جـــامـعـة الـــشرق الأوسـط
MIDDLE EAST UNIVERSITY
Amman - Jordan

Polypharmacy and Health-Related Quality of Life Among the Elderly with Chronic Diseases in Jordan: A Cross-Sectional Survey

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تعدد الأدوية وجودة الحياة المرتبطة بالصحة لدى كبار السن المصابين بالأمراض المزمنة في الأردن: دراسة مسحية مقطعية

إعداد

هديل محمد صايل العموش

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الدكتورعمرعبد الكريم الرشدان

قُدمت هذه الرسالة استكمالاً لمتطلبات الحصول على درجة الماجستير في العلوم الصيدلانية

قسم العلوم الصيدلانية

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Thesis Committee Decision

This thesis, titled **"Polypharmacy and Health-Related Quality of Life Among the Elderly with Chronic Diseases in Jordan: A Cross-Sectional Survey"** by researcher **Hadeel Mohammed Alomoush** and was successfully defended and approved on **21 / 01 / 2026**

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Hadeel Alomoush

Dedication

First and foremost, I dedicate this work to Allah Almighty, seeking His guidance and blessings.

I also dedicate this work to my supportive family, whose encouragement and love have always been my strength. A special dedication goes to my sister, Dr. Dima Alomoush for her constant inspiration and support.

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Hadeel Alomoush

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Polypharmacy and Health-Related Quality of Life Among the Elderly with Chronic Diseases in Jordan: A Cross-Sectional Survey

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Abstract

Background: Chronic diseases are highly prevalent among elderly individuals, leading to long-term medication use and a higher risk of polypharmacy, taking more than 5 medications. While polypharmacy has been associated with adverse health outcomes, its impact on health-related quality of life (HRQoL) remains complex and not fully understood. In Jordan, empirical evidence examining this relationship, particularly in relation to socioeconomic factors, is still limited.

Objectives: This study aimed to examine the association between polypharmacy and HRQoL of life among elderly individuals with chronic diseases in Jordan, and to explore the role of demographic, clinical, and socioeconomic factors in shaping HRQoL.

Methodology: A cross-sectional study was conducted among around 289 elderly individuals with chronic diseases and polypharmacy. Data were collected from Jordan University Hospital and several community pharmacies in Jordan using the validated World Health Organization Quality of Life Instrument (WHOQOL-BREF) questionnaire, after conducting a piolet study.

Results: HRQoL was significantly associated with socioeconomic and psychological factors. Low income was strongly associated with poor quality of life in unadjusted analyses ($p < 0.0002$), followed by the presence of mental health conditions ($p < 0.02$), rental housing status ($p < 0.0077$), and respiratory diseases ($p < 0.01$). In contrast, polypharmacy alone was not an independent predictor of HRQoL; however, income demonstrated a marginal moderating effect on the relationship between polypharmacy and quality of life ($\beta = 0.0005$, $p = 0.065$), suggesting a context-dependent influence.

Conclusion: The study concludes that HRQoL among older adults with chronic diseases in Jordan is influenced by a complex interaction of psychological, social, and clinical factors rather than medication count alone. These findings emphasize the need for integrated, patient-centered care approaches that address mental health, socioeconomic vulnerability, and disease burden alongside medication management to improve quality of life in the elderly population.

Keywords: polypharmacy; health-related quality of life; chronic diseases; elderly; Jordan.

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الملخص

الخلفية: تُعدّ الأمراض المزمنة شائعة الانتشار بين كبار السن، مما يؤدي إلى الاستخدام طويل الأمد للأدوية وارتفاع خطر تعدد الأدوية، والمقصود به تناول أكثر من خمسة أدوية في الوقت نفسه. وعلى الرغم من ارتباط تعدد الأدوية بنتائج صحية سلبية، إلا أن تأثيره على جودة الحياة المرتبطة بالصحة لا يزال معقدًا وغير مفهوم بشكل كامل. وفي الأردن، ما تزال الأدلة العلمية التي تدرس هذه العلاقة، ولا سيما فيما يتعلق بالعوامل الاجتماعية والاقتصادية، محدودة.

الأهداف: هدفت هذه الدراسة إلى فحص العلاقة بين تعدد الأدوية وجودة الحياة المرتبطة بالصحة لدى كبار السن المصابين بأمراض مزمنة في الأردن، إضافة إلى استكشاف دور العوامل الديموغرافية والسريرية والاجتماعية والاقتصادية في تشكيل جودة الحياة المرتبطة بالصحة.

المنهجية: أُجريت دراسة مقطعية شملت نحو 289 من كبار السن المصابين بأمراض مزمنة ويعانون من تعدد الأدوية. جُمعت البيانات من مستشفى الجامعة الأردنية وعدد من الصيدليات المجتمعية في الأردن باستخدام أداة منظمة الصحة العالمية لقياس جودة الحياة (WHOQOL–BREF) بنسختها المعتمدة، وذلك بعد إجراء دراسة استطلاعية.

النتائج: أظهرت النتائج أن جودة الحياة المرتبطة بالصحة كانت مرتبطة بشكل معنوي بالعوامل الاجتماعية والاقتصادية والنفسية. فقد ارتبط انخفاض الدخل بشكل قوي بتدني جودة الحياة في التحليلات غير المعدلة ($p < 0.0002$)، يليه وجود اضطرابات نفسية ($p < 0.02$)، والسكن بالإيجار ($p < 0.0077$)، والأمراض التنفسية ($p < 0.01$). في المقابل، لم يكن تعدد الأدوية بحد ذاته مؤشرًا مستقلاً ذا دلالة إحصائية على جودة الحياة المرتبطة بالصحة؛ إلا أن الدخل أظهر تأثيرًا تعديليًا هامشيًا على العلاقة بين تعدد الأدوية وجودة الحياة ($\beta = 0.0005$، $p = 0.065$)، مما يشير إلى تأثير يعتمد على السياق.

الاستنتاج: تخلص الدراسة إلى أن جودة الحياة المرتبطة بالصحة لدى كبار السن المصابين بالأمراض المزمنة في الأردن تتأثر بتفاعل معقد بين العوامل النفسية والاجتماعية والسريرية، وليس بعدد الأدوية وحده. وتؤكد هذه النتائج على أهمية تبني نهج رعاية تكاملي يتمحور حول المريض، ويأخذ بعين الاعتبار الصحة النفسية والهشاشة الاجتماعية والاقتصادية وعبء المرض، إلى جانب إدارة العلاج الدوائي، بهدف تحسين جودة الحياة لدى كبار السن.

الكلمات المفتاحية: تعدد الأدوية؛ جودة الحياة المرتبطة بالصحة؛ الأمراض المزمنة؛ كبار السن؛ الأردن.

Chapter One
Background and Problem Statement

1.1 Introduction

1.1.1 Global burden of chronic disease

Chronic diseases constitute one of the most non-communicable, serious, and rapidly growing public health issues worldwide. Over the past years, the global burden of chronic diseases has increased dramatically, affecting the rate of morbidity and mortality across the world (WHO, 2025).

These comorbid diseases, such as cardiovascular diseases, diabetes, chronic respiratory diseases, and cancer, are extensively prevalent among the elderly population. According to the Centers for Disease Control and Prevention, among adults aged 65 years and older, nearly all have at least one chronic condition, and many live with two or more chronic conditions (CDC, 2023). Despite advanced development in the healthcare system, multiple chronic diseases are accelerating significantly, leading to an overestimation of the healthcare burden and increasing the risk of polypharmacy (Zhu et al., 2025).

In Arab countries over recent years, the epidemiological profile has shifted from infectious diseases to noncommunicable chronic illnesses, this transformation was prompted by urbanization, modification of lifestyle, life expectancy, changes in socioeconomic status and changed eating habits and diets (Rahim et al, 2014). According to regional reports issued by WHO concerning health, there is a wide prevalence of chronic disease rates, these diseases involve CVD, diabetes and HTN ,morbidity and mortality are due to this rate increase as an indicator of the pressure and burden on the healthcare units, sustainable and national future plans for both prevention and management are obviously needed (Al-Mandhari & Hajjeh, 2023).

1.1.2 Aging and Mortality

According to the Jordanian Ministry of Health MOH, non-communicable diseases account for about 78% of all deaths (WHO, 2020). The National STEPwise survey reported that 41.7% of people aged 18-69 had three and more risk factors to develop chronic diseases and revealed

that chronic disease burden was increased with age (WHO, 2020). Although only 5.6% of Jordan's population is considered elderly, this group significantly increases the health system burden, polypharmacy, and the need for additional medical interventions (Al-Qerem et al., 2018).

Approximately 86% of older adults in Jordan have one physical or mental health condition, the most common conditions are hypertension, diabetes, and cardiovascular, the prevalence rates estimated for hypertension cases (~53%), diabetes (~25%), and cardiovascular (~30%), the most common mental health illnesses mentioned were depression and anxiety among older Jordanian adults (Rababa et al., 2021). High prevalence rates of hyperglycemia and cardiovascular disease were noticed among middle-aged Jordanians, leading to extend period for medication use, a high risk of adverse effects, an increased burden, and needs on the healthcare system (WHO, 2020).

1.1.3 Polypharmacy

Polypharmacy, defined as the regular use of five or more medications concurrently, is common among older adults; because older adults often have multiple chronic conditions, the use of five or more medications is becoming increasingly common (Varghese D et al.,2024). While polypharmacy can improve treatment outcomes, the health risks are undeniable, these risks may include side effects, drug interactions, and increased healthcare costs (Jernes & Majid, 2025). Physiological changes and uncontrolled multiple comorbidities lead to rise the level of risks being higher, a significant point should be taken into consideration that poor regulation of polypharmacy affect health and life quality negatively (Doumat et al., 2023).

Polypharmacy is generally classified into two main types: standard polypharmacy and excessive polypharmacy, based on the number of medications used concurrently. Polypharmacy is commonly defined as the use of five or more medications at the same time (Gnjidic et al., 2012). Excessive polypharmacy, which involves prescribing ten or more medications, significantly increases the risk of hospitalization, raises healthcare costs, and increases mortality rates (Mekonnen et al., 2022).

Polypharmacy increases the risk of drug–drug interactions and the use of potentially inappropriate medications, particularly among older adults, when multiple drugs are taken concurrently, their combined pharmacological effects may differ from the effects expected when each medication is used alone, leading to unintended and sometimes serious clinical consequences (Varghese D et al., 2024).Cardiovascular medications are among the drug classes most frequently involved in such interactions, with common adverse outcomes including delirium, acute renal failure, and hypotension , in addition, the complexity of managing multiple medications often contributes to poor medication adherence in older adults, especially in the presence of age-related visual or cognitive impairment. Reduced adherence may, in turn, result in suboptimal treatment outcomes, increased risk of treatment failure, and higher rates of hospitalization (Ozenberger K et al, 2021).

A Jordanian study by Arabyat underlined the correlation between the Charlson Comorbidity Index (CCI) and polypharmacy in Jordan (Arabyat et al., 2021). The prevalence of multiple chronic diseases among elderly Jordanians increases the demand for the required medication and is likely to negatively impact their (HRQoL) (Al-Qerem et al., 2018).

Despite growing recognition of its importance in reducing medication-related harm, medication reduction practices in Jordan remain limited and inconsistent, consequences in Jordan include the lack of national medication reduction guidelines, limited awareness and training among healthcare professionals, time constraints, and patient-related factors such as fear of discontinuing long-term medications (Barakat M, et al., 2024).

1.1.4 Health-Related Quality of Life (HRQoL) Concept

Furthermore, quality of life in terms of health as Sokoya emphasized represents an integrated framework of physical, psychological, emotional and social aspects of human well-being, this leads to extending farther than normal health measuring test as morbidity and mortality rates, it highlights individuals feeling as influenced by health states through daily life (Sokoya et al., 2022). In this aspect WHO refers to the concept of the quality of life as individuals' prescription of their sight in life related to culture, values, goals, expectations and concerns, tools such as the World Health Organization Quality of Life Instrument

(WHOQOL-BREF) are frequently used to measure HRQoL because of their reliability and comprehensiveness (WHO, 1997).

Polypharmacy, especially when unmanaged, can weaken HRQoL by causing undesirable side effects, increasing treatment complexity, and decreasing autonomy. Therefore, evaluating how polypharmacy impacts HRQoL has become a significant public health concern among older adults (Srivastava et al., 2023).

1.1.5 Jordanian Context and Prevalence

The rates of chronic non communicable diseases are widely prevalent in Jordan, in addition, they tend to progress highly in older adults aged sixty years and above, consequently, additional demands from a burden on Jordanian health care system (Abdelhaq et al., 2024). According to Jordan Ministry of Health reports, non-communicable diseases including hypertension and diabetes are among the highest required attention cases in Jordan, so, the ministry with all its sections struggle to manage successfully the issues related to polypharmacy and medication, risks of adverse events interaction of drugs and treatment adherence (MOH, 2025).

1.2 Study Problem

Jordan is undergoing a rapid demographic transition marked by a growing elderly population. This shift has been accompanied by an increased prevalence of chronic diseases, which has led to a rise in long-term medication use and, consequently, polypharmacy. Polypharmacy represents a significant clinical and public health concern, as it is associated with increased treatment complexity, potential drug–drug interactions, poor medication adherence, and adverse health outcomes, including reduced HRQoL (Varghese et al., 2024).

HRQoL is a multidimensional concept encompassing physical, psychological, social, and environmental domains. While polypharmacy has been widely studied in relation to clinical outcomes, evidence examining its impact on HRQoL remains limited, particularly among older adults in Jordan. Although previous studies, such as that by Van Wilder et al. (2022), have emphasized the importance of optimizing healthcare strategies to address polypharmacy, there is still insufficient understanding of how polypharmacy interacts with

clinical, psychological, and socioeconomic factors to influence HRQoL in this population. This lack of local evidence highlights the need for the present study.

1.3 Study Aim

To examine the association between polypharmacy and HRQoL among elderly people with chronic diseases in Jordan, while considering the influence of socioeconomic factors.

Specific Objectives

- To evaluate the overall effect of polypharmacy on physical, psychological, and social dimensions of HRQoL among elderly individuals.
- To examine the moderating role of socioeconomic factors such as income level, educational attainment, housing stability, and family support on the relationship between polypharmacy and HRQoL.

1.4 Research Questions

- What is the association between the number of medications taken (polypharmacy) and HRQoL among the elderly with chronic diseases in Jordan?
- How do socioeconomic factors (income, education, and family support) moderate the association between polypharmacy and HRQoL in this population?

1.5 Study Hypotheses

Hypothesis 1

- Null (H_{01}): There is no significant association between the extent of polypharmacy and overall HRQoL scores among the elderly with chronic diseases in Jordan.
- Alternative (H_{a1}): Higher levels of polypharmacy are significantly associated with lower overall HRQoL scores in this population.

Hypothesis 2

- Null (H_{02}): Socioeconomic factors do not significantly moderate the relationship between polypharmacy and HRQoL.

- Alternative (H_{a2}): Socioeconomic factors significantly impact the strength or direction of the relationship between polypharmacy and HRQoL.

1.6 Significance of the Study

This study addresses a significant but inadequately examined issue among Jordan's aging population by investigating the association between polypharmacy and HRQoL in older adults with chronic diseases.

Scientific Contribution: This study tries to fill a gap in polypharmacy use in Jordan by providing a view of how polypharmacy influence elderly Jordanians. It also generates a ground for further future research on some fields like geriatric pharmacotherapy, prescribing practices and disease priorities.

Clinical Significance: Considering the different related aspects of polypharmacy, this study urges healthcare givers to provide more balanced plans in treatment and medication as well as reducing adverse drug related side effects.

Impact on Public Health: The results of the study help in drawing attention to more efforts concerning financing strategies, rational use of medicines and improving care services.

1.7 Conceptual and Operational Definition

Polypharmacy:

The concurrent use of several medications is usually operationalized as five or more (Pazan & Wehling, 2021).

Operational Definition: In this study, participants will be classified as experiencing polypharmacy if they are concurrently prescribed five or more medications at the time of data collection.

Health Related Quality of Life (HRQoL):

Conceptual Definition: A multidimensional measure of how well people perceive their physical, psychological, and social functioning in the framework of their health (Ustjanauskas & Malcarne, 2020).

Operational Definition: Evaluated using the previously validated Arabic WHOQOL-BREF tool, establishing domain specific and total scores.

Elderly Population:

Conceptual Definition: Individuals aged 60 years and above, consistent with WHO classification (WHO, 2025).

Operational Definition: Inclusion criterion for study participation; respondents must be equal or older than 60 years of age and more.

1.8 Research gap

Although chronic diseases is a common highly taken into consideration issue, local research on polypharmacy and life quality among elderly people stays limited in Jordan. The demand for more pharmaceutical studies has appeared on the health care surface.

1.9 Limitations of the study

This study was conducted between May and November 2025 across multiple healthcare settings in Jordan, including community pharmacies and public health center, which may have introduced minor temporal variability in participant recruitment. Moreover, the study focused on adults aged 60 years and older who were prescribed five or more medications and were living in community settings; consequently, institutionalized older adults residing in long-term care facilities were not included, which limits the generalizability of the findings to this subgroup. Participants were required to be cognitively able and willing to provide informed consent; this may have resulted in an underrepresentation of more vulnerable, cognitively challenged elderly populations. Additionally, the cross-sectional design limits the ability to establish causal relationships between polypharmacy and HRQoL.

Chapter Two

Theoretical Framework and Previous Studies

2.1 Theoretical Literature

Polypharmacy is a significant healthcare issue, mainly for the elderly and patients with chronic diseases. In Jordan, many patients face challenges related to the concurrent use of many medications, which can negatively affect their overall health and QOL.

