# Role of Primary Healthcare Centers in the Prevention of Overweight and Obesity

Safanah Ghassan Al-Chalabi

Eman Adnan Al-Kaseer

SHORT COMMUNICATION

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# Role of Primary Healthcare Centers in the Prevention of Overweight and Obesity

Safanah Ghassan Al-Chalabi[ID] *, Eman Adnan Al-Kaseer[ID]

Dept. of Family and Community Medicine, College of Medicine, Baghdad University, Baghdad, Iraq

**Abstract**

   **Background: About two-thirds of the population worldwide are obese or overweight, and if the current trajectory continues, 50% of the population will be obese by 2030. Community health centers and primary care providers are leading the charge against this epidemic.**

   **Objectives: To report on sharing primary healthcare centers in the prevention of obesity via the knowledge, attitude, and practice of primary healthcare physicians.**

   **Methods: A cross-sectional study, including analytical components was performed, involving a total of 224 primary healthcare physicians for the period 1st Nov. 2024 to 1st April 2025. In addition to demographic data, knowledge, attitude, and practice were obtained using Likert scales. Score of knowledge and attitude out of scope good and poor for knowledge and positive and negative for attitude, were not included in the analysis.**

   **Results: In this study, 43.8% of eligible participants showed a good level of knowledge of preventing and managing obesity, 67.9% showed a positive attitude, and 38.8% showed a good practice level. Higher qualifications were significantly associated with good knowledge but were not associated with attitude and good practice.**

   **Conclusion: Low figures for good knowledge, positive attitude; and good practice were observed in this study. Reforms in training for undergraduates and postgraduates in medical schools are important.**

*Keywords:* Obesity, Overweight, PHCCs, Knowledge, Attitude, Practice

## 1. Introduction

A national STEP survey (Stepwise Approach to Non-communicable diseases risk factor surveillance) found that 31.8% and 33.9% of Iraqi adults were overweight (BMI 25–29.9 kg/m$^2$) and obese (BMI $\geq$30 kg/m$^2$), respectively [1]. The reported figures, i.e., 65.7% for overweight and obesity, are of extreme obesity prevalence in the Middle East region. It reflects an obesity epidemic [2]. The situation is due to rapid urbanization, a sedentary lifestyle, increasing calorie-dense foods (oil, sugar and processed food) and cultural norms e.g., heavy body type is favored. Low physical activity, dependency on cars, limited public health exercise infrastructure are additional factors that increase obesity [3]. Recently, it was reported that the type of dressing affects the body

weight of females by multiple mechanisms [4]. The high prevalence of overweight and obesity is deeply intertwined with rising hypertension, diabetes, and cardiovascular disease (CVD). Obesity is directly associated with the risk of developing dyslipidemia, type 2 diabetes mellitus (T2DM), hypertension, and sleep disorders which are well-known CVD [5]. Many studies worldwide have declared a significant association between obesity and mortality, with a decrease in life expectancy of 5–10 years [6–8]. Obesity can be prevented and treated in the community through health education and behavioral interventions aimed at achieving and maintaining a healthy body weight and suggesting some remedial measures at the appropriate time and during the first level of contact at PHCCs [9, 10]. A well-documented barrier to obesity care is weight bias and stigma in primary healthcare

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settings where negative outcomes have included intervention avoidance, shorter visits, fewer screenings, missed diagnoses, and patient reports of feeling disrespected, unheard, and unwelcome [11, 12]. Iraq has adopted primary health care (PHC) as a central health policy. However, primary healthcare centers (PHCCs) in Iraq lack structured obesity prevention programs and community outreach [13]. This study was carried out to report on sharing PHCCs in the prevention of obesity through the knowledge, attitude, and practice of primary healthcare physicians in PHCCs.

## 2. Materials and methods

### 2.1. Study design

A total of 224 physicians in PHCCs were included in this cross-sectional study for the period 1st Nov 2024 to 1st April 2025. They were selected by multistage random sampling. Al-Rusafa side of Baghdad was selected randomly. Six health districts were selected out of 11 health districts, and 5 PHCCs were selected from each health district. All physicians in the selected PHCCs participated in the study. Sampling technique was done as follows:

There were 369 healthcare physicians working in the PHCCs belonging to Al-Rusafa Health Directorate.

