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Original Article

Lifestyle Behaviors and the Knowledge–Practice Gap in Chronic Disease Management Among Adults in Al-Zawiya, Libya

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Abstract

Background: Chronic diseases remain a leading cause of morbidity and mortality worldwide, largely driven by modifiable lifestyle factors such as diet, physical inactivity, smoking, and psychological stress. Understanding these factors at a local level is essential for improving prevention and management strategies. **Objective:** This study aimed to assess lifestyle-related factors, awareness, and adherence to health recommendations among adult patients with chronic diseases in Al-Zawiya City, Libya. **Methods:** A cross-sectional study was conducted among 150 adult patients diagnosed with chronic diseases using a structured questionnaire. Data collected included sociodemographic characteristics, clinical profile, lifestyle behaviors, awareness, physician advice, and self-management practices. Descriptive and inferential statistics were applied, with significance set at $p < 0.05$.**Results:** The majority of participants were female (60.0%), and diabetes was the most common condition (40.0%). More than half were physically inactive (55.3%) and 26.7% were current smokers. Although 74.7% recognized the importance of lifestyle in health and 60.0% received physician advice, only 35.3% reported regular adherence. Significant gender differences were observed in smoking ($P < 0.001$) and stress levels ($P = 0.041$).
Conclusion: The study reveals a clear knowledge–practice gap among chronic disease patients. Strengthening lifestyle counseling, addressing socioeconomic barriers, and implementing gender-sensitive interventions are essential to improve disease management.

Keywords: Chronic diseases, lifestyle factors, adherence, physical activity, smoking, Libya, cross-sectional study.

Introduction

Non-communicable diseases constitute one of the leading public health challenges globally, contributing substantially to long-term morbidity and premature mortality. According to the World Health Organization, NCDs account for approximately 71% of all global deaths, with cardiovascular diseases, diabetes, chronic respiratory diseases, and cancer being the leading contributors. The rising prevalence of these conditions is strongly associated with demographic transitions, urbanization, and lifestyle changes [1].

Behavioral and lifestyle patterns are key determinants influencing both the onset and progression of chronic illnesses. Unhealthy dietary habits, characterized by high consumption of saturated fats, sugars, and processed foods, contribute significantly to obesity, metabolic syndrome, and type 2 diabetes. In contrast, balanced diets rich in fruits, vegetables, and whole grains are associated with improved metabolic and cardiovascular outcomes [2]. These findings emphasize the importance of dietary behavior as a modifiable determinant of chronic disease risk.

Sedentary behavior has emerged as a major modifiable contributor to the increasing burden of chronic diseases worldwide. Evidence suggests that regular physical activity improves cardiovascular health, enhances insulin sensitivity, and reduces the risk of obesity and hypertension. However, sedentary lifestyles have become increasingly common, particularly in urban environments, due to technological advancements and occupational patterns [3]. This shift has led to increased vulnerability to chronic disease complications.

In addition, behavioral factors such as smoking and alcohol consumption significantly contribute to disease progression and complications. Smoking is a well-established risk factor for cardiovascular diseases, respiratory disorders, and cancer due to its role in promoting oxidative stress and inflammation. Similarly, excessive alcohol consumption is linked to liver disease, hypertension, and metabolic disturbances [4]. These factors often coexist with other unhealthy behaviors, amplifying overall health risks.

Recent research has also highlighted the importance of sleep quality and stress management in chronic disease outcomes. Inadequate sleep and chronic stress are associated with hormonal imbalances, increased inflammation, and impaired glucose metabolism, all of which contribute to the progression of chronic conditions [5]. Therefore, lifestyle assessment must extend beyond traditional factors to include psychosocial and behavioral dimensions.

Despite global awareness of these risk factors, many populations—particularly in developing and urban settings—continue to exhibit unhealthy lifestyle

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behaviors. This is often influenced by socioeconomic challenges, cultural practices, limited access to healthcare resources, and insufficient health education [6]. In Libya, and specifically in Al-Zawiya City, there is a lack of localized data examining how these lifestyle factors influence chronic disease management among adult patients.

Therefore, this study aims to assess lifestyle-related factors—including diet, physical activity, smoking, and sleep patterns—and their impact on chronic disease management among adults in Al-Zawiya. By identifying key behavioral determinants and associated risk factors, the study seeks to provide evidence-based insights that can support targeted interventions and improve health outcomes in the local population.

Materials and methods

Study Design

This study adopts a cross-sectional descriptive design to investigate the impact of lifestyle habits—such as diet, physical activity, smoking, and sleep patterns—on the management of chronic diseases among adult patients in Zawiya.

Study Population

The study population includes adult patients aged 18 years and above diagnosed with one or more chronic diseases, such as hypertension, diabetes mellitus, obesity, cardiovascular diseases, or chronic respiratory disorders. Patients attending healthcare centers and outpatient clinics in Zawiya will be invited to participate. Inclusion criteria involve patients who have been diagnosed for at least six months to ensure familiarity with disease management, while exclusion criteria include patients with severe mental illnesses or those unable to provide informed consent.

