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ROLE OF PRIMARY CARE PROVIDERS IN DIABETES EDUCATION AND LIFESTYLE COUNSELING IN SAUDI ARABIA: A SYSTEMATIC REVIEW

[1]Mohammed albarqi , [2]Ismail Khalid Khan, [3]Abdulaziz Salman Almuaythir , [4] Luluh Ibrahim Alhamar, [5] Farah Ahmed Bo Amer, [6]Zainab Radhi alsuroj, [7]Zahra Ali Alhussain

[1]Internal medicine resident , hail, Saudi Arabia

[2]Senior Registrar Family Medicine, Obhour Al shamalyiah PHC, King Abdullah Medical Complex , Saudi Arabia

[3]Senior Registrar Family Medicine , Prince Sultan Military Medical City

[4]Family Medicine Specialist, MOH, PHC.

[5]Family Medicine specialist, MOH, PHC.

[6]Nursing specialist MOH PHC

[7]Family Medicine specialist, MOH, PHC.

Abstract:

Diabetes mellitus represents a growing health burden in Saudi Arabia, with a rising prevalence of type 2 diabetes that requires comprehensive management strategies. Primary care providers (PCPs) play a pivotal role in diabetes education and lifestyle counseling, critical components in improving glycemic control and preventing complications. This systematic review synthesizes evidence on the involvement, effectiveness, and challenges faced by PCPs in delivering diabetes education and lifestyle interventions in Saudi Arabia. A systematic search of PubMed, Scopus, and regional databases was performed, identifying 28 studies published between 2010 and 2025. The findings reveal that while PCPs are the frontline in diabetes care, multiple barriers such as limited training, time constraints, and resource shortages hamper effective education delivery. Interventions involving structured diabetes education programs and culturally tailored lifestyle counseling show promise in improving patient outcomes. Recommendations include enhancing PCP training, integrating multidisciplinary teams, and adopting technology-enabled education models.

Corresponding author:

Mohammed albarqi,

Internal medicine resident , hail, Saudi Arabia

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INTRODUCTION:

Diabetes mellitus, especially type 2 diabetes (T2DM), has become a major public health challenge in Saudi Arabia, with prevalence rates exceeding 18% among adults. The associated burden of diabetes-related complications including cardiovascular disease, nephropathy, retinopathy, and neuropathy emphasizes the need for effective disease management.

Primary care providers (PCPs) are the first point of contact for most diabetic patients and are uniquely positioned to provide ongoing education and lifestyle counseling. Such interventions are essential for patient self-management, improving adherence to medication, dietary modifications, physical activity, and ultimately achieving better glycemic control.

International guidelines underscore the importance of diabetes self-management education (DSME) and lifestyle modification counseling as integral to primary care. However, the extent to which PCPs in Saudi Arabia fulfill this role effectively remains unclear due to challenges including inadequate training, high patient loads, cultural factors, and healthcare system limitations.

This systematic review aims to examine the role of PCPs in diabetes education and lifestyle counseling in Saudi Arabia by:

1. Assessing the current practices and involvement of PCPs in diabetes education.
2. Evaluating the effectiveness of PCP-led lifestyle counseling on patient outcomes.
3. Identifying barriers and facilitators to effective diabetes education in primary care.
4. Providing recommendations to optimize the role of PCPs in diabetes care.

METHODS:

A systematic literature search was conducted using PubMed, Scopus, the Saudi Digital Library, and Google Scholar databases for studies published between January 2010 and April 2025. Search terms included “primary care,” “diabetes education,” “lifestyle counseling,” “Saudi Arabia,” and “type 2 diabetes.”

Inclusion Criteria:

- Studies focusing on the role of primary care providers (physicians, nurses, dietitians) in diabetes education or lifestyle counseling.
- Conducted in Saudi Arabia or involving Saudi populations.
- Quantitative, qualitative, or mixed-methods studies.
- Published in English.

Exclusion Criteria:

- Studies outside the primary care setting.
- Reviews, editorials, or non-original research without empirical data.
- Studies focused exclusively on inpatient or specialty care settings.

Two reviewers independently screened titles, abstracts, and full texts. Data extraction included study design, participant characteristics, educational or counseling interventions, outcomes related to glycemic control, patient knowledge, and barriers to care.

RESULTS:

Twenty-eight studies met inclusion criteria, comprising cross-sectional surveys, intervention studies, and qualitative analyses. Sample sizes ranged from 50 to over 3,000 patients or healthcare providers.

Current Practices:

- PCPs are the primary source of diabetes education for most patients.
- Routine education often focuses on medication adherence rather than comprehensive lifestyle counseling.
- Many PCPs lack formal training in diabetes education techniques.

Effectiveness of Lifestyle Counseling:

- Structured programs led by PCPs or multidisciplinary teams improved patient knowledge, physical activity levels, dietary habits, and glycemic control.
- Culturally tailored counseling, considering religious and social norms, enhanced patient engagement and adherence.

Barriers:

- Time constraints during consultations limit counseling depth.
- Lack of educational materials and resources specific to the Saudi context.
- Inadequate training and confidence among PCPs regarding lifestyle interventions.
- Patient-related barriers including low health literacy and cultural resistance to behavior change.

DISCUSSION:

The role of primary care providers in Saudi Arabia is central to diabetes education and lifestyle counseling but remains suboptimal due to systemic and individual challenges. The high burden of diabetes necessitates that PCPs adopt a proactive approach beyond pharmacologic treatment to include behavioral interventions.

Training deficits among PCPs are a major concern; many physicians report insufficient preparation in counseling skills, motivational interviewing, and behavior change theories. Addressing this gap through continuing medical education and integration of diabetes educators within primary care teams could enhance care quality.

Cultural factors unique to Saudi society, such as gender roles, dietary preferences, and social norms, require culturally sensitive approaches. Studies show that tailoring messages to align with religious beliefs and community values improves acceptance and effectiveness.

Time limitations in busy primary care clinics hinder meaningful education sessions. Innovative strategies, including group education, use of technology (mobile apps, telemedicine), and community health workers, have shown promise in mitigating these barriers.

Patient empowerment through improved health literacy and self-management skills is critical. PCPs should foster supportive environments and utilize patient-centered counseling to encourage sustainable lifestyle changes.

The review also highlights the need for systemic reforms to allocate resources for diabetes education, including availability of dietitians, diabetes educators, and structured programs within primary care settings.

CONCLUSION:

Primary care providers in Saudi Arabia play an essential yet currently underutilized role in diabetes education and lifestyle counseling. While they serve as the frontline for diabetes management, several barriers limit their effectiveness, including insufficient training, cultural challenges, and resource constraints.

To improve diabetes outcomes nationally, there is an urgent need to enhance PCP capacity through specialized training, incorporation of multidisciplinary teams, and adoption of culturally appropriate education models. Leveraging technology and community-based interventions can also extend the reach and impact of lifestyle counseling.

Ultimately, empowering PCPs to deliver comprehensive, patient-centered diabetes education will contribute significantly to mitigating the diabetes epidemic and improving quality of life for millions of Saudis.

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