The term polypharmacy indicates the concurrent use of five or more medications. It is a common phenomenon among patients with chronic conditions such as diabetes, hypertension, cardiovascular disease and musculoskeletal conditions. Whereas the use of several medications is usually necessary for disease management, it can increase the risk of drug interactions and side effects, potentially influencing patients' health and well-being (Van Wilder et al., 2022)

2.2 Health-related quality of life

HRQoL is defined as an individual's perceived level of physical, psychological and social well-being. Patients taking several medications usually experience a decrease in HRQoL because of medication side effects, fatigue and decreased capability to do daily living activities (Gurung et al., 2025).

2.3 The Relationship Between Polypharmacy and Health-Related Quality of Life

Global and local studies have showed a direct association between the number of medications used and decreased HRQoL. In Jordan, this issue is of increasing importance because of the increasing number of elderly individuals with chronic diseases, underscoring the need for careful medication management (Van Wilder et al., 2022).

The conceptual framework guiding the current study is explained, and demonstrates the assumed relationships between chronic diseases, polypharmacy, socioeconomic factors, and HRQoL (**Figure 2.1**).

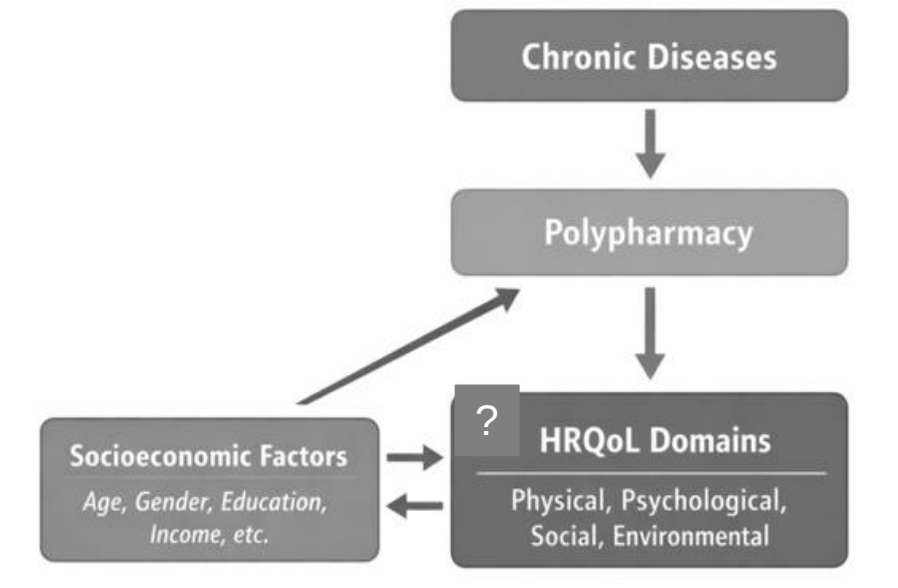

Figure 2.1 Conceptual framework of the hypothesized relationship between chronic disease, polypharmacy, socioeconomic factors, and HRQOL. Designed through PowerPoint software.

2.3.1 International Evidence

A cross-sectional study performed in Spain revealed an inverse association between polypharmacy (mainly more than 10 medications) and HRQoL in older adults. Main issues included poor understanding of medications and therapy duplication, causing decreased adherence and increased adverse events (Montiel-Luque et al., 2017).

As part of the PRIMA-eDS project (Polypharmacy in Chronic Diseases), conducted across several European countries, (Rieckert et al., 2018) identified weakness, multi-morbidity, and obesity as key predictors of polypharmacy among older adults. The findings showed a decrease in medications among adults aged 85 years and above; this implied that prescribing large numbers of medications has a tendency not to be increasingly used during old age. The above finding has confirmed that prescribing large numbers of medications is affected by the various factors of demographics and healthcare systems, which are different due to variations in gaining access to healthcare and ways of prescription in the Jordanian context.

In a study from Mexico, polypharmacy in older adults was associated with cognitive decline and social isolation, indicating that polypharmacy extends to have impact on independence and social well-being (Salinas-Rodriguez et al., 2020). These findings are consistent with the concept of multidimensional harm from polypharmacy that this study must be investigated in Jordan.

A cross-sectional study in Belgium also showed a negative relationship between polypharmacy and QOL in patients with chronic diseases, recording lower of quality of life and higher levels of psychological distress, underscoring the importance of periodic review of medication treatment (Van Wilder et al., 2021).

A cohort study in Australia analyzed the relationship between polypharmacy and HRQoL in older adults over a follow-up period. The results showed that the use of several medications was associated with a decline in quality of life over time, and this decline was more severe in patients who used inappropriate or high-risk medications (Aljeaidi et al., 2022). These results confirm the importance of careful management of drug treatment and regular follow-up.

In India, a cross-sectional study examined the prevalence of drug overuse and its impact on quality of life and adherence to treatment among older people recovering from COVID-19.The study determined that older adults have a high over medication prevalence comparison to younger adults, which is associated with decreased HRQoL and adherence to prescribed treatments (Nivatti et al., 2022). This underscores the increased vulnerability of older adults to the adverse effects of over medication.

An OPERAM study was performed in some European countries, polypharmacy was studied on clinical patient The study showed that there is a negative association between the medications number and quality of life, with unsuitable medications revealing the greatest negative effect. The study confirmed that the medications quantity, as well as their suitability, affects patients' health. (Falke et al., 2024).

A qualitative study conducted in Australia showed that polypharmacy imposes significant physical and psychological burdens, including complexity of drug administration, fear of side effects, and decreased functional independence, which affects HRQoL (Gurung

et al., 2025). Although the study was not limited to the elderly only, it confirmed that this group is the most exposed to multiple medications.

To summarize the mentioned international studies a clear negative relationship between polypharmacy and HRQoL appears clear (Montiel-Luque et al.,2017). Use of more than ten medications is associated with decreased quality of life, while (Rieckert et al.,2018) refer to the role of multiple comorbidities in increasing the drug burden, noting a decrease in the number of medications prescribed for those over 85 years of age. Studies from Mexico and Belgium have confirmed that polypharmacy affects both physical, cognitive, and social health (Salinas-Rodriguez et al., 2020; Van Wilder et al., 2021). Longitudinal evidence from Australia also supported these findings, showing that continued polypharmacy leads to a gradual deterioration in quality of life over time (Aljeaidi et al., 2022).

2.3.2 Regional Evidence

A multi-center study conducted in Iraq in 2015 addressed the problem of polypharmacy among elderly people with chronic diseases and revealed a high prevalence of this phenomenon of 82%, especially among women, with common side effects and complications recorded. The study also showed that medication guidelines were mostly the responsibility of physicians, while the role of pharmacists and nurses was less present (Redha & Aziz, 2015).

In Egypt, a cross-sectional study confirmed that drug overuse is a widespread phenomenon among the elderly, increased with factors such as age, multiple diseases. And frequency of visits to health services clearly influencing the amount of medicine taken by patients (Eltaher & Araby, 2019).

A cross-sectional study applied in Kuwait examined the prevalence of medication overuse among the elderly people. The study shod high prevalence of medication overuse among patient with chronic conditions. This overuse resulted from comorbidities age and frequent health care visit (Badawy et al., 2020).

A retrospective study in Lebanon also showed that drug overuse increases the burden on the health system through higher rates of hospital admissions and emergency visits, in comparison with those taking few medications. (Doumat et al., 2023).

In Saudi Arabia, a cross-sectional study was conducted which examined polypharmacy prevalence as associated with medication-related quality of life (MRQoL), the study concluded polypharmacy highly prevalence among chronic disease patients and the overuse of medication was associated low (MRQoL) scores (Alnaim et al., 2023).

A study using a comparative analytical procedure in Pakistan also supported these findings, highlighting that polypharmacy increases health complications, and negatively impacts quality of life, while emphasizing the role of medication review and patient education (Siddique et al., 2024). The study also referred to the accurate practices like medication previews and discontinuation of unnecessary medicines.

Regional evidence from neighboring countries indicates a clear and widespread prevalence of polypharmacy among older adults diagnosed with chronic diseases, in Iraq (Redha & Aziz, 2015) a study showed that the prevalence of polypharmacy reached 82%, particularly among women. Studies from Egypt and Kuwait (Eltaher & Araby, 2019; Badawy et al., 2020) found age, comorbidities, and frequent healthcare visits as significant factors in medication overuse. In Saudi Arabia, (Alnaim et al., 2023) confirmed that reduced quality of life is associated with polypharmacy, contributing to the clinical impact in Arab settings. Furthermore, studies from Lebanon and Pakistan (Doumat et al., 2023; Siddique et al., 2024) demonstrated that medication overuse contributes to increased healthcare facility utilization, deterioration of physical and cognitive functions, and increased hospital admissions. These studies confirm that polypharmacy is not only widespread but also leads to various health and social consequences, providing a basis for investigating similar findings in Jordan.

2.4.3 Implications for Jordan

Jordan faces challenges related to polypharmacy as regionally observed. These challenges add more pressure on HRQoL, medicine side effects and healthcare centers increasing their responsibilities. Regional and international findings provide a basis for more investigations concerning polypharmacy within the Jordanian healthcare context, considering local cultural and economic factors, as well as healthcare system factors.

2.4 Research Gap

Whereas several studies have examined the association between polypharmacy and HRQOL in other countries, there is a clear absence of local evidence in Jordan. Further research is required for better understand the specific effect of polypharmacy on HRQOL and to investigate the socioeconomic factors that may impact this association. Understanding the association between polypharmacy and HRQOL can participate in the advances of more effective medication management strategies, decrease health risks and enhance patients' quality of life, mainly within the Jordanian healthcare context (Van Wilder et al., 2022).

Chapter Three
Methodology (Methods and Procedures)

3.1 Research design

The present study utilized a quantitative, non-interventional, descriptive analytical method with a cross-sectional design to examine the association between polypharmacy and HRQoL among elderly patients with chronic diseases in Jordan. This design is suitable for evaluating associations between variables at a single point in time without manipulating any of the study factors; however, this design cannot establish causal relationships. Data was collected using the validated Arabic version of the WHOQOL-BREF questionnaire (Ohaeri & Awadalla, 2009). In addition to the Arabic version of the WHOQOL-BREF questionnaire, two specific questions were added to capture medication-related information. The first question assessed the degree of polypharmacy, categorizing participants as having moderate polypharmacy (5–9 medications) or high polypharmacy (10 or more medications). The second question collected information on the chronic diseases experienced by each participant, including conditions such as hypertension, diabetes, gastrointestinal disorders, respiratory diseases, and mental illnesses.

3.2 Study Population and Eligibility Criteria

The study sample size was estimated using G*Power version 3.1.9.7, a statistical tool commonly used in health research. Assuming a medium effect size ($f^2 = 0.15$), an alpha level of 0.05, a power off 0.80, and up to five predictor variables in a multiple linear regression model (e.g., age, gender, income level, educational status, and social relationships), the minimum sample size required is approximately 240 participants. To account for potential non-response or incomplete data, an additional 30% will be added, resulting in a final target sample size to approximately 312 participants. This approach ensures sufficient statistical power to detect meaningful associations between demographic or clinical variables and HRQoL scores among elderly patients.

3.3 Sampling Method and Data Collection

A non-probability convenience sampling across multiple healthcare settings method was used to recruit older adults aged 60 years and above, covering northern, central, and southern regions of Jordan. Data were collected from a variety of healthcare settings, including community pharmacies, public health centers, and the Jordan University Hospital. Eligible participants were clinically diagnosed with at least one chronic disease, such as hypertension, diabetes, gastrointestinal disorders, respiratory diseases, or mental illnesses, and were taking at least five prescribed medications at the time of data collection.

Data were collected using a self-reported questionnaire, specifically the Arabic version of the WHOQOL-BREF. During data collection, the researcher was present to explain the questions and ensure participants' understanding.The questionnaire was administered in Arabic to accommodate the linguistic and cultural background of the target population. In cases where participants required assistance, particularly elderly individuals with visual or cognitive difficulties, caregivers were involved to support accurate completion of the questionnaire.

The study initially recruited 324 participants. A multistage data cleaning process was conducted to ensure data accuracy and analytical validity. Duplicate records, inconsistent entries, and ineligible cases (patients under 60 years or taking fewer than five medications) were excluded, leaving 300 participants. The second phase focused on the completeness of outcome and predictor variables, excluding cases lacking sufficient clinical or health-related information. After applying these criteria, the final sample consisted of 289 participants, which was deemed sufficient for comprehensive statistical analysis, covering age variation, health status.

3.4 Measures

3.4.1 Quality of Life Outcomes

The study depended on the WHOQOL-BREF for measuring the quality of individuals life in different cultural contexts. It covers four areas: Physical health status, emotional and psychological well-being, social relationships and support and environmental resources.

Each area was scored depending on official WHOQOL-BREF guidelines. Also, a Total QoL score was measured to represent global well-being. In addition, for logistic regression modeling, a binary variable -Poor QoL- was created by applying the lower quartile to the Total QoL distribution, a common practice to classify individuals with clinically reduced quality of life.

3.4.2 Predictor Variables

The predictive variables were classified into three groups: Demographic, socioeconomic and clinical variables. Age, gender, marital status and education level form the demographic variables. Socioeconomic variable included income, employment status and housing status (ownership or rent).

Clinical variables focused on the presence of chronic diseases. This circle covers hypertension, diabetes, respiratory disease gastrointestinal disorder, cancer and psychological disorders. Drug therapy also has its variables: the total number of drug and having polypharmacy classified into moderate or high. All these variables were analysed as related to disease burden, ability to function properly and old people's quality of life. Medication related predictors had total medication count and polypharmacy category defined as (moderate 5-9) or (high ≥10) medications.

3.5 Data Processing and Preparation

Data was carefully reviewed to ensure completeness, validity and logic. Standard procedures were used to encode variables: Categorical predictors were converted into numerical indicators; continuous predictors were inspected for normality and logical consistency checks were performed.

To discover data entry errors, outliers were evaluated, since the percentage of missing data was low and random, list wise deletion method was performed. Furthermore, continuous variables were standardized to allow a clearer interpretation of the coefficients and to give a direct comparison of the strength of different variables.

3.6 Statistical Analysis

3.6.1 Descriptive Statistics

Descriptive analysis was used to provide a summary of the characteristics of the sample continuous variables which were expressed in terms of arithmetic mean and standard deviation. Categorical variables were discussed according to frequency and percentage. Graphs, including vertical charts of age and gender distribution, were also prepared to facilitate visual presentation of the sample structure.

3.6.2 Correlation Analysis

The nature of the data distribution was assessed using the Shapiro–Wilk test, and the results showed that the normal distribution of overall quality of life scores was not achieved ($p < 0.05$). Therefore, nonparametric tests were used to study the relationships between the four qualities of life domains and the total score, including Spearman correlation, Wilcoxon test, and Kruskal–Walli's test with subsequent Dunn analyses. In addition, a correlation matrix has been prepared to display the degree of overlap between different areas, which helps in understanding the common structure of quality of life and justifies the analysis of both sub-areas and the overall index.

3.6.3 Group Comparison Analysis

Differences in mean QOL scores across categorical predictors were evaluated using independent samples t-tests (for two level predictors) and one way analysis of variance (ANOVA) (for predictors with three or more levels). These analyses examined average differences in QOL across groups such as those with chronic diseases (e.g., diabetes, cancer, hypertension), across levels of education, among marital status categories, and between housing or income groups. Effect sizes such as Cohen's d and η^2 were calculated to quantify the magnitude of differences.

3.6.4 Regression Analysis

Multivariable regression modelling was undertaken to identify independent predictors of HRQOL. Separate multiple linear regression models were constructed for each continuous

QOL domain and for the Total QOL score. Predictors were entered simultaneously to evaluate their independent contributions while adjusting for covariates. Standard beta coefficients have been used to facilitate direct comparison between predictive variables in terms of impact strength. In parallel, a logistic regression model was applied based on the variable «poor quality of life» as a resulting variable, and the results were expressed using odds ratios and 95% confidence intervals to clarify the role of demographic, social, and clinical factors in raising the probability of decreased quality of life.

3.6.5 Moderation Analysis

An interactive analysis was used to examine whether income modifies the relationship between polypharmacy and quality of life. This analysis reflects a theoretical assumption that economic resources may contribute to mitigating the negative associated with quality of life. Interaction terms between polypharmacy classification and income group were included in the regression models, and their statistical significance was judged using the Wald test.

3.6.6 Software and Analytical Tools

All statistical analyses were done by using SPSS and R version 4.4.1. The tools which are used to interpret, manage and illustrate data are the following: specialized packages such as tidy verse for data processing, ggplot2 for graphical display, psych for correlation analysis, and broom for ranking model results. To make sure that the transparency and repeatability are achieved, the entire analysis procedures were documented through scripts for each stage of the work.

Chapter Four

Results of the Study

4.1 Descriptive Statistics

The final sample of the study consisted of 289 elderly participants, after phased exclusion of ineligible or incomplete cases (Table 1). Participants were aged between 60 and over 80 years, in three age groups: 60–69, 70–79, and ≥80 years. The age distribution showed predominance for the younger group (60–69), followed by an average representation of the 70–79 group, with a marked decrease in the number of participants aged 80 and over **(Table 4.1).**

Table 4.1 Descriptive characteristics of the study population.