To calculate the sample size for a cross-sectional study with a finite population, we used the following formula [14]:

$$\cfrac{N * Z^2 * P * (1-P)}{e2 * (N-1) + Z2 * P * (1-P)}$$

where:

N: It's the total population (369 physicians); Z: It's the Z-value belonging to the desired confidence level (for a confidence of 95%, Z = 1.96); P: It's the estimated proportion of the population with the characteristic of interest (unknown), we used P = 0.5; e: It's the margin of error (commonly 5%, or 0.05).

According to this calculation, the initial sample size was determined to be 187 physicians. To account for a 20% non-response rate and to increase the power of the study, the final sample size was adjusted to 224 physicians.

### 2.2. Data collection

A questionnaire from prior materials [5] was used. In addition to demographic data (age, sex, experience . . .etc.) knowledge, attitude, and practice were obtained using Likert scales. Knowledge was categorized into poor and good. Attitude and practice were dichotomized into positive, negative, poor, and

good practice, respectively. Score of knowledge and attitude out of scope good and poor knowledge, and positive and negative attitudes, were not included in the analysis.

### 2.3. Statistical analysis

Chi square test was used to examine the impact of independent factors (sex, marital status, specialty, qualification) on knowledge, attitude, and practice. Student's t-test was conducted to examine differences in knowledge, attitude, and practice due to age, years since graduation, and experience in PHCCs. P < 0.05 was considered significant.

### 2.4. Ethical considerations

The research was executed in compliance with the ethical norms established by the Scientific Committee in the Department of Community and Family Medicine, subsequently endorsed by the Council of the College of Medicine at Baghdad University, and in line with the Helsinki Declaration of 1975, as amended in 2013. A facilitation letter was acquired from the College of Medicine and delivered to the Al-Rusafa Health Directorate, which was thereafter provided to the management of each designated PHCC. All participants were verbally informed of the study and requested to grant consent to partake in it. All personal information was kept anonymous. Data was utilized solely for the purposes of this investigation.

## 3. Results

In this study, 43.8% of eligible participants showed a good level of knowledge in preventing and managing obesity, 67.9% showed a positive attitude, and 38.8% showed a good practice level, as shown in Table 1.

As shown in (Table 2), mean knowledge level was significantly higher in younger physicians (33.5 versus 38.3 years, P = 0.01) and in those who had more experience in PHCCs (8.5 versus 5.4 years, P = 0.001). Negative attitude was seen significantly

Table 1. Distribution of knowledge, attitude, and practice among primary care physicians.

| Variable | No. | % |
|---|---|---|
| Knowledge | | |
|   Good | 98 | 43.8 |
|   Poor | 22 | 9.8 |
| Attitude | | |
|   Positive | 152 | 67.9 |
|   Negative | 21 | 9.3 |
| Practice | | |
|   Good | 87 | 38.8 |
|   Poor | 137 | 61.2 |

*Table 2. Impact of age, years after graduation, and experience in PHCCs on knowledge, attitude, and practice.*

| Variable | Knowledge Mean (SD) | | Attitude Mean (SD) | | Practice Mean (SD) | |
|---|---|---|---|---|---|---|
| age | good | 33.5 (8.6) | Positive | 36.1 (4.1) | Good | 32.2 (7.2) |
| | poor | 38.3 (6.2) | negative | 37.6 (4.3) | poor | 39.4 (5.5) |
| | t = 2.6, d.f. = 118, p = 0.01 | | t = –1.5, d.f. = 171, p = 0.9 | | t = 8.4, d.f. = 222, p = 0.001 | |
| Years after graduation | good | 11.5 (3.7) | positive | 10.7 (2.2) | Good | 11.7 (3.2) |
| | poor | 12.4 (3.4) | Negative | 11.9 (2.8) | poor | 12.2 (3.1) |
| | t = 1.9, d.f. = 222, p = 0.05 | | t = 2.2, d.f. = 171, p = 0.02 | | t = 1.6, d.f. = 222, p = 0.2 | |
| Experience in PHCCs | good | 8.5 (1.8) | Positive | 7.9 (1.2) | Good | 7.7 (2.3) |
| | poor | 5.4 (1.5) | Negative | 6.9 (1.7) | poor | 7.1 (2.5) |
| | t = 14.5, d.f. = 222, p = 0.001 | | t = 3.4, d.f. = 222, p = 0.009 | | t = 1.8, d.f. = 222, p = 0.07 | |

