

Exploring the Impact of Social Determinants on COPD Outcomes: A Qualitative Study from Iraqi Respiratory Physicians

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ABSTRACT

Background & Objective: Chronic obstructive pulmonary disease (COPD) is a major health challenge in Iraq, where outcomes are shaped by both clinical factors and social determinants of health (SDOH) such as income, housing, environmental exposures, and healthcare access. This study aimed to explore respiratory physicians' perspectives on how SDOH affect COPD management and outcomes in Baghdad, providing context-specific insights for future reforms.

Materials & Methods: A qualitative phenomenological design was used. Semi-structured, face-to-face interviews were conducted with ten respiratory specialists (≥ 15 years' experience) in Baghdad Medical City. Interviews were transcribed and analyzed using Braun and Clarke's thematic analysis. Trustworthiness was ensured through peer debriefing, intercoder agreement, and reflexive documentation. Ethical approval was obtained from the University of Baghdad, College of Pharmacy and the Iraqi Ministry of Health.

Results: Five major themes emerged: (1) Diagnostic and follow-up barriers, including delayed patient engagement and lack of structured recall systems; (2) Socioeconomic determinants—air pollution, financial hardship, peripheral residence, and poor housing—contributing to exacerbations and poor disease control; (3) System-level limitations such as medication shortages, inadequate access to care, and lack of SDOH documentation; (4) Recommendations for national COPD registries, improved data systems, and targeted public health interventions; (5) The need for integrated registries, equitable access, and policies incorporating SDOH into routine COPD management.

Conclusion: COPD outcomes in Iraq are strongly shaped by social and structural determinants beyond clinical management. Addressing financial barriers, environmental exposures, and healthcare system gaps is essential for improving disease control and reducing exacerbations. Physicians' insights highlight the urgent need for integrated registries, equitable access, and policies that incorporate SDOH, especially in conflict-affected LMICs.

Keywords: COPD, Social Determinants of Health (SDOH), Qualitative Study, Respiratory Physicians



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1. Introduction

Chronic obstructive pulmonary disease (COPD) is a progressive respiratory illness characterized by persistent airflow limitation and chronic inflammation. Globally, COPD constitutes a major public health challenge, with the World Health Organization projecting it to become the third leading cause of death by 2030 (1). The burden of COPD is disproportionately concentrated in low- and middle-income countries (LMICs), where fragile healthcare infrastructures, widespread environmental

exposures, and socioeconomic inequities converge to exacerbate disease outcomes (2-4).

In Iraq, COPD represents a particularly pressing concern. The country faces high prevalence of smoking, recurrent seasonal dust storms, and severe urban air pollution, all of which contribute to respiratory morbidity and mortality (5-7). These environmental stressors are compounded by structural healthcare limitations, including shortages of essential medications, inadequate

access to specialized services in peripheral areas, and fragmented follow-up systems (6, 8).

While pharmacological interventions remain central to COPD management, it is increasingly evident that non-medical determinants—such as income, housing, education, and environmental conditions—play a decisive role in shaping disease progression and patient outcomes (9-14).

The World Health Organization's Social Determinants of Health (SDOH) framework underscores that health outcomes are not solely the product of biological or clinical factors, but are profoundly influenced by broader socioeconomic and environmental contexts (15). International evidence demonstrates that social determinants significantly affect COPD prognosis, particularly in underserved populations where poverty, poor housing, and limited healthcare access amplify disease severity (16-18). Financial hardship, for instance, has been shown to reduce adherence to inhaler therapy and limit access to diagnostic services, thereby increasing exacerbation rates and hospitalizations (11, 19-23). Similarly, overcrowded housing, poor ventilation, and inadequate sanitation elevate the risk of respiratory infections, further worsening COPD control (13, 14).

Despite the recognized importance of these determinants, there remains a paucity of research examining their influence in conflict-affected and resource-limited settings such as Iraq. Previous Iraqi studies have highlighted the impact of chronic diseases—including COPD, rheumatoid arthritis, and inflammatory bowel disease—on health-related quality of life, emphasizing the role of persistent inflammation, environmental exposures, and socioeconomic stressors (1, 15, 16, 20-24). However, few investigations have systematically explored how respiratory physicians perceive and respond to these challenges in their clinical practice.

This study seeks to address that gap by capturing the lived experiences of respiratory physicians managing COPD in Baghdad. By situating their perspectives within the broader SDOH framework, the research provides context-specific insights into the intersection of social determinants and clinical management. These findings aim to inform future health system reforms, highlighting the necessity of integrated registries, equitable access to care, and policies that embed SDOH into routine COPD management, particularly in conflict-affected LMICs (3, 4, 8, 18, 25).

2. Materials and Methods

2.1 Study Design

A qualitative phenomenological approach was employed to explore physicians' experiences and perceptions, chosen to capture lived realities in a resource-constrained, conflict-affected setting.