Variable	Value
Sample size	289
Male n (%)	137 (47.4%)
Female n (%)	152 (52.6%)
Mean Age ± SD	70.00 ± 7.30
Age: 60-69 (%)	159 (55%)
Age: 70-79 (%)	94 (32.5%)
Age: >=80 (%)	36 (12.5%)
Education (mean ± SD)	2.96 ± 1.34
No schooling (%)	27 (9.3%)
Primary (%)	18 (6.2%)
Intermediate (%)	48 (16.6%)
Secondary (%)	44 (15.2%)
Postgraduate (%)	152 (52.6%)
Marital: Single (%)	15 (5.2%)
Marital: Married (%)	207 (71.6%)
Marital: Widowed (%)	65 (22.5%)
Marital: Divorced (%)	2 (0.7%)
Housing: Owned (%)	251 (86.9%)

Variable	Value
Housing: Rented (%)	38 (13.1%)
Job: Worker (%)	22 (7.6%)
Job: Unemployed (%)	267 (92.4%)
Income (mean ± SD)	247.39± (96.16)
Polypharmacy: Moderate (5-9) (%)	100 (34.6%)
Polypharmacy: High (>=10) (%)	189 (65.4%)
Comorbidity: HTN (%)	212 (73.4%)
Comorbidity: Diabetes (%)	193 (66.8%)
Comorbidity: Respiratory (%)	64 (22.1%)
Comorbidity: GI (%)	85 (29.4%)
Comorbidity: Cancer (%)	21 (7.3%)
Comorbidity: Mental health (%) **The mean WHOQOL-BREF scores**	12 (4.2%)
Physical QOL (mean ± SD)	3.38 ± 0.47
Psychological QOL (mean ± SD)	3.38 ± 0.53
Social QOL (mean ± SD)	3.41 ± 0.37
Environment QOL (mean ± SD)	3.09 ± 0.44
Total QOL (mean ± SD)	3.32 ± 0.32
Abbreviations: n (%) = frequency (percentage), SD = standard deviation, HTN = hypertension, GI = gastrointestinal disorders, QOL = quality of life.	

The mean age was 70.0 ± 7.3 years, with a slightly higher proportion of females (52.6%). Most participants were married, unemployed or retired, and lived in owned housing. The average monthly income was relatively low (247.4 ± 96.2 Jordanian Dinar (JD)). The sociodemographic and clinical characteristics of the study participants (n = 289) summarized in Table 4.1

Polypharmacy was highly prevalent, with most participants experiencing high polypharmacy, while the remainder had moderate polypharmacy. Chronic diseases were common, particularly hypertension and diabetes, followed by gastrointestinal, respiratory, mental health conditions, and cancer.

The mean WHOQOL-BREF scores indicated a moderate level of quality of life among participants. Physical and psychological domains showed similar mean values (3.38 ± 0.47 and 3.38 ± 0.53), while social quality of life was slightly higher (3.41 ± 0.37). The environmental domain had the lowest mean score (3.09 ± 0.44). Overall quality of life was moderate (3.32 ± 0.32).

4.2 Correlation Analysis of QOL Domains

Correlation coefficients ranged from 0.74 to 0.92, with the significant positive correlations observed between the Psychological, Social, and Environment domains (**Figure 4.1, Table 4.2**).

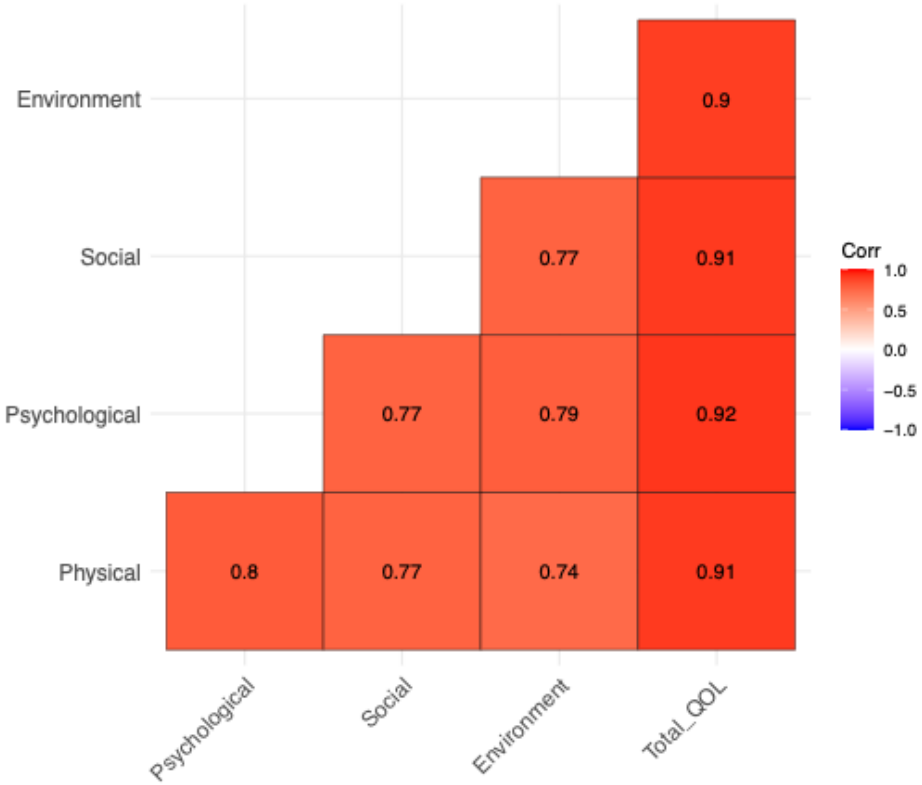

Figure 4.1 QOL Correlation Matrix.

Correlation matrix showing strong positive correlations between all QOL domains, indicating substantial domain interdependence.

Table 4.2 Full Quality-of-Life Domain Descriptive Statistics											
Variable	**N**	**Effect Size**	**Effect Type**	**Physical**	**Psychological**	**Social**	**Environment**	**Total QOL**	***P*-value**	**Test Used**	**Type**
Age	289	-0.023	Spearman rho	3.38 ± 0.47	3.38 ± 0.53	3.41 ± 0.37	3.09 ± 0.44	3.32 ± 0.32	0.6951	Spearman correlation	Continuous
Income	**289**	**-0.215**	**Spearman rho**	**3.38 ± 0.47**	**3.38 ± 0.53**	**3.41 ± 0.37**	**3.09 ± 0.44**	**3.32 ± 0.32**	**0.0002**	**Spearman correlation**	**Continuous**
Education	**289**	**0.171**	**Spearman rho**	**3.38 ± 0.47**	**3.38 ± 0.53**	**3.41 ± 0.37**	**3.09 ± 0.44**	**3.32 ± 0.32**	**0.0036**	**Spearman correlation**	**Continuous**
Medicine Count	289	-0.069	Spearman rho	3.38 ± 0.47	3.38 ± 0.53	3.41 ± 0.37	3.09 ± 0.44	3.32 ± 0.32	0.2434	Spearman correlation	Continuous
Gender: Female	152	0.030	Rank-biserial r	3.40 ± 0.48	3.31 ± 0.53	3.46 ± 0.36	3.07 ± 0.42	3.31 ± 0.32	0.6049	Wilcoxon rank-sum	Categorical
Gender: Male	137	0.030	Rank-biserial r	3.36 ± 0.46	3.47 ± 0.53	3.36 ± 0.37	3.11 ± 0.47	3.32 ± 0.32	0.6049	Wilcoxon rank-sum	Categorical
Age Group: 60-69	159	0.000	Epsilon squared	3.39 ± 0.48	3.37 ± 0.56	3.39 ± 0.39	3.11 ± 0.45	3.32 ± 0.34	0.3772	Kruskal Wallis	Categorical
Age Group: 70-79	94	0.000	Epsilon squared	3.36 ± 0.46	3.40 ± 0.50	3.46 ± 0.35	3.13 ± 0.44	3.34 ± 0.31	0.3772	Kruskal Wallis	Categorical
Age Group: ≥80	36	0.000	Epsilon squared	3.36 ± 0.48	3.38 ± 0.49	3.39 ± 0.35	2.89 ± 0.36	3.26 ± 0.28	0.3772	Kruskal Wallis	Categorical
Education label: Intermediate	**48**	**0.038**	**Epsilon squared**	**3.18 ± 0.44**	**3.16 ± 0.60**	**3.40 ± 0.40**	**2.99 ± 0.38**	**3.18 ± 0.31**	**0.0052**	**Kruskal Wallis**	**Categorical**
Education label: No schooling	**27**	**0.038**	**Epsilon squared**	**3.34 ± 0.47**	**3.36 ± 0.47**	**3.56 ± 0.31**	**3.05 ± 0.44**	**3.33 ± 0.29**	**0.0052**	**Kruskal Wallis**	**Categorical**
Education label: Postgraduate	**152**	**0.038**	**Epsilon squared**	**3.47 ± 0.46**	**3.48 ± 0.53**	**3.39 ± 0.34**	**3.15 ± 0.48**	**3.37 ± 0.33**	**0.0052**	**Kruskal Wallis**	**Categorical**
Education label: Primary	**18**	**0.038**	**Epsilon squared**	**3.38 ± 0.56**	**3.33 ± 0.51**	**3.39 ± 0.46**	**3.11 ± 0.35**	**3.30 ± 0.35**	**0.0052**	**Kruskal Wallis**	**Categorical**
Education label: Secondary	**44**	**0.038**	**Epsilon squared**	**3.32 ± 0.45**	**3.35 ± 0.46**	**3.42 ± 0.43**	**3.02 ± 0.41**	**3.27 ± 0.28**	**0.0052**	**Kruskal Wallis**	**Categorical**
Marital label: Divorced	2	-0.005	Epsilon squared	3.10 ± 0.14	3.50 ± 0.14	3.33 ± 0.47	3.17 ± 0.47	3.27 ± 0.24	0.6429	Kruskal Wallis	Categorical
Marital label: Married	207	-0.005	Epsilon squared	3.38 ± 0.47	3.42 ± 0.54	3.41 ± 0.36	3.11 ± 0.45	3.33 ± 0.32	0.6429	Kruskal Wallis	Categorical
Marital label: Single	15	-0.005	Epsilon squared	3.55 ± 0.50	3.17 ± 0.48	3.42 ± 0.32	3.09 ± 0.62	3.31 ± 0.32	0.6429	Kruskal Wallis	Categorical
Marital label: Widowed	65	-0.005	Epsilon squared	3.34 ± 0.47	3.33 ± 0.51	3.41 ± 0.42	3.02 ± 0.39	3.27 ± 0.33	0.6429	Kruskal Wallis	Categorical
Housing: Owned	**251**	**0.157**	**Rank-biserial r**	**3.39 ± 0.48**	**3.42 ± 0.51**	**3.44 ± 0.34**	**3.11 ± 0.44**	**3.34 ± 0.31**	**0.0077**	**Wilcoxon rank-sum**	**Categorical**

Housing: Rented	**38**	**0.157**	**Rank-biserial r**	**3.29 ± 0.41**	**3.17 ± 0.61**	**3.22 ± 0.47**	**2.96 ± 0.46**	**3.16 ± 0.36**	**0.0077**	**Wilcoxon rank-sum**	**Categorical**
Job label: Unemployed	267	0.033	Rank-biserial r	3.38 ± 0.47	3.38 ± 0.53	3.40 ± 0.37	3.09 ± 0.45	3.31 ± 0.33	0.5763	Wilcoxon rank-sum	Categorical
Job label: Worker	22	0.033	Rank-biserial r	3.35 ± 0.42	3.49 ± 0.55	3.53 ± 0.32	3.08 ± 0.41	3.36 ± 0.26	0.5763	Wilcoxon rank-sum	Categorical
Polypharmacy label: Moderate (5-9)	100	0.069	Rank-biserial r	3.34 ± 0.43	3.44 ± 0.50	3.43 ± 0.39	3.17 ± 0.42	3.35 ± 0.29	0.2430	Wilcoxon rank-sum	Categorical
Polypharmacy label: High (≥10)	189	0.069	Rank-biserial r	3.40 ± 0.49	3.35 ± 0.55	3.40 ± 0.36	3.05 ± 0.45	3.30 ± 0.34	0.2430	Wilcoxon rank-sum	Categorical
No HTN	77	0.026	Rank-biserial r	3.40 ± 0.47	3.37 ± 0.53	3.40 ± 0.42	3.02 ± 0.43	3.30 ± 0.30	0.6598	Wilcoxon rank-sum	Categorical
HTN	212	0.026	Rank-biserial r	3.37 ± 0.47	3.39 ± 0.53	3.42 ± 0.35	3.12 ± 0.45	3.32 ± 0.33	0.6598	Wilcoxon rank-sum	Categorical
No Diabetes	96	0.032	Rank-biserial r	3.41 ± 0.45	3.36 ± 0.44	3.41 ± 0.39	3.05 ± 0.43	3.31 ± 0.29	0.5864	Wilcoxon rank-sum	Categorical
Diabetes	193	0.032	Rank-biserial r	3.36 ± 0.48	3.40 ± 0.57	3.41 ± 0.36	3.11 ± 0.45	3.32 ± 0.34	0.5864	Wilcoxon rank-sum	Categorical
No Respiratory Diseases	**225**	**0.202**	**Rank-biserial r**	**3.40 ± 0.48**	**3.42 ± 0.53**	**3.43 ± 0.37**	**3.13 ± 0.42**	**3.35 ± 0.31**	**0.0006**	**Wilcoxon rank-sum**	**Categorical**
Respiratory Diseases	**64**	**0.202**	**Rank-biserial r**	**3.29 ± 0.44**	**3.28 ± 0.54**	**3.34 ± 0.38**	**2.93 ± 0.48**	**3.21 ± 0.33**	**0.0006**	**Wilcoxon rank-sum**	**Categorical**
No GI Disorders	**204**	**0.126**	**Rank-biserial r**	**3.41 ± 0.48**	**3.41 ± 0.50**	**3.42 ± 0.35**	**3.11 ± 0.44**	**3.34 ± 0.31**	**0.0323**	**Wilcoxon rank-sum**	**Categorical**
GI Disorders	**85**	**0.126**	**Rank-biserial r**	**3.31 ± 0.43**	**3.33 ± 0.60**	**3.40 ± 0.42**	**3.04 ± 0.45**	**3.27 ± 0.34**	**0.0323**	**Wilcoxon rank-sum**	**Categorical**
Cancer	268	0.047	Rank-biserial r	3.38 ± 0.48	3.39 ± 0.54	3.39 ± 0.36	3.09 ± 0.44	3.31 ± 0.32	0.4237	Wilcoxon rank-sum	Categorical
Cancer	21	0.047	Rank-biserial r	3.42 ± 0.39	3.36 ± 0.48	3.63 ± 0.38	3.13 ± 0.47	3.39 ± 0.30	0.4237	Wilcoxon rank-sum	Categorical
No Mental Issues	**277**	**0.130**	**Rank-biserial r**	**3.39 ± 0.47**	**3.40 ± 0.52**	**3.41 ± 0.37**	**3.10 ± 0.45**	**3.32 ± 0.32**	**0.0267**	**Wilcoxon rank-sum**	**Categorical**
Mental Issues	**12**	**0.130**	**Rank-biserial r**	**3.05 ± 0.40**	**3.12 ± 0.67**	**3.44 ± 0.43**	**2.86 ± 0.39**	**3.12 ± 0.40**	**0.0267**	**Wilcoxon rank-sum**	**Categorical**

Summary of statistical procedures (t-tests, ANOVA, regression models) and effect size metrics applied to categorical and continuous predictors. Bold indicates signifiacnt p-value<0.05.

Table presents the results of the statistical analysis of the relationship between demographic, socioeconomic, and clinical characteristics, as well as polypharmacy levels, with various quality-of-life domains and overall quality of life. Non-parametric statistical tests appropriate to the nature of the variables were used, including Spearman's rank-sum for continuous variables, the Wilcoxon signed-rank test for binary variables, and the Kruskal–Walli's test for multilevel categorical variables, in addition to calculating effect-size measures.

The results showed a statistically significant relationship between income and overall quality of life ($p = 0.0002$), as well as between educational level and overall quality of life ($p = 0.0036$). Statistically significant differences in overall quality of life were also found among different educational level categories ($p = 0.0052$).

Furthermore, statistically significant differences in overall quality of life were recorded based on housing type ($p = 0.0077$). The results also showed statistically significant differences between participants with and without respiratory diseases ($p = 0.0006$), gastrointestinal disorders ($p = 0.0323$), and the presence of mental issues ($p = 0.0267$).

In contrast, other variables, including age, gender, number of medications, marital status, employment status, multiple medications, and the presence of other chronic diseases, did not show statistically significant differences or correlations with overall quality of life ($p > 0.05$).

4.3 Demographic Predictors of QOL

4.3.1 Age Group

Age related differences in QOL were generally modest and not statistically significant. The ≥80 age group displayed lower Physical and Environment QOL compared with younger age groups; however, differences were not statistically significant (**Figure 4.1, Table 2**).