*Table 3. Distribution of independent variables on knowledge, attitude, and practice.*

| Variable | Knowledge (good) No. (%) | P value | Attitude (positive) No. (%) | P value | Practice (good) No. (%) | P value |
|---|---|---|---|---|---|---|
| Sex | | | | | | |
| Male | 25 (35.7) | 0.1 | 40 (57.1) | 0.1 | 22 (31.3) | 0.1 |
| female | 73 (47.4) | | 112 (68.8) | | 65 (42.2) | |
| Marital status | | | | | | |
| Single | 13 (40.6) | 0.1 | 19 (59.4) | 0.5 | 12 (0.3) | 0.3 |
| Specialty | | | | | | |
| FM | 58 (61.7) | 0.001 | 76 (80.9) | 0.001 | 49 (42) | 0.001 |
| GP | 40 (30.8) | | 76 (58.5) | | 130 (58) | |
| Qualification | | | | | | |
| Bachelor | 55 (37.2) | 0.001 | 92 (62.2) | 0.03 | 50 (33.8) | 0.03 |
| Higher education | 43 (56.6) | | 60 (33.9) | | 37 (48.7) | |
| Private sector | | | | | | |
| Yes | 66 (55.5) | 0.001 | | | | |
| Source | | | | | | |
| Academic | 81 (49.4) | 0.004 | | | | |

higher among those who graduated earlier (11.9 versus 10.7 years, P = 0.02) and those who had more experience in PHCCs (7.9 versus 6.9 years, P = 0.009). Regarding practice, younger physicians experience a significantly higher practice level than others (32.2 versus 39.4 years, P = 0.001).

Higher prevalence of good knowledge was seen significantly among family medicine practitioners (61.7%, P = 0.001), those who completed higher education (56.6%, P = 0.001), physicians who had private work (55.5%, P= 0.001), and those who depended on academic source for knowledge (49.4%, P = 0.004). Higher prevalence of a positive attitude was seen significantly among family physicians (80.9%, P = 0.001), and those who completed bachelor's degree (62.2%, P = 0.03). Higher prevalence of a good practice level was seen significantly among general practitioners (58%, P = 0.001), and those who completed higher education (48.7%, P = 0.03).

## 4. Discussion

Pillars of PHC are: 1st one is Appropriate Technology (using simple, cost-effective, culturally accepted tools and methods suitable for the local community) e.g., BMI, waist measurement, local adapted dietary guidance, mobile health, and school-based growth monitoring. 2nd one is Community Participation (involving individuals and communities in identifying problems, planning and implementation) e.g., health education campaigns, community working group, exercise events, and nutrition education workshops. 3rd one is intersectoral cooperation (collaboration among multiple sectors beyond health the education) e.g., education sector, agricultural and food industry, urban planning, media, and religious institutions [15].

This study showed that 43.8% of physicians in PHCCs had good knowledge of preventing and managing obesity. It is higher than that reported in Saudi Arabia (36%) [16]. The observed figure (43.8%) reflects a prominent advance in Iraq, as knowledge of preventing and managing obesity was reported to find no composite good knowledge percentage among primary care physician a decade ago [17]. This progress (prominent rate of good knowledge) might be explained by fact of efforts of Ministry of Health in training courses for physicians in PHCCs. However, the College of Medicine still runs training for students in specialties other than family medicine.

Positive attitude toward preventing and managing obesity was noticed among 67.9% of primary care physicians, i.e., identifying obesity as a chronic disease. It is lower than that reported in Sweden (91%) [18] and in Saudi Arabia (100%) [16]. This difference might be attributed to neglecting continuity of learning and activities within PHCCs.

Good practice (early identification, patient education and counseling, and community and family engagement) was 38.8%. It is lower than reported in the world (87%) [19]. The difference might be attributed to training deficiency, data coverage being uneven, and quantitative data e.g., exact percentage for prevention and counselling, remains limited.

Higher qualifications were significantly associated with good knowledge (p = 0.001) and were not associated with attitude (p = 0.03) or good practice (p = 0.03). This finding might be explained by the fact that postgraduate curriculum concentrate on classical health problems in Iraq and obesity has become a prominent and growing public health problem in Iraq [1, 20, 21].

In some medical schools, undergraduate rotations in PHCCs are supervised by pediatricians and gynecologists. Pediatricians and gynecologists' specialists contribute valuable discipline-specific expertise, and the lack of supervision by trained family physicians can limit students' exposure to the holistic, comprehensive, and continuity-based approach that defines high-quality primary care.

## 5. Conclusion

Low figures of good knowledge, a positive attitude, and good practices were observed in this study. Reforms in training for undergraduates and postgraduates in medical schools are important.