2.2 Participants

Ten respiratory physicians (aged 40–60, with ≥ 15 years of experience) working in Baghdad Medical City were interviewed. All participants were government-employed and specialized in respiratory medicine.

Inclusion criteria: Respiratory specialists with ≥ 15 years' experience, government-employed, consent provided.

Exclusion criteria: Physicians without specialization in respiratory medicine or < 15 years' experience.

2.3 Data Collection

Semi-structured interviews were conducted face-to-face using an interview guide covering six core questions. Interviews were manually transcribed and analyzed using thematic analysis following Braun and Clarke's six-phase framework. Coding reliability was ensured through intercoder agreement, use of a coding framework, and resolution of disagreements via discussion. Trustworthiness was enhanced through prolonged engagement, peer debriefing, rich contextual descriptions, and reflexive journaling (4).

3. Result

Thematic analysis revealed five overarching themes and eleven subthemes:

3.1 Diagnostic and Follow-Up Barriers

This theme reflects physicians' concerns about the fragmented nature of COPD care in Iraq, particularly regarding delayed patient engagement and the absence of structured follow-up systems. These barriers were perceived as major contributors to poor disease control and frequent exacerbations.

A. Delayed Patient Engagement

Physicians reported that many COPD patients seek care only during acute exacerbations. This reactive behavior was attributed to low health literacy, financial hardship, and a lack of awareness about the importance of preventive care. One physician described this pattern as: "They take treatment and leave like a gas station" (D3), emphasizing the episodic nature of care. This delay undermines early intervention and contributes to disease progression.

B. Lack of Structured Follow-Up

Physicians highlighted the absence of standardized follow-up systems. There are no recall mechanisms, registries, or community-based monitoring programs. As a result, continuity of care is compromised. One physician noted: "Patients often come only during severe exacerbations because they cannot afford regular visits" (D2). This limits opportunities for preventive interventions and long-term disease control.

3.2 Socioeconomic Determinants of Health

This theme captures physicians' perceptions of how social and economic factors shape COPD outcomes. Four

subthemes emerged: air pollution, financial constraints, area of residence, and housing conditions.

A. Air Pollution

Air pollution was consistently identified as the most significant external factor contributing to COPD exacerbations. Physicians cited traffic emissions, industrial smoke, and seasonal dust storms as major triggers. One physician stated: “Baghdad’s polluted atmosphere is a major driver of exacerbations” (D1). This aligns with global evidence linking environmental exposure to respiratory morbidity.

B. Financial Constraints

Physicians emphasized that financial hardship limits patients’ ability to purchase inhalers, undergo diagnostic tests, or attend follow-up visits. One physician remarked: “Patients skip inhalers because they can’t afford them” (D6). This economic barrier leads to poor adherence and worsened disease control.

C. Area of Residence

Living in peripheral zones was associated with poor sanitation, limited healthcare access, and reduced health awareness. One physician explained: “Outskirts have no waste removal and poor education” (D1). These conditions contribute to delayed care-seeking and increased disease burden.

D. Housing Conditions

Overcrowded and poorly ventilated homes were seen as contributors to respiratory infections and exacerbations. One physician noted: “Indoor climate and crowding lead to infections” (D4). Substandard housing amplifies the vulnerability of COPD patients.

3.3 Healthcare System Limitations

This theme addresses systemic barriers within the Iraqi healthcare infrastructure that hinder effective COPD management.

A. Inadequate Access to Care

Physicians reported that patients in rural areas face significant challenges in reaching hospitals or specialized clinics. Long travel distances and lack of transportation discourage regular follow-up. One physician stated: “Patients in rural areas can’t reach hospitals easily” (D7). This geographic barrier contributes to fragmented care.

B. Medication Availability

Frequent shortages of essential medications, especially inhalers and nebulizers, were highlighted as a major issue. Physicians often resort to corticosteroids as substitutes,

The findings of this qualitative study highlight the substantial influence of social determinants of health (SDOH) on COPD outcomes in Iraq, reinforcing a broader pattern observed across chronic diseases in the region. Previous Iraqi research has demonstrated that chronic illnesses such as COPD, rheumatoid arthritis, and inflammatory bowel disease significantly impair

which may not be optimal. One physician explained: “We rely on corticosteroids when inhalers are out of stock” (D5). These stockouts disrupt treatment continuity and compromise outcomes.

4. Documentation and Data Management Gaps

This theme explores the lack of structured documentation of social determinants in clinical practice and the need for systemic reform.

A. Absence of Socioeconomic Data Recording

Physicians acknowledged that social data is rarely recorded in patient files. This omission limits the ability to tailor care and monitor contextual factors. One physician stated: “We don’t record social data it’s not prioritized” (D9). The lack of documentation reflects both time constraints and institutional neglect.

B. Recommendations for System Reform

Physicians proposed the creation of national COPD registries and the integration of SDOH templates into electronic health records. These reforms would enhance continuity of care and enable targeted interventions. One physician suggested: “We need a national COPD registry with social data” (D10). Another added: “Staff are overwhelmed and unaware of its importance” (D8), highlighting the need for training and administrative support.