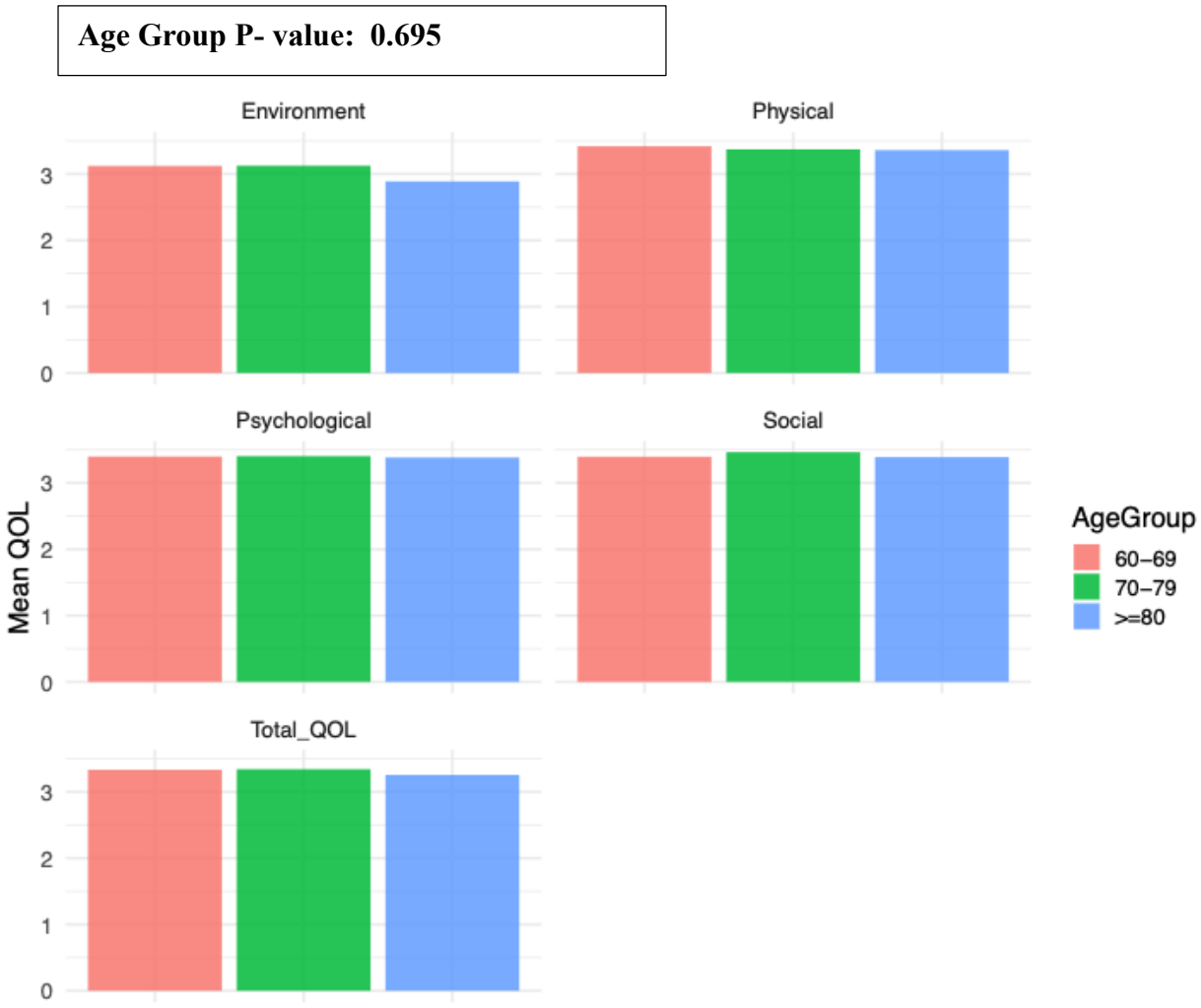

Figure 4.2. QOL by Age Group

Comparison of mean QOL scores across age groups (60–69 in pink, 70–79 in green, ≥80 in blue). No significant differences were observed.

4.3.2 Gender

Gender differences in QOL were minimal. Female participants reported slightly higher Psychological and Social QOL, whereas males showed marginally higher Environment QOL **(Figure 4.2, Table 4.2)**. These trends did not reach statistical significance, indicating broadly comparable HRQOL between men and women in this population.

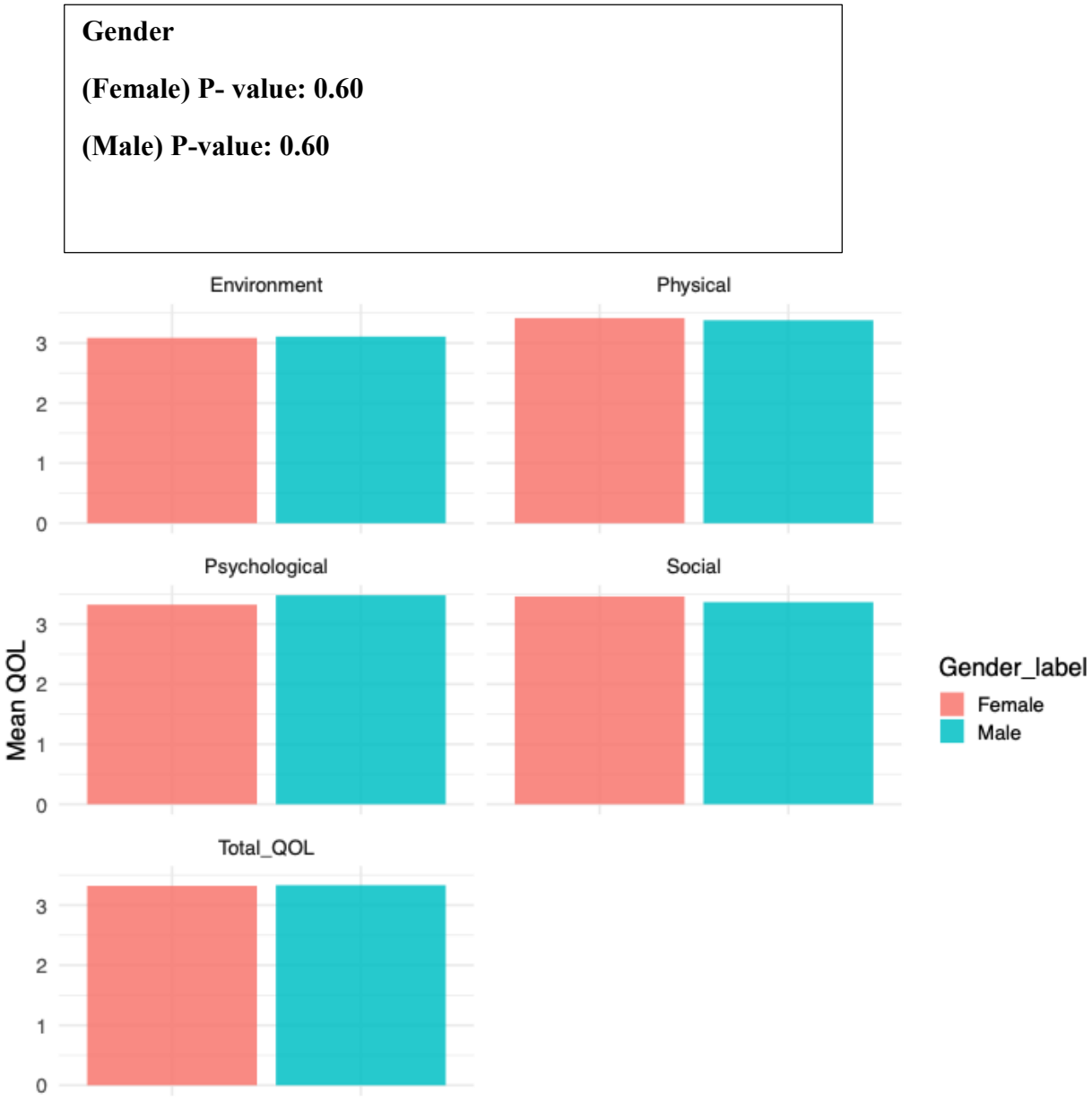

Figure 4.3 QOL by Gender.

4.3.3 Education Level

Education demonstrated a statistically significant association with multiple QOL domains ($p < .0052$). Participants with secondary, intermediate, or postgraduate education consistently reported higher Psychological, Social, and Environment QOL compared with those lacking formal education **(Figure 4.3, Table 4.2)**.

Education label:

Intermediate P-value: 0.0052

No schooling P-value: 0.0052

Postgraduate P-value: 0.0052

Primary P-value: 0.0052

Secondary P-value: 0.0052

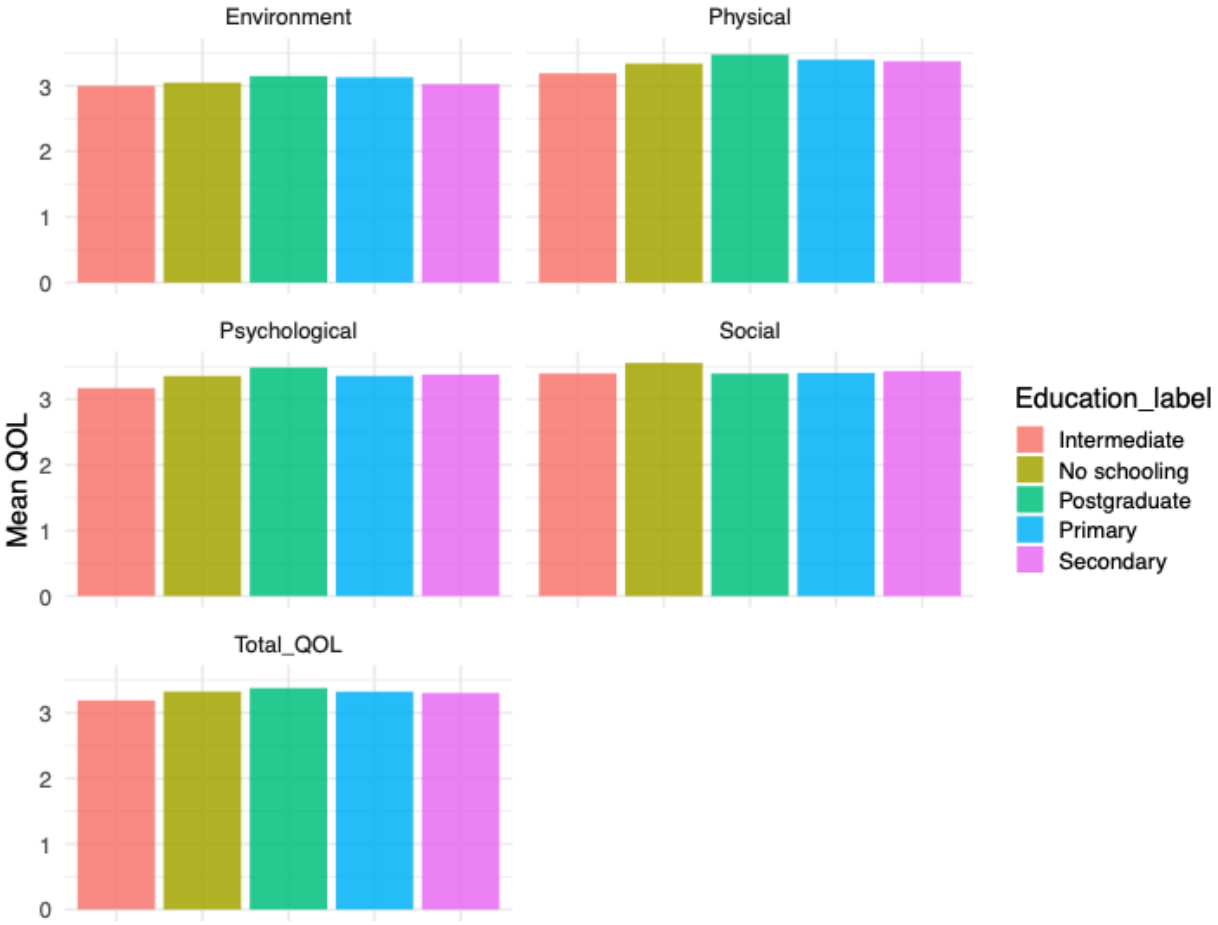

Figure 4.4 QOL by Education Level

Mean quality of life (QOL) domain scores stratified by education level.

4.4 Clinical Predictors of QOL

4.4.1 Diabetes

Comparison between participants with and without diabetes did not show any statistically significant differences in quality-of-life scores in all areas studied ($p > 0.05$), as shown in Figure (4.5) and Table (4.2).

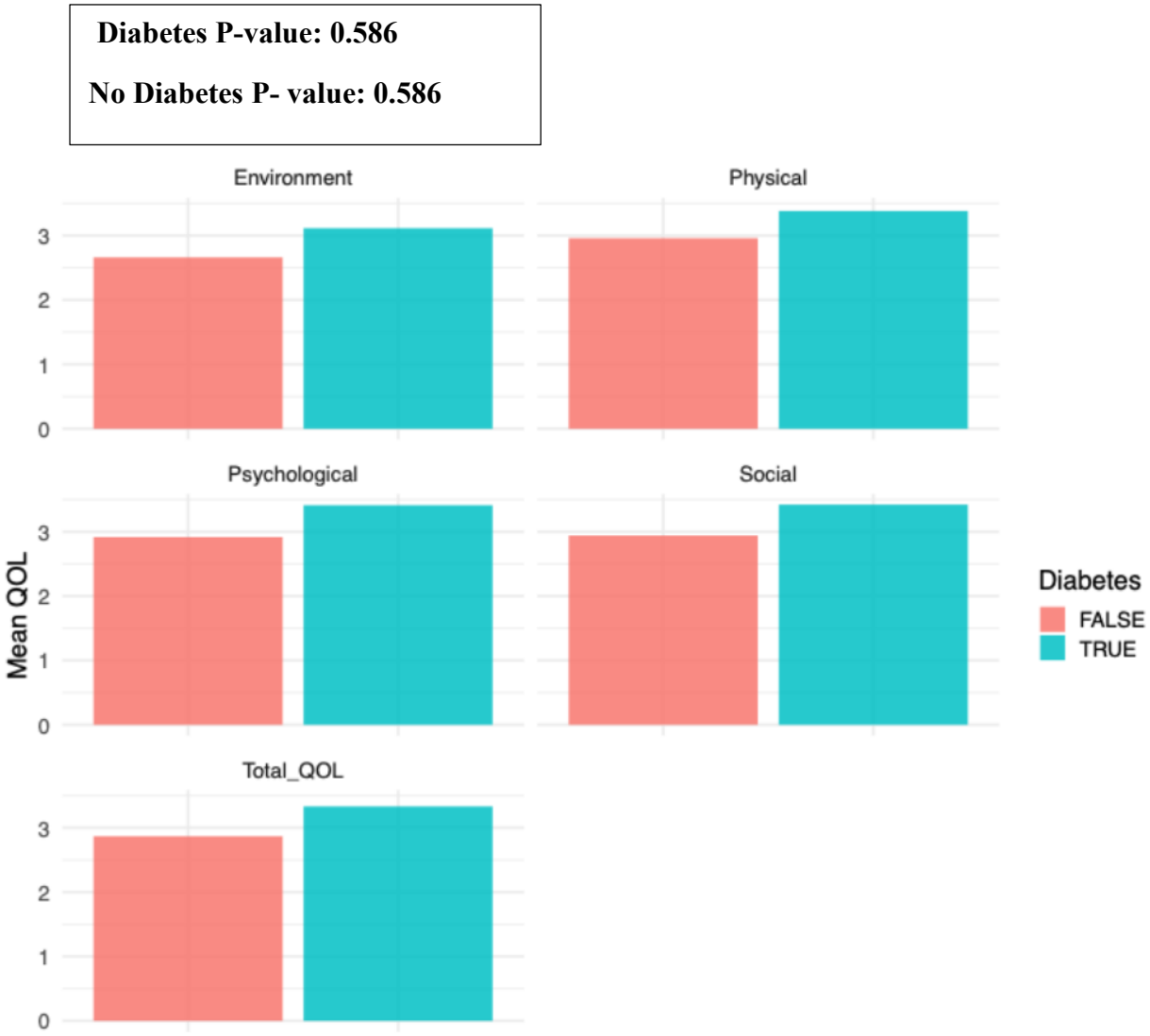

Figure 4.5. QOL by Diabetes Status

Diabetes was not significantly associated with QOL across all domains.

4.4.2 Cancer

Comparisons between participants with and without cancer showed no statistically significant differences in quality-of-life scores across all areas studied ($p > 0.05$), as shown in Figure (4.6) and Table (4.2).

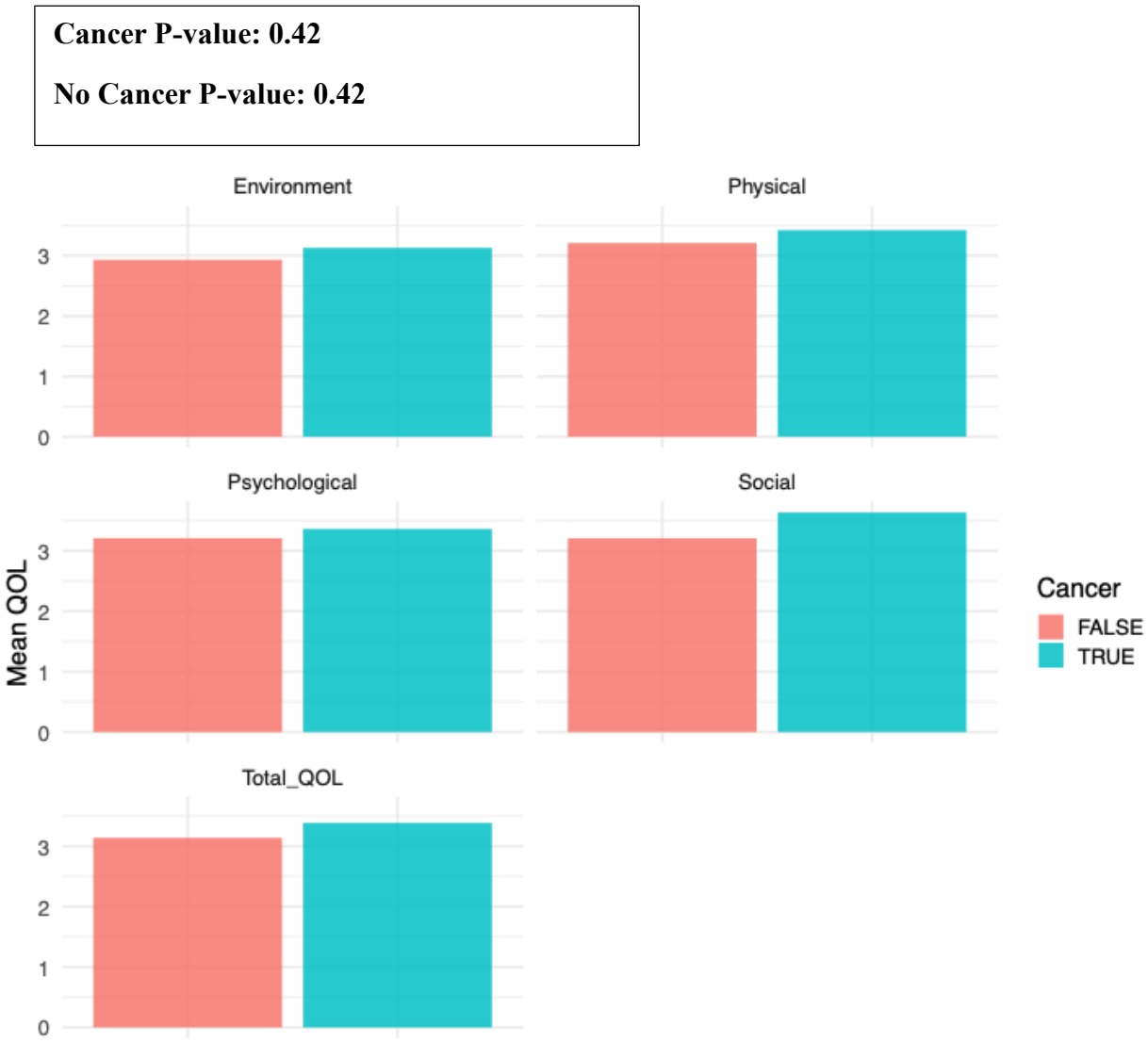

Figure 4.6. QOL by Cancer Status

Cancer was not significantly associated with QOL across all domains.