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## Conflicting interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## References

1. Pengpid S, Peltzer K. Overweight and obesity among adult in Iraq: Prevalence and correlates from national survey in 2015. Int J Environ Res Public Health. 2021;18:4198.
2. Okati-Aliabad H, Ansari-Moghaddam A, Kargar S, Jabbari N. Prevalence of obesity and overweight among adults in the Middle East countries from 2000 to 2020: A systematic review and meta-analysis. J Obes. 2022;2022:8074837.
3. Park JH, Moon JH, Kim HJ, Kong MH, Oh YH. Sedentary lifestyle: Overview of updated evidence of potential health risks. Korean J Fam Med. 2020;41(6):365–373.
4. Jasim HM, Abdul Hussein HM, Al-Kaseer EA. Obesity among females in Al-Sader city Baghdad, Iraq, 2017. J Fac Med Baghdad [Internet]. 2018;60(2):105–7.
5. Powell-Wiley TM, Poirier CP, Burke LE, Despres J, Larsen P, Lavie C, et al. Obesity and cardiovascular disease. Circulation. 2021;143:e984.
6. Mohammed AK, Nadr JH. Early complications associated with obesity following coronary artery bypass graft surgery: Obesity and post-CABG morbidity. J Fac Med Baghdad [Internet]. 2022;63(4):158–62.
7. Ahmed SK, Mohammed RA. Obesity: Prevalence, causes, consequences, management, preventive strategies and future research directions. Metabolism Open. 2025:100375.
8. Boye KS, Ford JH, Thieu VT, Lage MJ, Terrell KA. The association between obesity and the 5-year prevalence of morbidity and mortality among adults with type 2 diabetes. Diabetes Ther. 2023;14(4):709–721.
9. Zeb A, Sivarajan Froelicher E, Pienaar AJ, Dhamani K. Effectiveness of community-based obesity intervention for body weight, body mass index, and waist circumference: Meta-analysis. Iran J Nurs Midwifery Res. 2024;29(1):16–22.
10. Alnughaymishi AA, Sekhar C. Managing adult obese patients at primary health care centers in Qassim Province, Saudi Arabia. Cureus. 2024;16(1):e51704.
11. Telo GH, Friedrich Fontoura L, Avila GO, Gheno V, Bertuzzo Brum MA, Teixeira JB, Erthal IN, Alessi J, Telo GH. Obesity bias: How can this underestimated problem affect medical decisions in healthcare? A systematic review. Obesity Reviews. 2024;25(4):e13696.
12. Ryan L, Coyne R, Heary C, Birney S, Crotty M, Dunne R, Conlan O, Walsh JC. Weight stigma experienced by patients with obesity in healthcare settings: A qualitative evidence synthesis. Obesity Reviews. 2023;24(10):e13606.
13. Al Janabi T. Barriers to the utilization of primary health centers (PHCs) in Iraq. Epidemiologia (Basel). 2023;4(2):121–133.
14. Beard J. Simple sample size calculations for crosssectional studies. South Sudan Medical Journal. 2024;17(4):213–6.
15. Behera BK, Prasad R, Shyambhavee. Primary health-care goal and principles. Healthcare Strategies and Planning for Social Inclusion and Development. 2022:221–39.
16. Al Suad LM, Altowairqi SE, Showail AA, Alzahrani BS, Arnous MM, Alsuhaibani RM. Primary care physician's knowledge and attitude about obesity, adherence to treatment guidelines and its association with confidence to treat obesity at the Saudi Ministry of Interior primary health care centers. J FM P C. 2024;13:3688–3694.
17. Habib HA, Rahaem YA, Al-Khalidi IM. Knowledge, attitude and practice regarding obesity management family and non-family physicians working in primary health care centers in Baghdad. Iraqi Postgraduate Med J. 2012;10:6–12.
18. Carrasco D, Thulesius H, Jakobsson U, Memarian E. Primary care physician's knowledge and attitude about obesity

adherence to treatment guidelines and association with confidence to treat obesity: A Swedish survey study. BMC Primary Care. 2022;23:208.

19. Schwenke M, Luppa M, Pabs A, Welze F, Lobner M, Sikorski C *et al.* Attitudes and treatment practice of general practioner towards patients with obesity in primary care. BMC Family Practice. 2020;21:169.

20. Al-Haddad AM, Al-Diwan JK. Overweight and obesity in Iraq: Prevalence, trends, and health implications. Eastern Mediterranean Health Journal. 2020;26(7): 828–836.

21. Ministry of Health – Iraq. National Strategy for Prevention and Control of Noncommunicable Diseases 2021–2030. Baghdad: MoH. 2021.