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Health Literacy and Its Influence on Treatment Adherence Among Patients with Chronic Illnesses in Riyadh

Hana M. Alsayegh[1], Farrah A. Alsebaiheen[2], Mohammad A. Almanaa[3], Abdulkhaliq M. Alanazi[4], Faisal M. Alsonbul[5], Afrah M. Alshammari[6], Areej N. Alotaibi[7], Wafi A. Altuwayjiri[8]

Abstract:

Background - Patient adherence to long-term therapies is crucial for managing chronic disease, yet adherence rates remain suboptimal in clinical practice. Studies indicate that people who encounter difficulties in understanding health information are less likely to follow prescribed regimens. In Saudi Arabia low health literacy continues to hinder effective treatment compliance across a range of chronic conditions.

Objective - This study aims to clarify the association between patients health literacy and their actual ability to take medications as intended in a large tertiary-care facility in Riyadh.

Methods - A cross-sectional design was used to enroll 372 consecutively attending outpatients with diabetes, hypertension, or dyslipidaemia. Health literacy was measured with the 16-item short form of the European Health Literacy Survey (HLS-EU-Q16), and adherence was evaluated using the eight-item Morisky Medication Adherence Scale (MMAS-8). Descriptive statistics presented demographic and clinical characteristics, while multivariate logistic regression identified independent predictors of good adherence after controlling for potential confounders.

Results - Adequate health literacy was documented in only 25.8 of the sample, and 24.5 reported consistently taking medications as directed. After adjusting for age, education level, treatment complexity, and comorbid illness, participants with adequate literacy had approximately four times greater odds of being high adherers than those with limited literacy (odds ratio 3.86, 95 confidence interval 2.27-6.57, $p < 0.01$).

Conclusion - The findings indicate that enhancing health literacy through structured, culturally appropriate educational initiatives could translate into higher medication adherence and, by extension, better clinical outcomes for patients managed in tertiary care centres.

Keywords: Health literacy, medication adherence, chronic disease, Saudi Arabia, tertiary care, Riyadh.

INTRODUCTION

Chronic diseases such as diabetes, hypertension, and cardiovascular disorders rank among the most pressing public-health problems in Saudi Arabia. Effective management of these conditions demands not only pharmacological and procedural interventions but equally a sustained high level of patient engagement and self-care. A central facilitator of that engagement is health literacy—the capacity of individuals to obtain, process, and apply the health-related information and services requisite for sound decision-making.

Health literacy fundamentally shapes patient conduct, influencing adherence to prescriptions, uptake of lifestyle changes, and the timely use of health services. Within the Saudi setting a body of research has repeatedly documented an unsettling rate of limited health literacy among people living with chronic diseases. This shortcoming has been associated with inadequate self-management, particularly in conditions requiring daily surveillance and continuous therapy, as is the case with insulin-treated diabetes and resistant hypertension (Alyousef, 2024; Alhalal et al., 2023).

Patients with insufficient health literacy frequently misinterpret medication instructions, undervalue the necessity of routine monitoring, and struggle to grasp clinical recommendations, all of which combine to weaken adherence (Alosaimi et al., 2022; Alreshidi, 2023). Targeted educational initiatives, however, have demonstrated promise in closing this divide; structured health-literacy programmes, delivered in culturally appropriate formats, correlate with higher levels of compliance and improved clinical outcomes (Sharaf, 2010).

Although interest in health literacy has risen, few studies have looked directly at how well patients with chronic conditions in Riyadh's large hospitals follow treatment plans when their understanding of medical information is taken into account. This research aims to fill that gap, with the hope that its findings will guide the design of specific tools and activities that make health advice clearer, encourage patients to take an active role in their care, and ultimately lead to more consistent adherence and better control of long-term diseases.

LITERATURE REVIEW

Health literacy has consistently been identified as a determinant of clinical outcomes, especially for persons managing chronic illness. The construct includes the capacities required to read prescriptions, understand discharge summaries, and interact effectively with providers and administrative staff. Within Saudi Arabia, where diabetes, hypertension, and related sequelae exhibit a high population burden, investigators have begun to assess how variability in health literacy influences treatment adherence and everyday self-care.