4.4.3 Hypertension

Comparison between participants with and without hypertension did not show statistically significant differences in different quality of life areas (Figure 4.7, Table 4.2).

HTN P-value: 0.65

No HTN P-value: 0.65

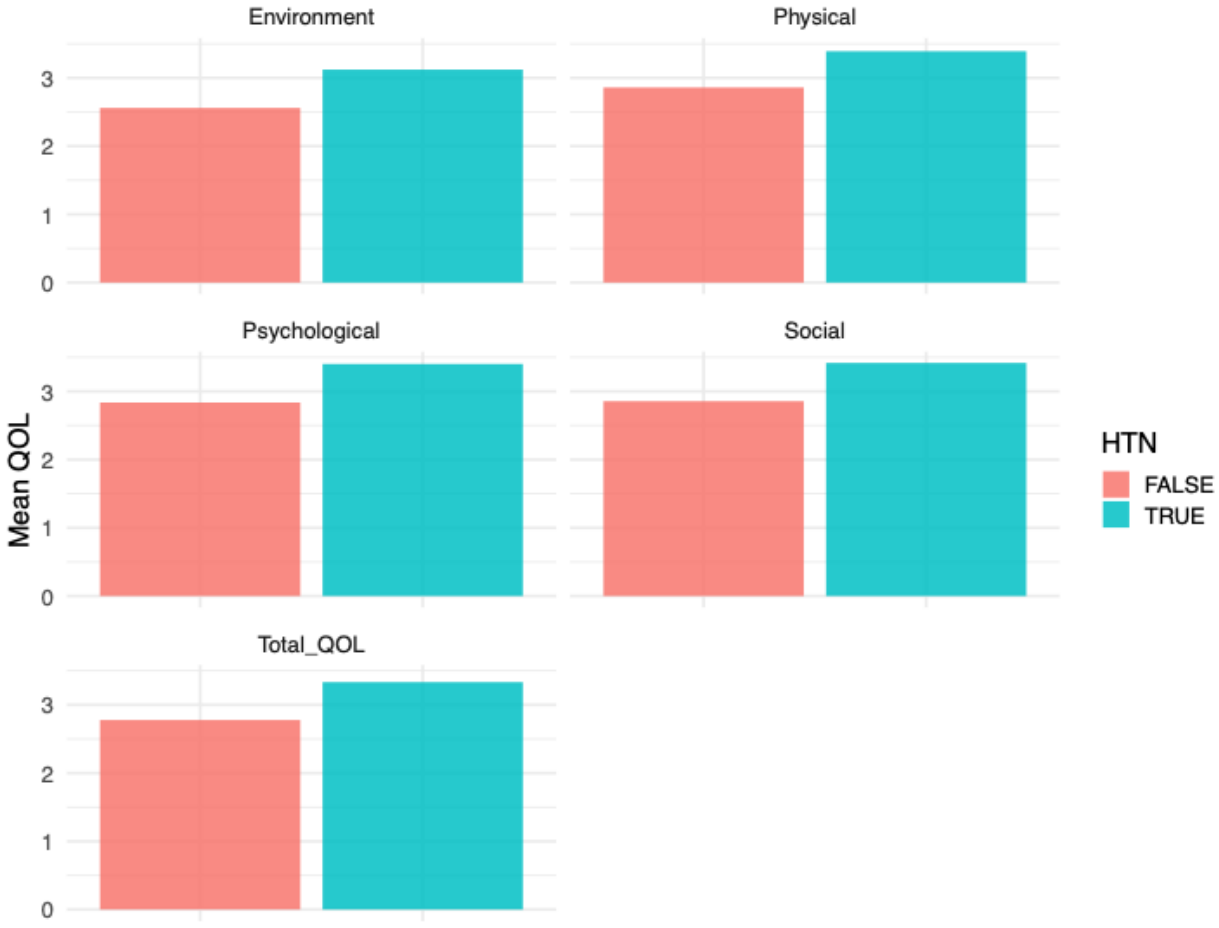

Figure 4.7. QOL by Hypertension Status

QOL was similar between participants with and without hypertension.

4.4.4 Gastrointestinal Disorders

Analyzes showed that participants with gastrointestinal disorders scored significantly lower in the environmental domain of quality of life, with a slight but statistically significant decline in the social domain ($p < 0.05$), according to Figure (4.8) and Table (4.2).

GI Disorders P-value: .032

No GI Disorders P-value: .032

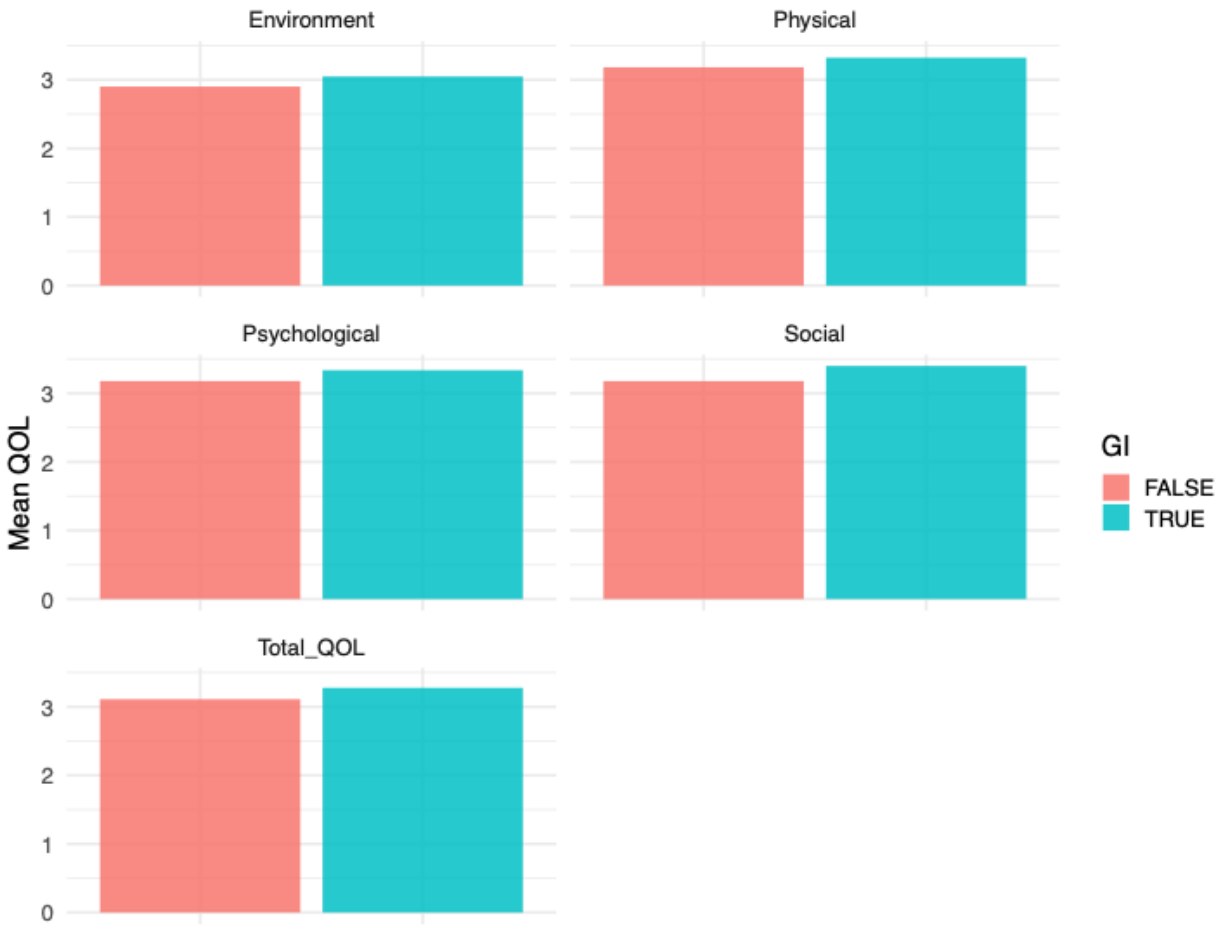

Figure 4.8 QOL by Gastrointestinal Disorder

GI disorders were associated with significantly lower Social and Environment QOL.

4.4.5 Respiratory Conditions

Analyses showed that participants with respiratory illnesses scored significantly lower in all quality-of-life domains ($p < 0.01$), especially in the physical domain, reflecting the direct impact of breathing problems on daily functioning (Figure 4.9, Table 4.2).

Respiratory Diseases P-value: .0006

No Respiratory Diseases P-value: .0006

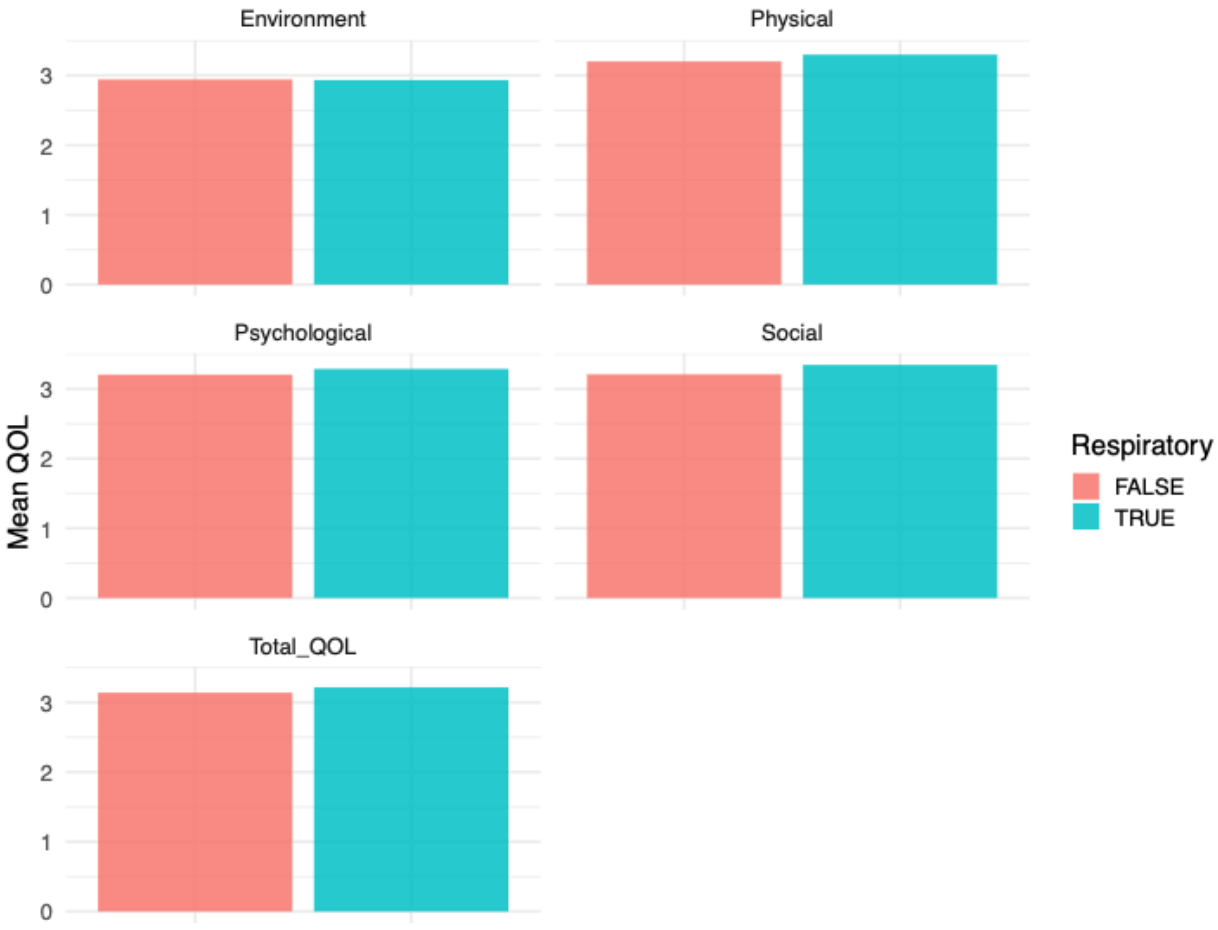

Figure 4.9 QOL by Respiratory Disease.

Respiratory diseases had a clear negative impact on participants' quality of life.

4.4.6 Mental Health Conditions

The presence of mental health disorders was associated with a statistically significant decrease in quality-of-life scores, particularly in the psychological and physical domains ($p < 0.05$), as shown in Figure (4.10) and Table (4.2).

Mental Issues P-value: .026
No Mental Issues P-value: .026

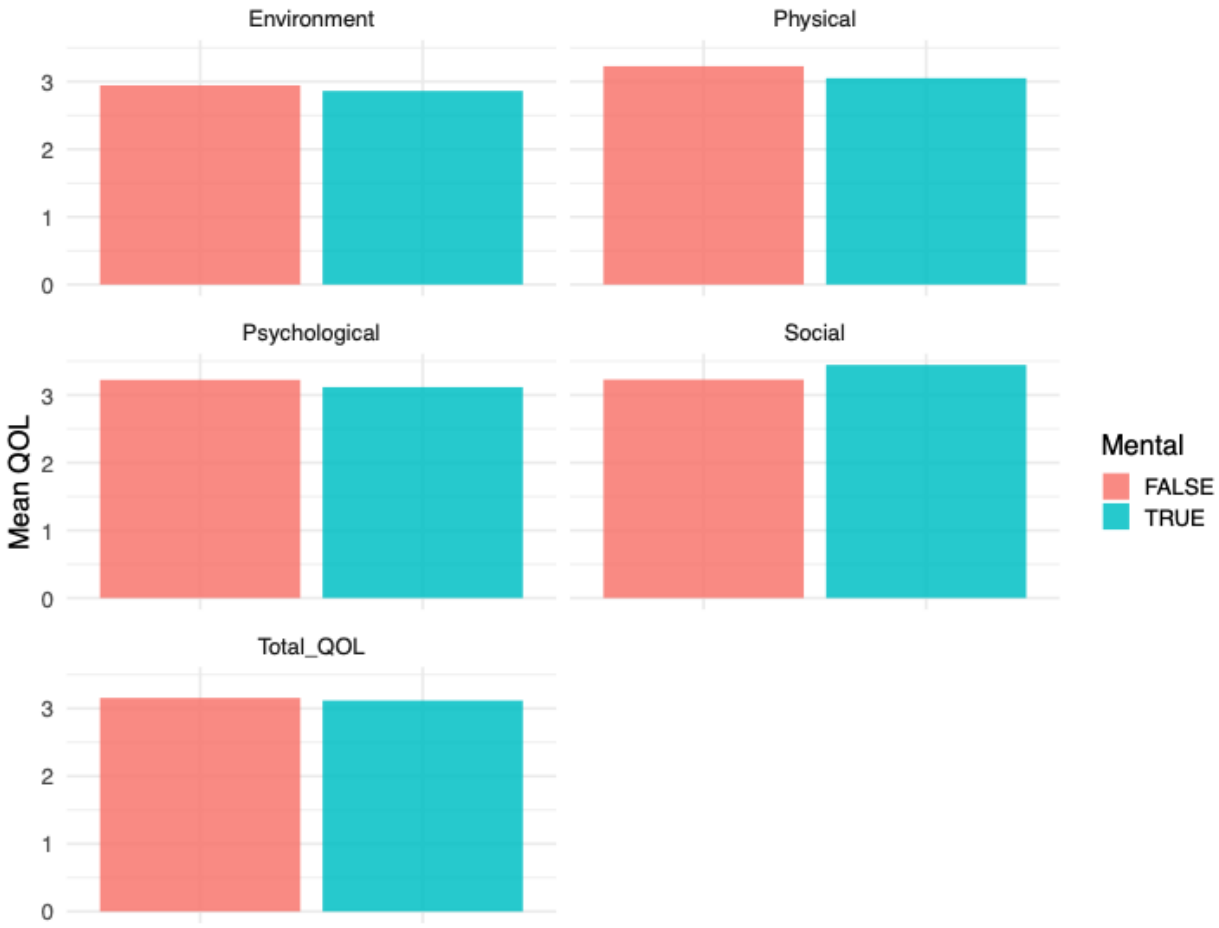

Figure 4.10 QOL by Mental Health Condition

Mental disorders were associated with lower QOL, particularly in the physical and psychological domains.