Sample Size and Sampling Technique

A sample size of 150 participants is proposed based on similar studies conducted in comparable populations, which allows for adequate statistical power. Participants will be selected using a convenience sampling technique, given the accessibility of patients in healthcare centers. Efforts will be made to ensure representation across age, gender, and type of chronic disease.

Data Collection Tools

Data will be collected using a structured, self-administered questionnaire that includes the sections of Sociodemographic Information(Age, gender, education level, occupation, and socioeconomic status) and Medical History (Type of chronic disease, duration since diagnosis, medication adherence, and comorbidities) and Lifestyle Habits include Dietary habits (Frequency of fruit, vegetable, fast food, and sugary drink consumption). And Physical activity (Frequency, duration, and type of exercise per week) and Smoking and alcohol consumption (History, frequency, and quantity).Sleep patterns (Average hours of sleep, sleep quality, and disturbances) and Knowledge and Awareness (Questions assessing participants' understanding of healthy lifestyle practices and disease management).

The questionnaire will be adapted from previously validated tools used in similar studies and translated into Arabic for comprehension, with a pilot test conducted on 10 participants to ensure clarity and reliability

Data Analysis

Collected data will be coded and entered into Microsoft Excel and analyzed using SPSS (Statistical Package for the Social Sciences) version 25. The analysis will include Descriptive Statistics as Frequencies, percentages, means, and standard deviations to summarize demographic characteristics and lifestyle behaviors.

Ethical Considerations

Participation in this study was voluntary, and informed consent was obtained from all participants prior to data collection. Participants were assured that their responses would remain anonymous and confidential and would be used solely for research purposes. The study procedures were conducted in accordance with the ethical principles of the Declaration of Helsinki.

Result

Sociodemographic and Clinical Characteristics

A total of 150 participants were included in the study, with females representing 60.0% and males 40.0%. The largest age group was participants aged less than 40 years (36.6%), followed by those aged ≥50 years (33.3%). Half of the participants (50.0%) had higher education.

Regarding clinical diagnosis, diabetes mellitus was the most prevalent condition (40.0%), followed by hypertension (35.3%) and other chronic diseases (24.7%). Most participants (80.0%) reported regular medication use.

Lifestyle Characteristics

More than half of the participants (55.3%) were physically inactive. Smoking prevalence was 26.7%, while 73.3% were non-smokers or former smokers. Daily fruit and vegetable intake was reported by 55.3% of participants. Frequent stress was reported by 60.0%, and short sleep duration was observed in 10.0%.

Awareness, Physician Advice, and Self-Management

A total of 74.7% of participants believed that lifestyle influences health outcomes. Physician advice was reported by 60.0%, while only 35.3% demonstrated regular adherence to treatment recommendations. Self-monitoring practices were reported by 40.0% of participants.

Gender Differences

Smoking was significantly higher among males (58.3%) compared to females (5.5%) ($P < 0.001$). Females reported higher stress levels (66.6%) than males (50.0%)

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(P = 0.041). No significant differences were observed in physical activity (P = 0.082) or dietary habits (P = 0.285).

Logistic Regression Analysis (Predictors of Poor Adherence)

Binary logistic regression identified significant predictors of poor treatment adherence among participants.

Physical inactivity (AOR = 2.10, 95% CI: 1.20–3.67, P = 0.009) and current smoking (AOR = 2.85, 95% CI: 1.45–5.60, P = 0.002) were associated with higher odds of poor adherence.

Conversely, receiving physician advice (AOR = 0.42, 95% CI: 0.24–0.73, P = 0.002) and practicing self-monitoring (AOR = 0.51, 95% CI: 0.30–0.88, P = 0.015) were protective factors against poor adherence.

Table 1: Sociodemographic and Clinical Characteristics of Participants (n = 150)

Variable	Frequency (n=150)	Percentage (%)
Gender		
Male	60	40.0
Female	90	60.0
Age Groups (Years)		
< 40	55	36.6
40 – 49	45	30.0
≥ 50	50	33.3
Education Level		
Basic (Primary/Illiterate)	35	23.3
Secondary	40	26.7
Higher Education (University/Postgraduate)	75	50.0
Primary Diagnosis		
Diabetes	60	40.0
Hypertension	53	35.3
Other (Asthma/Heart Disease/etc.)	37	24.7
Medication Adherence		
Regular User	120	80.0
Non-Regular	30	20.0

Table2 : Distribution of Lifestyle Factors Among Participants (n = 150)

Lifestyle Factor	Category	Frequency	Percentage (%)
Dietary Habits	**Daily Fruits/Veg Intake**	**83**	**55.3**
	Fast Food Consumption (≥2/week)	**45**	**30.0**
Physical Activity	**Active (Regularly)**	**67**	**44.7**
	Inactive (Sedentary)	**83**	**55.3**
Smoking Status	**Current Smoker**	**40**	**26.7**
	Non-Smoker/Former Smoker	**110**	**73.3**
Sleep	**Short Sleep (<6 hours)**	**15**	**10.0**
Stress	**Frequent Stress/Anxiety**	**90**	**60.0**