In Riyadh, Alyousef (2024) established a statistically significant link between inadequate health literacy and diminished adherence to prescribed protocols for diabetes and hypertension. Employing the Health Literacy Survey for Europe and the European Union-Quick version, the author observed that participants scoring in the higher quartiles followed pharmacological and non-pharmacological advice with noticeably greater consistency. Complementing these findings, Alhalal et al. (2023) reported marked improvements in health-related quality-of-life metrics among women whose literacy scores exceeded the median.

A parallel investigation in Al-Qassim conducted by Sharaf (2010) further illustrates the salutary effect of targeted education. In a quasi-experimental design, patients receiving structured sessions on medication use, dietary principles, and monitoring were demonstrably more compliant with both pharmacotherapy and lifestyle recommendations than a control group exposed only to routine clinic pamphlets. The results suggest that systematic educational interventions may partially mitigate the negative consequences of low literacy, thereby reinforcing the need for culturally tailored pedagogical strategies within Saudi health services.

Digital literacy has recently emerged as an important dimension of health literacy research. In a pioneering effort, Zakaria et al. (2018) constructed the Saudi E-Health Literacy Scale to evaluate patients' proficiency with electronic tools for self-management. Their analysis underscored that digital skills are becoming essential for effectively guiding chronic illness care.

Disease-specific investigations corroborate this general trend. Alreshidi (2023) observed that hypertensive individuals with limited health literacy were less consistent in taking prescribed medications. Likewise,

Alosaimi et al. (2022) Identified insufficient comprehension of written instructions as a major obstacle for patients with multiple chronic conditions in Makkah.

Despite the value of these contributions, much of the literature remains confined to single regions or diagnoses. A comprehensive, localized assessment from Riyadh's tertiary hospitals—where patient demographics and comorbidity profiles are more complex—is therefore warranted. The present study seeks to address this gap by analyzing how varying levels of health literacy influence treatment adherence within a multidisciplinary clinical setting.

METHODOLOGY

Study Design and Setting

This cross-sectional investigation took place at a tertiary referral hospital in Riyadh, Saudi Arabia, between January and Jun 2024. The facility prioritises chronic-disease management, thus providing an ideal backdrop for examining how patients' levels of health literacy link to their adherence to prescribed therapies.

Study Population

Eligibility was extended to adults aged eighteen years or older who had a clinical diagnosis of diabetes, hypertension, or any cardiovascular disorder. Candidates needed to attend regular outpatient appointments, speak either Arabic or English fluently, and voluntarily give informed consent. Those presenting with acute medical instability or cognitive impairment were excluded to safeguard data integrity.

Sampling and Sample Size

Proportional counsel drawn from each disease group was realised through stratified random sampling. Using Cochran's formula, researchers calculated that 385 subjects would be needed to achieve 95% confidence, a 5% error margin, and a conservative 50% prevalence of adequate health literacy. Ultimately, 372 completed instruments were returned, producing a high response rate of 96.6%.

Data Collection Instruments

Trained research nurses gathered information via a structured, self-administered questionnaire divided into three components:

- Socio-demographic and clinical profile - detailing age, sex, years of formal education, household income, length of chronic illness, and total daily medication count.

Health-literacy assessment—conducted with the Arabic version of the Health Literacy Survey-European Questionnaire (HLS-EU-Q16)—measures a patients capability to access, understand, evaluate, and use health information.

Treatment adherence was evaluated using the eight-item Morisky Medication Adherence Scale (MMAS-8), an instrument frequently employed to gauge how regularly patients follow their prescribed therapy.

Questionnaires were given in person by trained research assistants in a private outpatient clinic to minimize distraction and ensure each participant clearly understood the questions.

Data Analysis

Information was processed with SPSS version 26. Descriptive statistics summarized demographic and clinical features. Bivariate tests-second and independent-samples t-test-identified basic associations between health literacy and medication-taking. Multivariate logistic regression controlled for age, sex, education, and illness duration thought likely to confound that linkage.

Ethical Considerations

The participating hospitals Institutional Review Board approved the investigation. Each person signed a written informed-consent document. Throughout the project, researchers stored data securely and prevented anyone outside the team from connecting responses to individual identities.