4.5 Socioeconomic Predictors of QOL

4.5.1 Housing Status

Rental housing was associated with a significant decrease in physical and environmental quality of life compared to owned housing, as indicated by the results of Figure (4.11) and Table (4.2).

Figure 4.11 QOL by Housing Status

Renting was associated with significantly lower physical and Environment QOL.

4.5.2 Income Level

Low-income participants exhibited significantly lower QOL, particularly in the Psychological and Environment domain ($p < 0.01$) (**Figure 4.12, Table 4.2).**

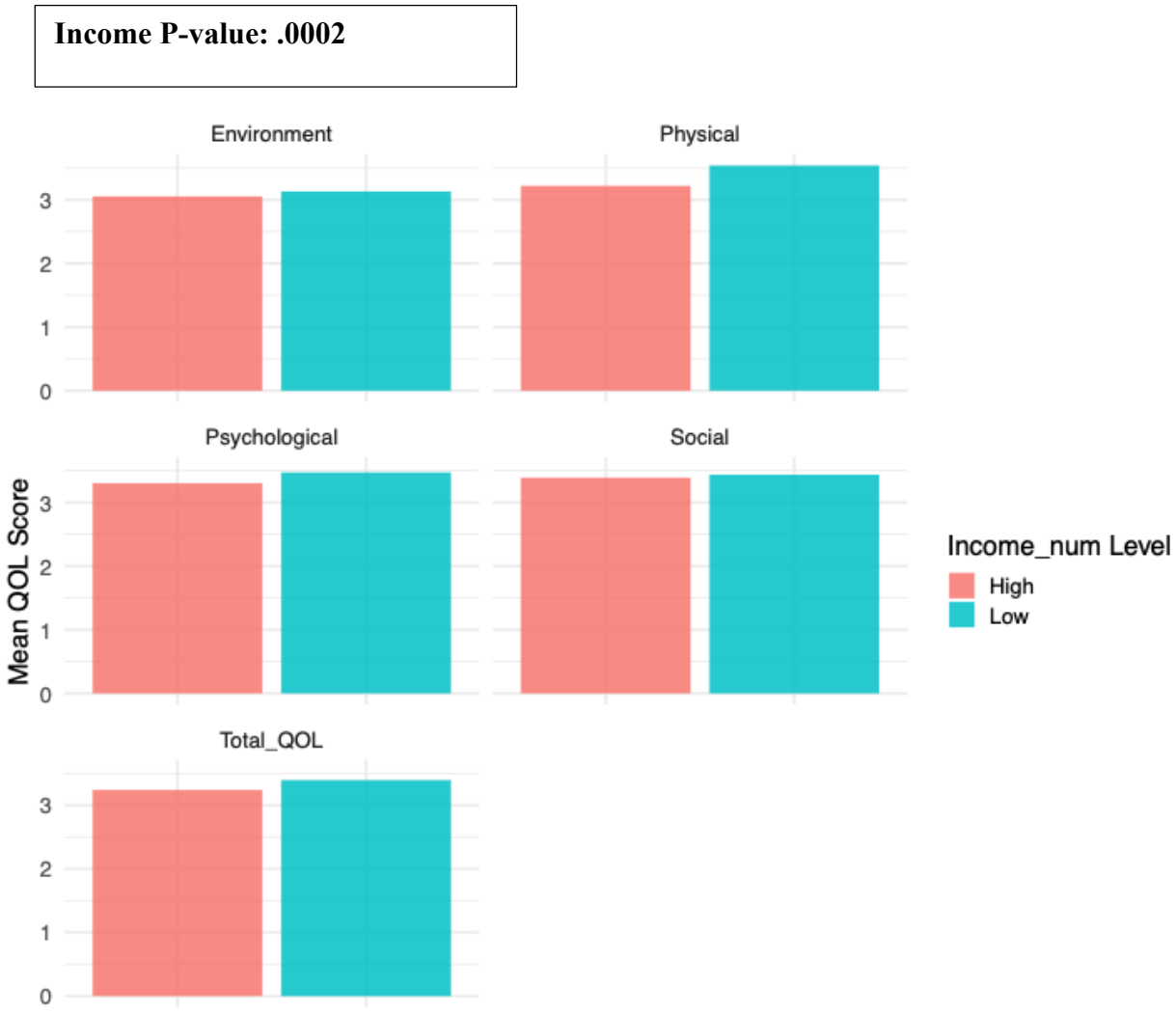

Figure 4.12 QOL by Income Level

Low-income participants had significantly lower lower QOL across domain.

4.5.3 Job Status

Job status did not significantly predict QOL; however, unemployed individuals showed slightly lower domain scores **(Figure 4.13, Table 4.2)**. This suggests reduced engagement,

identity shifts, and financial insecurity may negatively influence well-being even post-retirement.

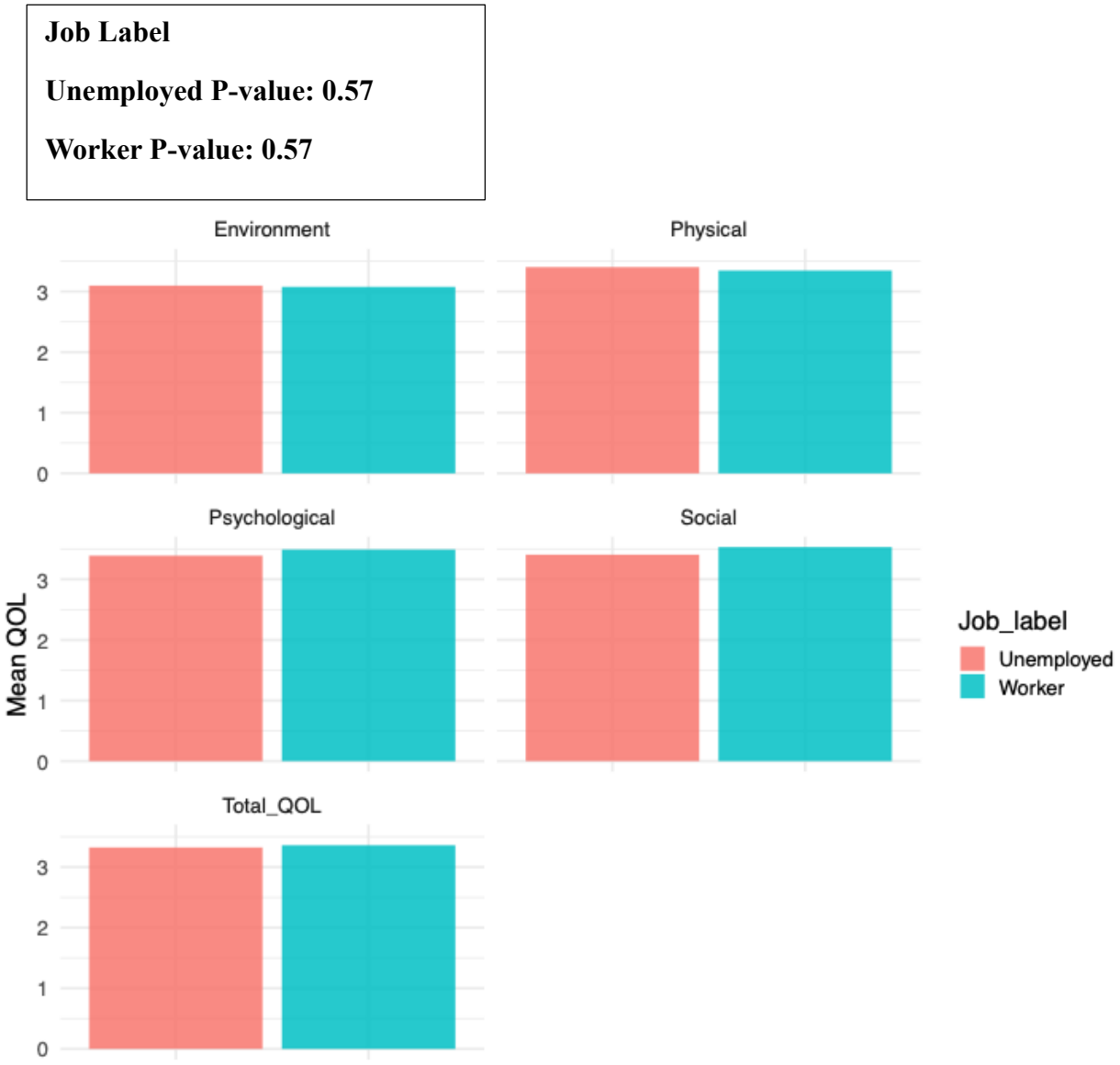

Figure 4.13 QOL by Job Status

Unemployed individuals exhibited slightly lower QOL.

4.6 Polypharmacy

Polypharmacy alone was not an independent predictor but showed context-dependent effects. Participants with high polypharmacy (≥10 medications) demonstrated slightly lower mean psychological, and environment QOL scores compared with those with regular polypharmacy (5–9 medications) **(Figure 4.14, Table 4.2)**.

Polypharmacy Label:

Moderate (5-9) P-value:0.24

High (>=10) P-value: 0.24

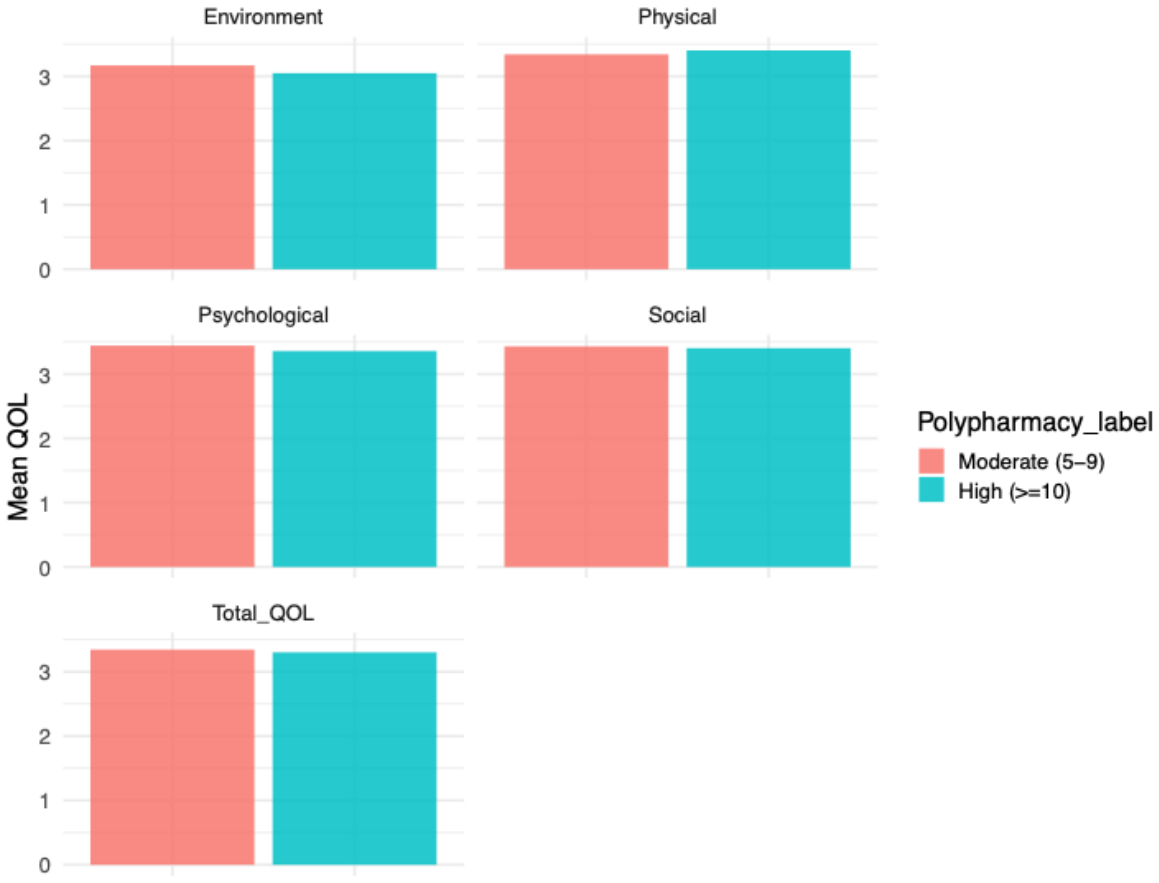

Figure 4.14 QOL by Polypharmacy Category

No significant differences in QOL were observed between polypharmacy levels.

4.7 Regression Modelling

Multivariable linear regression models indicated that mental health conditions, hypertension, diabetes, lower education levels, low income, and gastrointestinal disorders were the most significant predictors of reduced QOL across multiple domains. Age also emerged as a modest predictor of Physical QOL **(Table 4.3)**.

Effect size analyses revealed that several demographics, socioeconomic, and clinical variables demonstrated significant associations with at least one QOL domain. Conditions such as hypertension, diabetes, gastrointestinal disorders, respiratory disease, cancer history, and mental health problems showed moderate negative effects on multiple QOL domains **(Figure 6.3, Table 4.2)**. Polypharmacy, higher age, and lower educational attainment also demonstrated consistent detrimental associations.

Table 4.3 Multivariable Linear Regression Predicting QOL

Variable	Effect size (beta)	SE	P-value
(Intercept)	3.425	0.311	1.60
Age	-0.0009	0.002	0.720
Gender: Male	-0.018	0.045	0.678
Education	0.011	0.016	0.482
Marital: Married	-0.041	0.229	0.855
Marital: Single	-0.069	0.240	0.771
Marital: Widowed	-0.110	0.229	0.630
Housing: Rented	-0.18	0.056	0.001
Job: Worker	0.064	0.073	0.381
Income	-0.0001	8.14	0.075
Polypharmacy: Moderate (5-9)	0.033	0.041	0.411
HTN: TRUE	0.0471	0.042	0.272
Diabetes: TRUE	0.023	0.041	0.580
Respiratory: TRUE	-0.107	0.045	0.019
GI: TRUE	-0.040	0.041	0.327
Cancer: TRUE	0.126	0.076	0.100
Mental: TRUE	-0.189	0.095	0.0484

The multivariable linear regression analysis predicted overall quality of life (Table 3). Living in rented housing was significantly associated with lower QOL ($\beta = -0.18$, $p = 0.001$). Respiratory diseases ($\beta = -0.11$, $p = 0.019$) and mental health conditions ($\beta = -0.19$, $p = 0.048$) were also significant predictors of reduced QOL. Income, although significantly associated with quality of life in unadjusted analyses, did not remain statistically significant after adjustment for demographic, socioeconomic, and clinical covariates ($p = 0.075$), indicating attenuation of its independent effect in the multivariable model. Other variables, including age, gender, education, marital status, polypharmacy level, and most chronic conditions, were not independently associated with QOL.

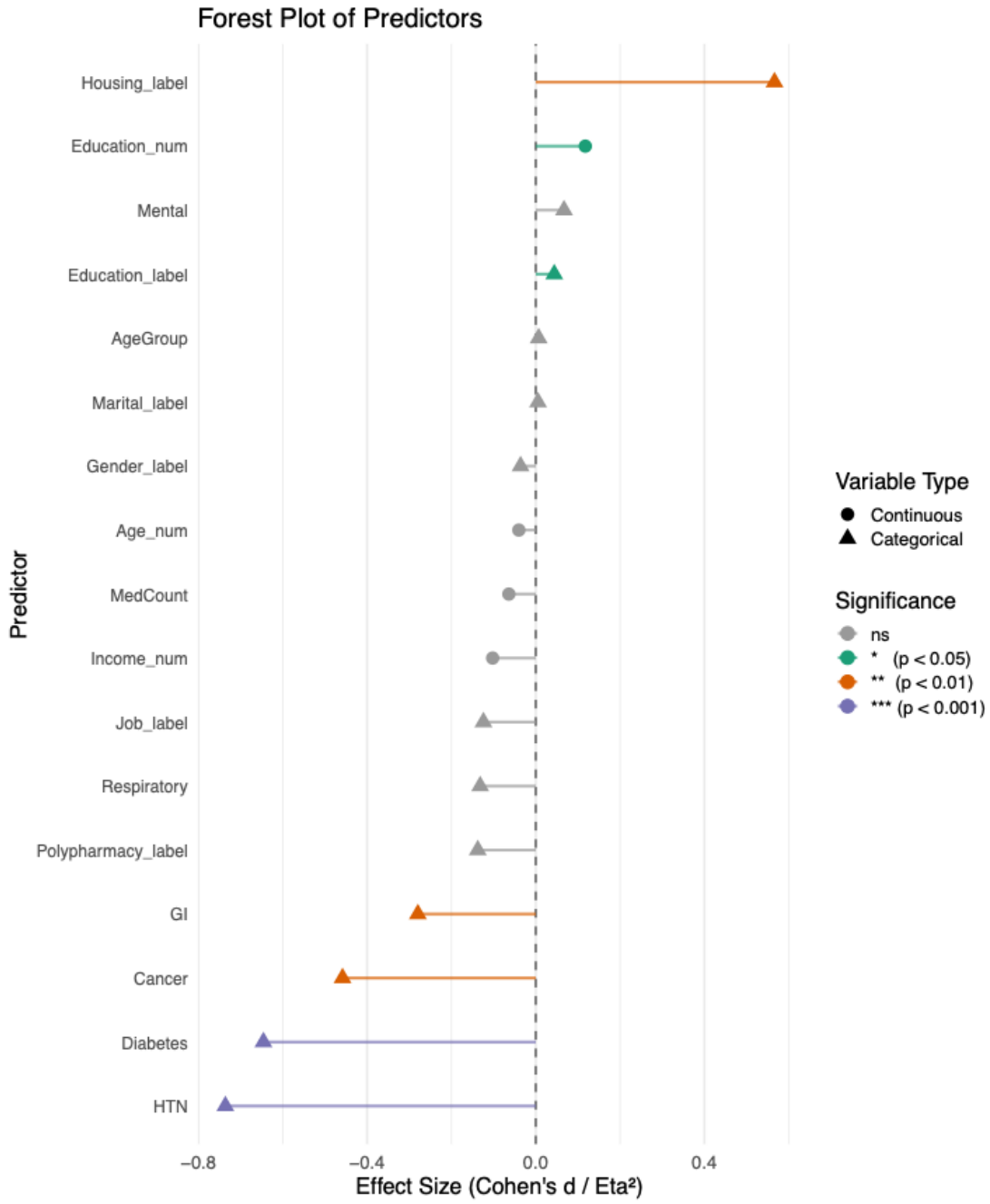

Figure 4.15 Effect Size Summary of Predictors

Forest plot summarizing effect sizes (Cohen's d and η^2) for all predictors across QOL domains. Categorical and continuous predictors are displayed with significant levels (ns, p<0.05, *p<0.01, **p<0.001). Negative values indicate poorer QOL associated with the predictor.