5. Recommendations to Improve Outcomes

This theme synthesizes physicians’ suggestions for improving COPD outcomes at both patient and system levels.

A. Patient-Level Interventions

Physicians emphasized the importance of smoking cessation, adherence to treatment, vaccination, and avoiding polluted environments. These preventive measures were seen as essential for reducing exacerbation and hospitalization. One physician stated: “Prevention is the most important step—quit smoking and follow treatment” (D8).

B. System-Level Interventions

Recommendations included subsidizing medications, expanding healthcare access, and training staff to collect and utilize SDOH data. One physician proposed: “Hospitals should offer free nebulizers and educate patients” (D6). These interventions aim to address structural barriers and promote equity in care delivery.

4. Discussion

health-related quality of life due to persistent inflammation, environmental exposures, and socioeconomic stressors (1, 15, 16, 24). These parallels underscore that chronic disease management in Iraq cannot be separated from the wider social and environmental context in which patients live.

Physicians in this study consistently emphasized that air pollution, financial hardship, and inadequate housing conditions are major contributors to COPD exacerbations. These findings align with national evidence showing that COPD burden in Iraq is strongly associated with smoking, urban pollution, and systemic inflammation. International studies similarly confirm that environmental exposures—including particulate matter, industrial emissions, and traffic pollution—are among the strongest predictors of COPD progression and mortality, particularly in LMICs where environmental regulation is limited (2, 9, 10).

Financial constraints emerged as a central barrier to effective COPD management. Physicians reported that many patients cannot afford inhalers, diagnostic tests, or regular follow-up visits, leading to fragmented care and poor adherence. Comparable patterns have been documented in other chronic diseases in Iraq, where economic hardship increases treatment burden and reduces adherence among patients with diabetes, rheumatoid arthritis, Crohn's disease, and ulcerative colitis (19-23). Global evidence also shows that medication affordability is one of the strongest determinants of COPD control, with low-income patients experiencing higher exacerbation rates and hospitalizations (11, 12).

Housing conditions and area of residence were also identified as critical determinants of COPD outcomes. Overcrowded homes, poor ventilation, and inadequate sanitation increase the risk of respiratory infections and exacerbate disease severity. These observations mirror findings from Iraqi studies showing that environmental and household conditions significantly affect quality of life in chronic disease populations (1, 15, 16, 24). International evidence further supports this association, demonstrating that substandard housing, indoor pollutants, and poor ventilation significantly increase COPD morbidity and mortality (13, 14).

System-level barriers—including medication shortages, lack of specialized services in rural areas, and absence of structured follow-up systems—further compound these challenges. Physicians highlighted the lack of socioeconomic documentation in patient records, which limits the ability to tailor interventions and identify high-risk individuals. This gap is consistent with findings from diabetes research in Iraq, where social determinants were shown to significantly influence patient satisfaction and adherence despite not directly affecting biological markers such as HbA1c. Similar challenges have been documented in other LMICs, where fragmented health information systems hinder continuity of care and limit the integration of SDOH into clinical decision-making (6, 25).

Overall, the interplay between SDOH and COPD outcomes in Iraq mirrors patterns observed across multiple chronic diseases, emphasizing the need for a holistic, equity-oriented approach to disease management. Addressing environmental exposures, financial barriers, and healthcare system limitations are essential for improving COPD outcomes. The findings of this study

highlight the urgency of integrating SDOH into national health policies, strengthening primary care infrastructure, and developing targeted public health interventions tailored to the realities of conflict-affected LMICs. Evidence from global health research supports the effectiveness of such approaches, demonstrating that SDOH-informed interventions can reduce hospitalizations, improve adherence, and enhance patient-reported outcomes (3, 4, 7, 8, 17, 18).

5. Conclusion

COPD outcomes in Iraq are strongly influenced by social determinants of health, including financial hardship, housing conditions, and healthcare system gaps. Physicians' perspectives highlight the urgent need for integrated registries, equitable access to care, and targeted public health strategies. While findings are context-specific, they provide evidence relevant to other conflict-affected LMICs.

6. Declarations

6.1 Acknowledgments

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6.2 Ethical Considerations

The study was approved by the University of Baghdad, College of Pharmacy Research Ethics Committee with an approval number REC06024108H. Consent was obtained from all participants.

6.3 Authors' Contributions

Sami Yusur Mashlool: Methodology, Software, Formal analysis, Investigation, Data Curation, Writing—original Draft Preparation, Visualization, Project Administration. Ali L. Jasim: Resources, Writing—review and Editing, supervision Sami Yusur Mashlool and Ali L. Jasim: Conceptualization, Validation. All authors reviewed, edited, and approved the final version of the manuscript.

6.4 Conflict of Interest

The authors declare no conflict of interest.

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6.6 Using Artificial Intelligence Tools (AI Tools)

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