FINDINGS

Participant Demographics

The analysis included 372 study participants whose sex composition was almost balanced: 49.5 per cent male and 50.5 per cent female. Mean age was 52.6 years (standard deviation 13.4). A majority, 66.9 per cent, held at least a university qualification, and 43.3 per cent reported a monthly income exceeding 10,000 SAR. Furthermore, just over half the sample (51.9 per cent) had been living with a chronic condition for more than five years.

Table 1. Demographic Characteristics

Variable	N (%)
Gender (Male)	184 (49.5%)
Gender (Female)	188 (50.5%)
Age (Mean ± SD)	52.6 ± 13.4
Education Level (University or above)	249 (66.9%)
Monthly Income > 10,000 SAR	161 (43.3%)
Duration of Chronic Disease (>5 years)	193 (51.9%)

Health Literacy Levels

Participants were categorized into three health literacy levels using the HLS-EU-Q16 scale. Approximately 35.5% had inadequate health literacy, 38.7% had problematic literacy, and only 25.8% were classified as having adequate literacy.

Table 2. Health Literacy Levels

Health Literacy Level	N (%)
Inadequate	132 (35.5%)
Problematic	144 (38.7%)
Adequate	96 (25.8%)

Medication Adherence

Using the MMAS-8 scale, adherence levels were categorized as low, medium, or high. One-third of participants (33.3%) showed low adherence, while 42.2% demonstrated medium adherence, and only 24.5% achieved high adherence.

Table 3. Medication Adherence Levels

Adherence Level	N (%)
Low	124 (33.3%)
Medium	157 (42.2%)
High	91 (24.5%)

Association Between Health Literacy and Adherence

A significant association was found between health literacy and medication adherence ($p < 0.01$). Among those with adequate health literacy, 38.5% demonstrated high adherence, compared to only 15.2% among those with inadequate literacy.

Table 4. Association Between Health Literacy and Adherence

Health Literacy Level	High Adherence (%)	P-Value
Inadequate	15.2	<0.01
Problematic	24.3	<0.01
Adequate	38.5	<0.01

DISCUSSION

This study investigated how health literacy affects medication adherence in patients with chronic diseases at a tertiary care facility in Riyadh. Analyses revealed a robust and statistically significant relationship: individuals with better health literacy consistently followed their medication plans more reliably than those with lower levels of understanding.

Around one-third of the cohort demonstrated inadequate health literacy, a prevalence that mirrors earlier national surveys across Saudi Arabia and confirms widespread difficulties in health comprehension among chronic-disease patients (Alyousef, 2024; Alhalal et al., 2023). For these individuals, limited literacy directly undermined self-care abilities, particularly in managing complex, lifelong conditions such as diabetes and hypertension.

Medication adherence was classified as high by only 24.5 percent of participants, signalling a significant barrier to effective chronic-disease control. This proportion aligns with findings from other Saudi studies, all of which link suboptimal adherence to incomplete understanding of treatment objectives and drug regimens (Alosaimi et al., 2022). Collectively, these results underscore the need for clear, patient-centred communication and structured educational interventions within clinical care pathways.

The pronounced variation in medication adherence according to health literacy level underscores an immediate need for precision-targeted interventions. Earlier investigations have demonstrated the utility of structured face-to-face education (Sharaf, 2010) and web-based support modules (Zakaria et al., 2018) in narrowing this gap. In tertiary-care environments characterised by complex therapeutic regimens, embedding literacy-sensitive resources into standard clinical workflows may therefore curtail unnecessary readmissions and optimise resource utilisation.

These results reinforce the argument that health literacy is a core determinant, rather than an auxiliary consideration, in the management of chronic disease. By convening interdisciplinary teams—comprising clinical pharmacists, health-information designers, and frontline providers—settings can produce more

durable adherence patterns and, in turn, achieve measurable improvements in patient-reported and clinical outcomes.

CONCLUSION

The present investigation reveals a robust link between health literacy and the adherence of chronic-disease patients to prescribed medications within a tertiary facility in Riyadh. Individuals exhibiting superior levels of health literacy followed treatment regimens significantly more consistently, underscoring the decisive influence of patient comprehension on the long-term management of complex conditions. Such evidence calls for structured interventions that advance literacy and deepen education on therapy use across hospital and outpatient settings. Making health-literacy enhancement a priority thus emerges as both a feasible and scalable strategy for strengthening chronic-care delivery in comparable urban health systems.

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