Multivariable logistic regression identified several independent predictors of poor overall QOL (**Table 404 and Figure 4.16**). Mental health conditions, respiratory illness, and gastrointestinal disorders showed the strongest risk increases. Socioeconomic indicators such as rental housing and lower income also increased the odds of poor QOL. Conversely, being married and having higher education were protective.

Table 4.4 Logistic Regression Predicting Poor QOL

Variable	Effect size (beta)	SE	Statistic	P-value	95% CI
(Intercept)	2.195	2.281	0.344	0.730	0.02-228.66
Age	0.975	0.022	-1.088	0.276	0.93-1.02
Gender: Male	1.102	0.367	0.264	0.791	0.54-2.29
Education	0.999	0.125	-0.005	0.995	0.78-1.28
Marital: Married	0.446	1.522	-0.52	0.596	0.02-13.01
Marital: Single	0.582	1.619	-0.33	0.738	0.02-19.40
Marital: Widowed	1.003	1.518	0.002	0.997	0.03-29.13
Housing: Rented	3.508	0.398	3.153	0.001	1.60-7.70
Job_label: Worker	0.524	0.680	-0.94	0.342	0.12-1.77
Income	1.001	0.0006	1.85	0.0642	1.00-1.00
Polypharmacy label: Moderate (5-9)	0.611	0.348	-1.41	0.158	0.30-1.19
HTN: TRUE	0.793	0.340	-0.67	0.498	0.41-1.57
Diabetes: TRUE	1.252	0.341	0.66	0.508	0.65-2.48
Respiratory: TRUE	1.736	0.336	1.63	0.101	0.89-3.35
GI: TRUE	1.278	0.322	0.761	0.446	0.67-2.39
Cancer: TRUE	0.762	0.642	-0.42	0.672	0.19-2.49
Mental: TRUE	5.29	0.652	2.55	0.010	1.48-20.11
Standardized coefficients, p-values, and confidence intervals for predictors of each QOL domain. Abbreviations: SE = standard error, HTN = hypertension, GI = gastrointestinal disorders, QOL = quality of life.					

The logistic regression analysis predicted a poor quality of life among elderly participants (Table 4). Housing status was a significant predictor, with participants living in rented housing showing a higher likelihood of poor QOL (OR = 3.51, p = 0.001). Mental health conditions were also significantly associated with poor QOL (OR = 5.29, p = 0.010). Income showed a borderline association with poor QOL (p = 0.064), suggesting a potential socioeconomic influence that was partially explained by other covariates included in the adjusted model. Other variables, including age, gender, education, marital status, polypharmacy level, and most chronic conditions, were not statistically significant predictors.

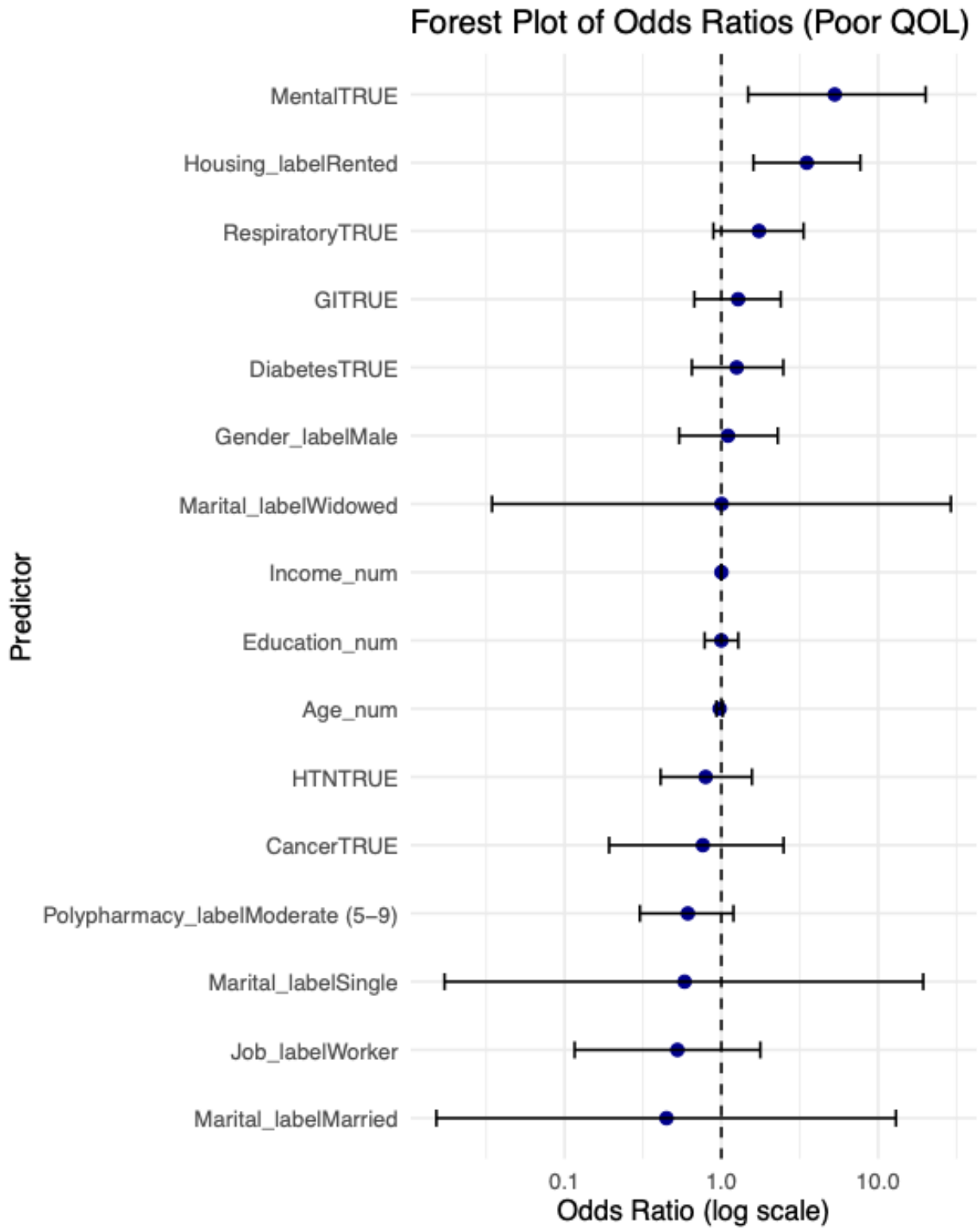

Figure 4.16 Predictors of Poor QOL (Logistic Regression)

Odds ratios (log scale) for predictors significantly associated with poor overall QOL. OR>1 indicates increased risk. Mental health conditions, chronic disease indicators, and socioeconomic stressors exert the strongest negative impact.

4.8. Relative Importance of Predictors

The unified importance analysis **(Figure 4.17)** indicated that mental health, income, age, and education were the most influential predictors across both linear and logistic models. Polypharmacy and major chronic diseases (hypertension, diabetes, GI disorders, respiratory disease, cancer) ranked among the most influential clinical determinants.

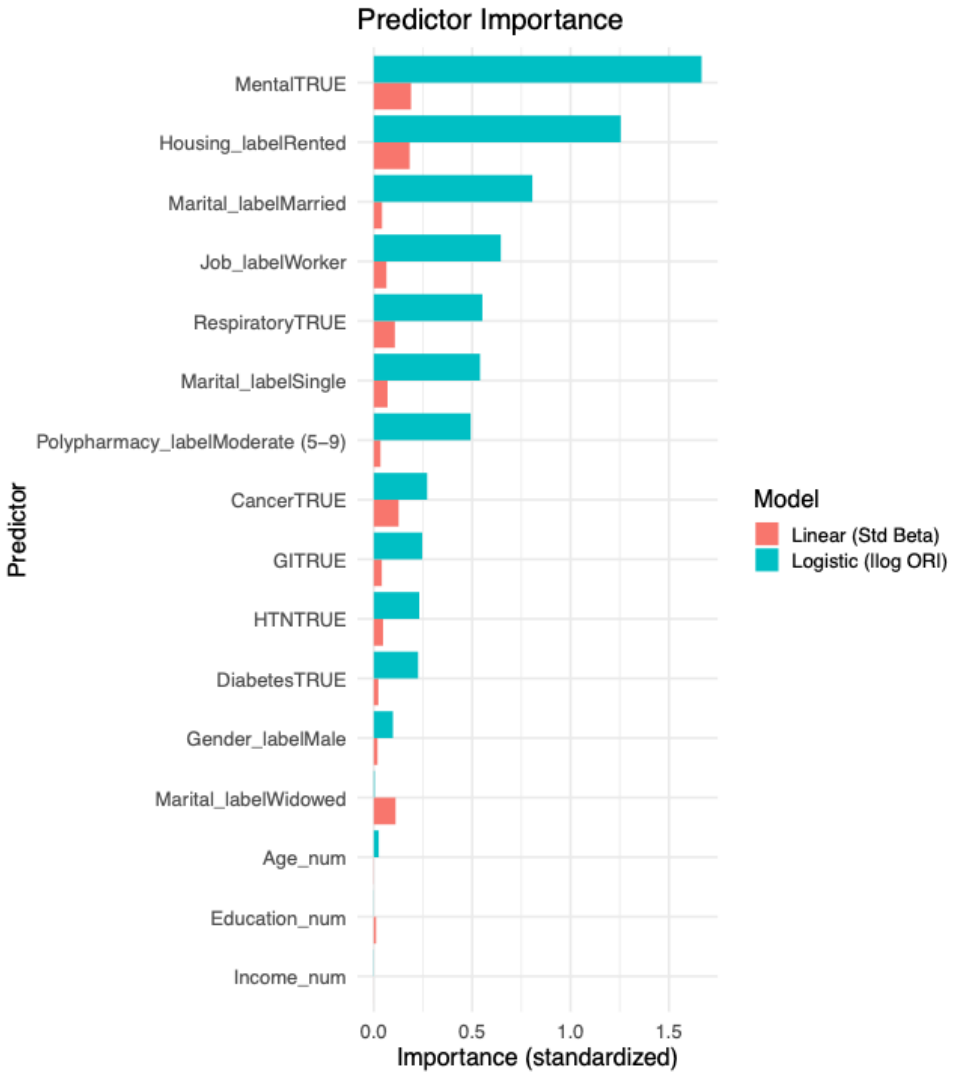

Figure 4.17 Combined Predictor Importance Ranking

Importance plot integrating standardized β coefficients from linear models and absolute log odds ratios from logistic models. Mental health, income, age, and education are the most influential predictors across QOL measures.

4.9 Moderation Analysis: Polypharmacy and Income status

Income level partially moderated by the association between polypharmacy and QOL (Table5). Polypharmacy alone was not significantly associated with quality of life (β = 0.028, p = 0.662) (Table 5). However, income level was a significant predictor of QOL (β = −0.00074, p = 0.004), indicating poorer quality of life among lower-income participants. Education was positively associated with QOL (β = 0.061, p = 0.008), while age and gender were not significant, the interaction between polypharmacy and income showed a borderline significant effect (β = 0.00052, p = 0.066), suggesting that income partially moderates the relationship between polypharmacy and quality of life, with lower-income elderly being more affected.

Table 4.5 Moderation Analysis

Variable	Effect size (beta)	SE	Statistic	*P*-value
(Intercept)	3.131	0.33	9.41	1.69
Polypharmacy	0.027	0.063	0.43	0.66
Income	-0.0007	0.0002	-2.86	0.004
Age	-0.0002	0.003	-0.060	0.95
Gender	0.0682	0.058	1.15	0.24
Education	0.0611	0.022	2.67	0.007
Polypharmacy number: Income number	0.0005	0.0002	1.84	0.06

In summary the study showed that elderly participants had moderate overall quality of life, with strong positive correlations between all QOL domains. Higher income, higher education, and home ownership were associated with better QOL, while age, gender, marital status, and polypharmacy showed no significant effects. Respiratory diseases, gastrointestinal disorders, and mental health conditions were significantly linked to poorer QOL, with mental health having the strongest negative impact. Multivariable analyses confirmed socioeconomic and mental health factors as the main predictors of reduced quality of life.

Chapter Five

Discussion of Results and Recommendation

5.1 Discussion

5.1.1 Overview of the Main Findings

The present study investigated the association between polypharmacy and HRQoL among older adults with chronic diseases in Jordan. The findings indicate that HRQoL is influenced by a complex interplay of polypharmacy, chronic disease status, mental health, and socioeconomic factors. The results showed no clear statistical differences in quality of life between different levels of polypharmacy, with a general trend of lower averages observed among those with a high number of medications. These results support international studies indicating that the impact of polypharmacy on HRQoL does not depend on the number of medications alone, but is shaped by the interaction of pathological, psychological, social, and economic factors (Montiel-Luque et al., 2017; Falke et al., 2024; Aljeaidi et al., 2022).

5.1.2 Interrelationships Among HRQoL Domains

The result of the study reflects the nature of well-being of the old as complex and integrated. This nature is linked to physical, psychological, social and environmental quality of life. Other studies indicate similar results specially in the drug related issues where poor physical health coincides with poor psychological well-being (Tegegn et al., 2019; Gurung et al., 2025). Here the life quality score as a measure confirms the necessity to support comprehensive healthcare measure considering all patient life dimensions.

5.1.3 Demographic Factors and HRQoL

Demographic factors like age and gender were not highly rated to HRQoL. However, functional status and chronic disease burden are more significant than age alone in determining quality of life in older adults (Salinas-Rodríguiz et al., 2020; Falke et al., 2024). On the other side, education interacts positively with life quality. This appears clearly in psychological, social and environmental directions. This outcome is supported by studies indicating the importance of education as a contributor to improve health, ability to manage

health status and interaction with offered medical services resulting in improved life quality for the elderly (Van Wilder et al., 2021; Alnaim et al., 2023).

5.1.4 Clinical Predictors of HRQoL

The results showed that some chronic diseases, such as high blood pressure and diabetes, were associated with a slight decrease in HRQoL, especially in the physical and psychological fields, without reaching statistical significance. These findings are consistent with previous evidence suggesting that living with multiple chronic diseases and administering treatment for long periods may limit the well-being of older adults with polypharmacy (Montiel-Luque et al., 2017; Salinas-Rodríguez et al., 2020). Gastrointestinal disorders have also been associated with decreased quality of life in both the social and environmental dimensions, as reflected in other studies that have highlighted the impact of chronic symptoms, dietary restrictions, and medication side effects on daily functioning (Falke et al., 2024). Despite their low prevalence, psychiatric conditions have emerged as a critical factor in poor quality of life, confirming previous studies on the role of psychological distress in amplifying the perceived burden of illness and treatment and reducing quality of life in older adults with polypharmacy (Tegegn et al., 2019; Gurung et al., 2025).

5.1.5 Socioeconomic Determinants of HRQoL

The study results confirmed the prominent role of socioeconomic factors in determining HRQoL. Housing status, especially rented housing, was a strong independent indicator of poor quality of life, which is consistent with evidence that poor economic status, housing instability, and financial stress negatively impact psychological safety, physical comfort, and access to health care (Van Wilder et al., 2021; Redha & Aziz, 2015). The results also showed that lower income was strongly associated with reduced quality of life in unadjusted analyses; however, this association was attenuated after controlling for housing status, education, and clinical factors. This suggests that income influences HRQOL indirectly through interconnected socioeconomic and health-related pathways rather than acting as an independent predictor in adjusted models, a pattern consistent with findings from previous regional and international studies (Eltaher & Arabi, 2019; Badawy et al., 2020).

5.1.6 Polypharmacy

Interaction analyses indicated that income level partially moderated the relationship between polypharmacy and HRQoL. Although polypharmacy alone was not an independent predictor of HRQoL, older adults with a high polypharmacy and lower income tend to report a lower QOL scores, whereas those with higher income demonstrated greater resilience and adaptability. This suggests that the influence of polypharmacy on quality of life is context-dependent and shaped by socioeconomic conditions rather than medication count alone (Van Wilder et al., 2021).

These results are consistent with support previous evidence indicating that socioeconomic resources play an important role in access to healthcare services, effective medication management, and the availability of support care (Aljeaidi et al., 2022; Van Wilder et al., 2021). Moreover, existing literature suggests that excessive polypharmacy is more closely associated with reduced medication-related QOL, increased treatment complexity, rather than a direct and independent decline in overall HRQoL scores (Montiel-Luque et al., 2017; Nivatti et al., 2022; Siddique, 2024).