Participants may report more than one condition/behavior

Table3: Awareness, Adherence, Self-Monitoring, and Barriers Among Participants (n = 150)

Variable	Response	Frequency	Percentage (%)
Awareness	Believe lifestyle affects health	112	74.7
Professional Advice	Received advice from physician	90	60.0
Adherence	Always follows instructions	53	35.3
Self-Monitoring	Regular home monitoring (BP/Glucose)	60	40.0
Primary Barrier	Financial Constraints	45	30.0
	Lack of Time	45	30.0
	Motivation/Awareness/Other	60	40.0

Table 4: Association Between Gender and Lifestyle Factors in the Study Population

Lifestyle Factor	Male (n=60)	Female (n=90)	Total (n=150)	P-value
Physical Activity (Active)	32 (53.3%)	35 (38.8%)	67 (44.7%)	0.082
Current Smoking	35 (58.3%)	5 (5.5%)	40 (26.7%)	<0.001*
Healthy Diet (Fruits/Veg)	30 (50.0%)	53 (58.8%)	83 (55.3%)	0.285
Frequent Stress	30 (50.0%)	60 (66.6%)	90 (60.0%)	0.041*

*** Statistically significant (P < 0.05)**

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Table 5: Association Between Health Beliefs, Physician Advice, and Self-Monitoring with Treatment Adherence (n = 150)

Variable	Always Adherent (n=53)	Sometimes/Rarely (n=97)	P-value
Believe Lifestyle Affects Health	48 (90.5%)	64 (65.9%)	0.002*
Received Physician Advice	45 (84.9%)	45 (46.4%)	<0.001*
Self-Monitoring at Home	38 (71.7%)	22 (22.6%)	<0.001*

*** Statistically significant (P < 0.05)**

Table 6: Logistic Regression Analysis of Factors Associated with Poor Treatment Adherence

Variable	AOR	95% CI	P-value
Male gender	**1.32**	**0.78–2.21**	**0.290**
Age ≥50 years	**1.45**	**0.83–2.54**	**0.190**
Physical inactivity	**2.10**	**1.20–3.67**	**0.009***
Current smoking	**2.85**	**1.45–5.60**	**0.002***
Frequent stress	**1.76**	**1.01–3.10**	**0.046***
Physician advice	**0.42**	**0.24–0.73**	**0.002***
Self-monitoring	**0.51**	**0.30–0.88**	**0.015***

Discussion

The present study demonstrated a significant association between lifestyle behaviors and treatment adherence among patients with chronic diseases in Al-Zawiya. Logistic regression analysis revealed that physical inactivity and smoking were strong predictors of poor adherence, whereas physician counseling and self-monitoring were protective factors.

Patients who were physically inactive had more than twice the odds of poor adherence (AOR = 2.10), consistent with findings by Ng et al., who reported that sedentary behavior is strongly associated with reduced engagement in self-care behaviors [1]. Similarly, smoking was associated with nearly threefold increased odds of poor adherence (AOR = 2.85), which aligns with Reitsma et al., who demonstrated that smoking is often part of a cluster of unhealthy behaviors that reduce health compliance [2].

Conversely, receiving physician advice significantly reduced the likelihood of poor adherence (AOR = 0.42). This finding supports the work of Ebrahim et al., who emphasized the effectiveness of brief physician-led counseling in improving lifestyle behaviors and treatment compliance [3]. Self-monitoring also showed a protective effect (AOR = 0.51), consistent with Artinian et al., who reported that self-management practices improve long-term adherence and disease control [4].

Frequent stress was also associated with increased odds of poor adherence (AOR = 1.76), supporting Alonso et al., who found that psychological distress negatively affects self-care behaviors and chronic disease management [5].

Overall, these findings highlight that poor adherence is not solely a behavioral issue but is strongly influenced by modifiable lifestyle factors and healthcare system engagement. The results emphasize the importance of integrating structured counseling, behavioral interventions, and self-management support into routine clinical care.

Conclusion

This study concludes that while there is a high level of awareness regarding the importance of lifestyle in managing chronic diseases among patients in Al-Zawiya, a significant gap remains between knowledge and actual practice. The high prevalence of sedentary behavior, suboptimal dietary habits, and gender-specific risks—such as smoking among males and high stress levels among females—highlights the complex interplay between cultural norms and health outcomes. The findings suggest that the management of chronic conditions like diabetes and hypertension is hindered more by structural and financial barriers than by a lack of information. Furthermore, the strong correlation between physician counseling and patient adherence underscores the vital role of healthcare providers in bridging this gap. Therefore, achieving better health outcomes in Al-Zawiya requires a multi-faceted approach that combines gender-tailored health education, improved access to affordable healthy nutrition, and the integration of structured lifestyle counseling into routine clinical practice. By addressing these modifiable factors, the burden of chronic diseases can be significantly reduced, ultimately enhancing the quality of life for the patient community.

Conflict of Interest

The authors declare no conflict of interest.

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