PT service availability at PHC ( $p < 0.05$ ). A possible explanation to the association with the marital status is that married participants with possible larger family size tend to be permanent residents and may prefer availability for health services close to their residence to avoid the burden of transportation. Participants with neurological diagnosis reported the lowest score for the potential advantages which can be attributed to the fact that rehabilitation of these conditions requires a comprehensive multidisciplinary team that is not offered at a PHC level. Evidently, those answered in support for the availability of PT at PHC had higher score of perceived agreement with the potential advantages of PT service within PHC.

These results are similar with that of a previous national survey exploring the perception of PT leaders in Saudi Arabia on the provision of PT service at PHC<sup>26</sup>). The results also reinforced that of previous studies, which showed that the establishment of PT within PHC resulted in high levels of satisfaction among patients and primary care physicians<sup>12, 19, 31, 32</sup>). Thus, the development of PT service at PHC appears to be an essential and much sought-after innovation in health care provision in Saudi Arabia.

Participants indicated that they believed integrating physical therapists within their PHC teams could improve the outcome and provide earlier access to care. This finding is in line with the literature demonstrating that PT service at PHC can contribute to better outcomes and decreased waiting times<sup>14, 16</sup>), and improved patient-related outcomes such as quality of life, activity tolerance, and health status<sup>12, 19</sup>). Although participants supported the integration of physical therapists within PHC teams; however, the key cited barrier to this integration was the lack of competent PT professionals and adequately equipped facilities. This finding is similar to those identified by Alsaad et al.<sup>33</sup>) in their study examining the availability of human resources at the PHC centers in Dammam, Saudi Arabia that showed a deficiency in infrastructure and supporting



facilities. According to the Saudi Commission for Health Specialties (SCHS) recent report on the reality of the Saudi health workforce over the next 10 years, there are a total of 6,028 licensed physical therapists in Saudi Arabia in 2017. It has forecasted the need to increase physical therapists licensing by 20.3% annually based on a therapist-population ration of 1 to 2000<sup>34</sup>). This current situation creates a gap of physical therapists' vacancies as only 940 physical therapists are expected to graduate annually.

The strategic objectives of the Saudi health care transformation program are to enhance health care services quality and efficacy, access facilitation, and prevention of health risks<sup>35</sup>). These objectives can be enhanced through this suggested model of PT service integration at PHC. It is well documented that physical inactivity and sedentary lifestyle is a major public health problem and is a leading cause of several chronic non-communicable diseases with a substantial burden to the national health systems<sup>36, 37</sup>). In Saudi Arabia, over 60% of the total population is reported to be physically inactive<sup>38</sup>), with prevalence rates of diabetes mellitus and morbid obesity accounting for 30% and 28.7%, respectively<sup>39, 40</sup>). Disability in mobility has the highest prevalence rate among all types of disability which requires targeted expansion in rehabilitative services at regional levels<sup>41</sup>). Also, osteoarthritic diseases affect over 60% of the old adult population causing early functional disability<sup>42</sup>).

The growing evidence supports PT interventions linked with injury prevention and chronic disease management, at the primary care level<sup>13, 43, 44</sup>). Moreover, accumulating evidence supports the role of physical therapists in addressing health promotion topics. This includes the prescription of regular physical activity, maintaining a healthy weight, women's health promotion and programs specifically designed for older adults<sup>11, 45-47</sup>).

This study has some limitations. For example, the current findings were based on a study population selected through convenience sampling to reflect the characteristics of clients receiving PT service at a tertiary care level hospital. Thus, the views captured in this study were limited to those participants. This sample may not reflect the general population, and so we must be cautious about generalizing these results to the Saudi population. However, our motivation for this study pertained specifically to the objective of understanding the gap in PT service at PHC from the perspective of clients. Although efforts were made to develop the survey instrument to cover general aspects of PT scope of practice, the questionnaire items might not reflect other PT dimensions relevant to the participants health condition. Moreover, as the questionnaire was developed from a PT perspective and administered within a PT setting, might have created participants responses bias that might have influenced the validity of our findings. Also, the participants awareness of the scope of primary, secondary and tertiary care level services was not measured and could impact their responses.

Future research is needed to explore the views of the general practitioners and family medicine physicians at PHC level about the integration of PT service at PHC centers. These views should help to shape the extent and scope of PT service at PHC centers, being from the first medical professional contacts. A further step is to conduct a pilot feasibility study to evaluate a PT integrated service within PHC to determine the scope, requirements, and potential outcomes.

In conclusion, participants in this study strongly supported the integration of physical therapists within the PHC team. The integration of PT service should be considered within PHC centers following sufficient planning to ensure the sought-after health care benefits.

### *Funding*

None.

### *Conflict of interest*

The authors declare that they have no competing interests.

### *Authors' contributions*

The research idea and design were proposed by HA. Qualitative data collection and analysis were executed by SM. HA conducted the quantitative statistical analysis. Both HA and SM drafted the manuscript. Both authors have read and approved the manuscript.

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