5.1.7 Multivariable and Comparative Context

Multivariate analyses showed that the presence of psychological disorders, respiratory diseases, and negative socioeconomic factors were significantly associated with lower HRQoL. These findings are consistent with international evidence showing that polypharmacy is often an indicator of health complexity rather than an independent factor leading to poor health outcomes (Rieckert et al., 2018; Doumat et al., 2023). This study contributes to expanding knowledge by highlighting the importance of psychological and socio-economic factors in determining quality of life among older adults in Jordan who suffer from a high polypharmacy.

5.2 Recommendations

5.2.1 Clinical and Pharmaceutical Practice

The study recommends the need to perform continuous evaluation for drug therapy in the elderly mainly in polypharmacy. This should be going side by side with cutting of unnecessary medicines. Mental health assessment should be monitored regularly in order to

integrate health and mental advantages. Promoting pharmaceutical intervention that focus on supporting the commitment of treatment, educating patients and monitoring drug interaction with side effect must be followed.

5.2.2 Healthcare System and Policy

Comprehensive care models that address medical and psychosocial aspects together should be supported in older people, and support initiatives tailored to low-income groups should be developed to improve HRQoL. It is also recommended to integrate the assessment of safe housing and the surrounding environment into health care for the elderly, with a focus on chronic disease management programs, especially diabetes and high blood pressure, because of their pivotal role in low quality of life.

5.2.3 Future Research

These findings highlight the importance of conducting future longitudinal studies to understand the causal relationship between polypharmacy and HRQoL. It is also recommended to study the drug burden associated with specific diseases and its different impact on areas of quality of life. It is also necessary to include larger samples of older adults with mental health conditions, in addition to conducting intervention studies to measure the impact of pharmacists' interventions in reducing unnecessary medications and enhancing social support.

5.3 Conclusion

This study indicates that HRQoL among older adults with chronic diseases in Jordan is influenced primarily by psychological, socioeconomic, and clinical factors. Mental health status was a major determinant of reduced HRQoL, highlighting the importance of psychological well-being in this population. Housing status was also significantly associated with HRQoL, with rented housing linked to poorer outcomes, reflecting socioeconomic vulnerability. In addition, respiratory diseases were associated with lower HRQoL due to their direct effects on physical functioning and daily activities. These findings emphasize the need for comprehensive care strategies that extend beyond medication management to address mental health support, socioeconomic stability, and effective management of respiratory conditions.

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Appendices

Appendices 1: Ethical approvals

جـامـعـة الـشـرق الأوسـط
MIDDLE EAST UNIVERSITY
مكتب رئيس الجامعة
Office of the President

الرقم:د ر/د/3025
التاريخ:2025/06/16

قرار رقم (2025/2024-1499)

وبناءً على الصلاحيات المخولة لنا وما تقتضيه مصلحة العمل

تقـــرر

الموافقة على طلب مشروع بحث على الإنسان (استبانات/ مقابلات) للباحث الرئيس **الطالبة هديل محمد عموش/ماجستير العلوم الصيدلانية**، والباحثان المشاركان **الدكتورة نغم هندي (الباحث المشارك1) والدكتور عمر الرشدان (الباحث المشارك2)**/ كلية الصيدلة، المعنون بـ: **"تعدد الأدوية وجودة الحياة المرتبطة بالصحة لدى كبار السن المصابين بالأمراض المزمنة في الأردن: دراسة مقطعية"**، على أن يتم تطبيق سياسة أخلاقيات البحث العلمي دون تحمّل الجامعة أية أعباء أو تكلفة مادية أو مسؤولية قانونية.

وتفضلوا بقبول فائق الاحترام والتقدير...

رئيسة الجامعة

أ.د سلام خالد المحادين

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جـامـعـة الـشـرق الأوسـط
MIDDLE EAST UNIVERSITY
عمادة الدراسات العليا والبحث العلمي
Deanship of Graduate Studies
and Scientific Research

الرقم: ع د ع/د/١٩٧٦
التاريخ: ١٥/06/2025

الأستاذة الدكتورة سلام خالد المحادين المحترمة
رئيسة الجامعة

تحيـة طيبة وبعد،،

اتخذت لجنة أخلاقيات العمل في البحث العلمي في الجلسة رقم (05– 2025/2024) المنعقدة بتاريخ 2025/06/04 القرار الآتي:

قرار (2024/05/04-2025)
صادر عن لجنة أخلاقيات العمل في البحث العلمي

قررت لجنة أخلاقيات العمل في البحث العلمي الموافقة على طلب مشروع بحث على الإنسان (استبانات/مقابلات) للباحث الرئيس الطالبة **هديل محمد عموش**/ماجستير العلوم الصيدلانية، والباحثان المشاركان الدكتورة **نغم هندي (الباحث المشارك1)** والدكتور **عمر الرشدان (الباحث المشارك2)** /كلية الصيدلة، المعنون بـ: "**تعدد الأدوية وجودة الحياة المرتبطة بالصحة لدى كبار السن المصابين بالأمراض المزمنة في الأردن: دراسة مقطعية**"، على أن يتم تطبيق سياسة أخلاقيات البحث العلمي دون تحمّل الجامعة أية أعباء أو تكلفة مادية أو مسؤولية قانونية.

وتفضلوا بقبول فائق الاحترام والتقدير...

رئيس لجنة أخلاقيات العمل في البحث العلمي

أ.د. أحمد عبدالحي موسى

Appendices 2: Ethical approval of the University of Jordan Hospital

مستشفى الجامعة الأردنية
JORDAN UNIVERSITY HOSPITAL

الرقم 10/2025/3104
التاريخ: 25/11/2025

To whom it may concern

This is to acknowledge that the Institutional Review Board at Jordan University Hospital, the University of Jordan, (IRB-JUH) convened on **25/11/2025** and evaluated the research proposal presented by **Hadeel Alomoush, Nagham Hendi, Omer Rushadn,** and entitled:

Polypharmacy and Health-Related Quality of Life Among Elderly with Chronic Diseases in Jordan: A Cross-Sectional Survey

The IRB approves the conduct of the proposed research according to the following

- The compliance with the Good Clinical Practice (GCP) stated in the Hospital Research Policy (Adm po21/3. Adm po32/1), the Declaration of Helsinki, and the International Council for Harmonization (ICH).
- The notification of the IRB-JUH of any major modifications in the proposed research.
- Refraining from exploiting the research participants or their health insurance to cover any procedure solely related to the proposed research.
- Refraining from using the hospital facility solely for the research without the approval of IRB-JUH or covering its cost.
- The collected samples and/or data cannot be used in any unrelated research without prior approval of the IRB-JUH.
- In case of any harm inflicted on the research participants, whether physical, psychological, or social, the principal investigator must inform the IRB-JUH within 24 hours of the incidence.
- The IRB-JUH has the right to request the original research material, such as raw data or the signed consent forms, at any time during or after the completion of the research work.
- The IRB-JUH has the right to suspend its approval in case of major deviations from the proposed research or of any harm inflicted on the research participants.

This approval is valid for one year and must be renewed by a written request presented by the research team represented by the principal investigator(s).

Head of the IRB-JUH,

Prof. Shawqi Saleh

AADM0112

تلفون ٥٣٥٣٤٤٤ – فاكس ٥٣٥٣٣٨٨ – صندوق بريد ١٣٠٤٦ – عمان – الأردن
Tel. 5353444 Fax 5353388 - P.O.Box 13046 - Amman - Jordan
Email: Juhosp@ju.edu.jo مستشفى الجامعة الأردنية

Appendices 3: WHOQOL-BREF QUESTIONNAIRE (ENGLISH VERSION)

ABOUT YOU I.D. number ☐☐☐☐

Before you begin we would like to ask you to answer a few general questions about yourself: by circling the correct answer or by filling in the space provided.

What is your **gender**? Male Female

What is your **date of birth**? _____ / _____ / _____
Day / Month / Year

What is the highest **education** you received?
None at all
Primary school
Secondary school
Tertiary

What is your **marital status**?
Single Separated
Married Divorced
Living as married Widowed

Are you currently **ill**? Yes No

If something is wrong with your health what do you think it is?_____

Instructions

This assessment asks how you feel about your quality of life, health, or other areas of your life. **Please answer all the questions.** If you are unsure about which response to give to a question, **please choose the one** that appears most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life **in the last two weeks.** For example, thinking about the last two weeks, a question might ask:

	Do you get the kind of support from others that you need?	Not at all 1	Not much 2	Moderately 3	A great deal 4	Completely 5

You should circle the number that best fits how much support you got from others over the last two weeks. So you would circle the number 4 if you got a great deal of support from others as follows.

	Do you get the kind of support from others that you need?	Not at all 1	Not much 2	Moderately 3	A great deal 4	Completely 5

You would circle number 1 if you did not get any of the support that you needed from others in the last two weeks. Please read each question, assess your feelings, and circle the number on the scale for each question that gives the best answer for you.

THE WHOQOL-BREF

		Very poor	Poor	Neither poor nor good	Good	Very good
1 (G1)	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2 (G4)	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last two weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3 (F1.4)	To what extent do you feel that (physical) pain prevents you from doing what you need to do?	1	2	3	4	5
4 (F11.3)	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
5 (F4.1)	How much do you enjoy life?	1	2	3	4	5
6 (F24.2)	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7 (F5.3)	How well are you able to concentrate?	1	2	3	4	5
8 (F16.1)	How safe do you feel in your daily life?	1	2	3	4	5
9 (F22.1)	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about **how completely** you experience or were able to do certain things in the last two weeks.

		Not at all	A little	Moderately	Mostly	Completely
10 (F2.1)	Do you have enough energy for everyday life?	1	2	3	4	5
11 (F7.1)	Are you able to accept your bodily appearance?	1	2	3	4	5
12	Have you enough money to meet your	1	2	3	4	5

(F18.1)	needs?					
13 (F20.1)	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14 (F21.1)	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither poor nor good	Good	Very good
15 (F9.1)	How well are you able to get around?	1	2	3	4	5

The following questions ask you to say how **good or satisfied** you have felt about various aspects of your life over the last two weeks.

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16 (F3.3)	How satisfied are you with your sleep?	1	2	3	4	5
17 (F10.3)	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18 (F12.4)	How satisfied are you with your capacity for work?	1	2	3	4	5
19 (F6.3)	How satisfied are you with yourself?	1	2	3	4	5
20 (F13.3)	How satisfied are you with your personal relationships?	1	2	3	4	5
21 (F15.3)	How satisfied are you with your sex life?	1	2	3	4	5
22 (F14.4)	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23 (F17.3)	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24 (F19.3)	How satisfied are you with your access to health services?	1	2	3	4	5
25 (F23.3)	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to **how often** you have felt or experienced certain things in the last two weeks.

		Never	Seldom	Quite often	Very often	Always
26 (F8.1)	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	1	2	3	4	5

Did someone help you to fill out this form?.....

How long did it take to fill this form out?.....

Appendices 4: WHOQOL-BREF QUESTIONNAIRE (ARABIC VERSION)

استبانة مختصر لجودة الحياة النوعية النسخة العربية – مايو1997

أحوالك الشخصية

قبل أن نبدأ نود منك الاجابة على بعض الاسئلة العامة عن نفسك ، و ذلك بوضع دائرة حول الإجابة الصحيحة أو بملأ الفراغات الموجزة

I- المعلومات الشخصية

1- ما هو جنسك q ذكر q أنثى

2- ما هو تاريخ ميلادك اليوم_____ الشهر_____ السنة_____

3- ما هو أعلى درجة تعليم حصلت عليها

q لا شئ
q المرحلة الإبتدائية
q المرحلة الإعدادية
q المرحلة الثانوية
q الدراسات العليا

4- ما هي حالتك الإجتماعية ؟

q أعزب q متزوج q أرمل q مطلق

5- **هل تسكن في ؟**

q مخيم للاجئين q قـرية q مـدينـة

II- الوضع الإجتماعي و الاقتصادي

6- هل بيتك الذي تسكن فيه ؟

q بيت ملك q بيت وكالة q بالإيجار q غير ذلك ، وضح .....

7- المهنة q عـامل q عاطـل عن العمـل

8- الدخل الشهري حوالي : .....

9- كم شخص تعيل :.....

التعـــليـــــــــــــمـــات

هذا الإستبيان يستفسر عما تشعر به فيما يتعلق بنوعية حياتك و صحتك و نواحي أخرى من حياتك ، نرجو الإجابة على جميع الأسئلة . إذا لم تكن متأكد من الإجابة على سؤال معين ، نرجو اختيار الجواب الأنسب . و هذا قد يكون ردك الأول في أحيان كثيرة . نرجو أن تضع في اعتبارك قيمك و آمالك و ما يمنعك و يشغلك . نطلب أن تفكر في نمط حياتك خلال الشهرين الماضيين مثلا . قد يكون السؤال :

	لا يوجد	قليلا	نوعا ما	كثيرا	دائما
هل تحصل على أي دعم أو مساعدة من الأخرين ؟	1	2	3	4	5

عليك وضع دائرة حول االرقم الذي يصف مقدار الدعم أو المساعدة من الآخرين خلال الشهرين الماضيين . و هكذا فإنك ستضع الدائرة حول الرقم (4) إذا كنت قد حصلت على دعم كبير من الآخرين كالآتي

	لا يوجد	قليلا	نوعا ما	كثيرا	دائما
هل تحصل على أي دعم أو مساعدة من الأخرين ؟	1	2	3	(4)	5

قد تضع الدائرة حول الرقم (1) إذا لم تحصل على أي دعم أو مساعدة تتمناها من الآخرين خلال الشهرين الماضيين .

*** يرجى قراءة كل سؤال و تقيم مشاعرك ووضع الدائرة حول الرقم الذي يعطي أفضل إجابة بالنسبة لك.**

	كيف تقيم جودة حياتك؟	سيئة للغاية	سيئة	لا بأس	جيدة	جيدة جداً
(G1)1		1	2	3	4	5

		غير راض مطلقا	غير راض	لا راض و لا غير راض	راض	راض تماما
(G4)2	كيف أنت راض عن صحتك ؟	1	2	3	4	5

*** الأسئلة التالية تستفسر عن مدى تعرضك لأشياء معينة خلال الشهرين الماضيين**

		لا يوجد	قليلا	بدرجة متوسطة	كثير جدا	بدرجة بالغة
(F1.4) 3	إلى أي حد تشعر بأن الوجع يمنعك من القيام بالأعمال التي تريدها ؟	1	2	3	4	5
(F11.3)4	كم تحتاج من العلاج الطبي لتتمكن من القيام بأعمالك اليومية ؟	1	2	3	4	5
(F4.1)5	إلى أي مدى تستمتع بالحياة ؟	1	2	3	4	5
(F24.2)6	إلى أي مدى تشعر بأن حياتك ذات معنى ؟	1	2	3	4	5
(F5.3)7	كم أنت قادر على التركيز ؟	1	2	3	4	5
(F16.1)8	كم تشعر بالأمان في حياتك اليومية ؟	1	2	3	4	5
(F22.1)9	إلى أي حد تعتبر البيئة المحيطة بك صحية ؟	1	2	3	4	5

*** الأسئلة التالية تستفسر عن مدى قدرتك على إتمام أمور معينة خلال الأسبوعين الماضيين**

		لا يوجد	قليلا	بدرجة متوسطة	كثير جدا	بدرجة بالغة
(F2.1)10	هل لديك طاقة كافيه لمزاولة الحياة اليومية ؟	1	2	3	4	5
(F7.1)11	هل أنت قادر على قبول مظهرك الخارجي ؟	1	2	3	4	5
(F18.1)12	هل لديك من المال ما يكفي لتلبية إحتياجاتك ؟	1	2	3	4	5
(F20.1)13	كم تتوفر لك المعلومات التي تحتاجها في حياتك اليومية ؟	1	2	3	4	5
(F21.1)14	إلى أي مدى لديك الفرصة للأنشطة الترفيهية ؟	1	2	3	4	5

		سيئة للغاية	سيئة	لا بأس	جيدة	جيده جدا
(F9.1)15	كم أنت قادر على التجول بسهولة	1	2	3	4	5

*** الأسئلة التالية تطلب منك أن تعبر عن مدى رضاك نحو جوانب مختلفة من حياتك خلال الشهرين الماضيين**

		غير راض مطلقا	غير راض	لا راض و لا غير راض	راض	راض تماما
(F3.3)16	كم أنت راض عن نومك ؟	1	2	3	4	5
(F10.3)17	إلى أي مدى أنت راض عن قدرتك على القيام بنشاطاتك اليومية ؟	1	2	3	4	5
(F12.4)18	كم أنت راض عن قدراتك على العمل ؟	1	2	3	4	5
(F6.3)19	كم أنت راض عن نفسك ؟	1	2	3	4	5
(F13.3)20	كم أنت راض عن علاقاتك الشخصية ؟	1	2	3	4	5
(F15.3)21	كم أنت راض عن حياتك الجنسية ؟	1	2	3	4	5
(F14.4)22	كم أنت راض عن الدعم أو المساعدة من الأصدقاء ؟	1	2	3	4	5
(F14.4)23	كم أنت راض عن أحوالك السكنية ؟	1	2	3	4	5
(F19.3)24	كم أنت راض عن الخدمات الصحية المتوفرة لك ؟	1	2	3	4	5
(F23.3)25	كم أنت راض عن وسائل مواصلاتك.؟	1	2	3	4	5

*** الأسئلة التالية تشير إلى كم من المرات شعرت أو تعرضت فيها لأشياء معينة خلال الشهرين الماضيين**

		أبدا	نادرا	غالبا	غالبا جدا	دائما
(F8.1)26	كم من المرات كانت عندك مشاعر سلبية مثل الحزن أو اليأس أو القلق أو الاكتئاب ؟	1	2	3	4	5

هل ساعدك أحد في ملء هذا الإستبيان ؟

_____

كم من الوقت إستغرقت لملء هذا الإستبيان ؟

_____

هل لديك أي تعليقات حول هذا الإستبيان ؟

_____

_____

_____

شكرا لمساعدتك