The Association Between Social Isolation/Loneliness and Unhealthy Behaviours among Individuals with Chronic Conditions: A Systematic Review

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Abstract: Purpose: This systematic review investigates the relationship between social isolation or loneliness with unhealthy behaviour among the chronic disease population and older adults who are potential to develop chronic disease. Methods: A comprehensive search is conducted using 4 electronic databases, including PubMed, PsycINFO, Medline and Scopus, for studies published from 2000 to the present. Result: In all, total 23 studies met the inclusion and exclusion criteria. More than half of the studies have observed an increasing trend in the level of smoking and alcohol rate among this population. Conclusion: Social isolation and loneliness, are negatively associated with unhealthy behaviours among those with chronic diseases and older adults.

***Keywords*:** chronic disease; social isolation; healthy aging

1. Background

Chronic diseases or chronic conditions refer to diseases that do not constitute infection and have long-term accumulation. Chronic health conditions can include but are not limited to diabetes, arthritis, cardiovascular disease, asthma, chronic obstructive pulmonary disease, hepatitis, hypertension, stroke, and cancer ;.According to the World Health Organization, chronic diseases kill 41 million people annually, accounting for 74% of global mortality. This adversely affects the quality of life of individuals while placing enormous financial and human resource strain on the healthcare system. Therefore, understanding the underlying determinants and potential consequences of chronic diseases is essential for prospective management and prevention strategies.

Social isolation refers to a state of total or near-total lack of connection between an individual and society. It is characterised by a lack of social interaction, contacts, and relationships with family, friends, and the community. Loneliness, on the other hand, is a subjective emotional feeling. Loneliness often involves social disconnection, exclusion, and dissatisfaction with social interactions. Social isolation and loneliness can occur simultaneously, and both have a significant impact on an individual's physical and mental health , a persistent sense of loneliness may bring about a variety of negative outcomes. If temporary feelings of isolation are unpleasant, then constant feelings of isolation are excruciating. People are more likely to experience loneliness when they lack the resources necessary to meet their social demands, whether those resources are the emotional, mental, or financial ability to go out and interact with others . There is a perceived social isolation that is associated with detrimental health implications at every stage of life. These adverse health consequences include depression, reduced executive function, poor sleep quality, hastened cognitive decline, poor heart function, and compromised immunity .

2. SIL and Chronic Conditions

Individuals with chronic diseases are more likely to go through social isolation and loneliness as compared to the general population, which could be damaging to their general health and well-being [1].

Social isolation and loneliness are associated with unfavourable health outcomes[2]. According to[3], people who already have difficulty keeping a handle on their health may have even more difficulty . These experiences can have negative impacts on an individual's overall health and well-being[4]

2.1 SIL and Elderly

Social isolation is prevalent among the elderly . As the population ages, more and more older individuals are living alone, increasing their sensitivity to loneliness/social isolation and their associated adverse health effects[5]

2.2 SIL and Unhealthy Behaviours

In addition to their direct effects on health, social isolation and loneliness may have an impact on health behaviours, which are important factors in the development and progression of chronic diseases. According to Christiansen et al. (2021),

the term "unhealthy behaviours" refers to acts that might harm an individual's health, such as smoking, excessive alcohol consumption, poor diet, and not being physically active.

3. Inclusion criteria

This review includes post-2000 quantitative studies examining loneliness/social isolation's links to health behaviors (cross-sectional/longitudinal). Participants must be ≥15, consent-capable, without cognitive impairments, from diverse backgrounds, including chronic disease patients. Exposure measures must clearly define loneliness or social isolation. Outcomes include key health-risk behaviors (e.g., smoking, alcohol abuse, physical activity, sleep quality).

4. Exclusion criteria

Exclusion criteria: Exclude studies not linking loneliness/social isolation to health behaviors, general population research, COVID-19-disrupted studies, non-English works.

4.1 Search Strategy and Selection Criteria

PRISMA framework, three-stage process (2000-2023), four databases, keywords (e.g., "social isolation," "nutrition").

4.2 Study Quality Tool

NIH criteria for observational studies.

4.3 Result

214 articles identified, 51 duplicates removed, 163 advanced.

Stage 2 Screening: From 163 abstracts, 74 irrelevant to chronic patients and 23 not studying loneliness/social isolation were excluded. Nine unretrievable, leaving 57 for eligibility. Excluded: 12 pre-2000, 13 non-quantitative, 8 un-peer-reviewed. Final: 23 articles.

Stage 3 Integration: Articles reviewed for population, methods, data, conclusions. Themes identified; triangulation ensured consistency.

Findings: Loneliness/social isolation negatively correlates with unhealthy behaviors in chronic disease patients. Table 1 summarizes studies (authors, year, country, design, sample, exposure, findings).

Table 1: Characteristic Table of the Studies Used in the Review

Author and Year of Publication	Country	Design of the Study Used	Sample Characteristics	Quantitative Analysis' Exposure Variables	Summary of Findings
(Boekhout et al., 2019)		longitudinal study	575 single older adults, mean age 76±8 years	Loneliness	Improvements in moderate to severe PA were associated with reductions in loneliness (B = -0.09, SE = 0.04, p = .020); this was itself positively associated with loneliness (B = 0.51, SE = 0.10, p < .001) .
(Schrempft et al., 2019)	United Kingdom	Cross-sectional	3,262 older adults aged 60-83 years	Social isolation and loneliness	There was a strong correlation between social isolation and loneliness and lower physical activity levels, including walking and moderate and strenuous physical exercise.
(Shankar et al., 2011)	United Kingdom	Cross-sectional	8688 participants aged 50 years or older	Social isolation and loneliness	A standard deviation increase in loneliness was associated with being inactive (OR: 1.13), being a smoker (OR: 1.10), and being both inactive and a smoker (OR: 1.16). For social isolation, was associated with being inactive (OR: 1.23), being a smoker (OR: 1.32%), and both risk behaviours (OR: 1.56).
(Papini et al., 2023)	USA	cohort with longitudinal follow-up	9664 young adult survivors of childhood cancer	Loneliness	Loneliness with an elevated risk of anxiety ([RR], 9.8), depression (RR, 17.9), and current smoking ([OR], 1.7) at follow-up. Loneliness at follow-up only was associated with suicidal ideation (RR, 1.5), heavy/risky alcohol consumption (RR, 1.3), and new-onset chronic conditions (RR, 1.3).
(Zhu et al., 2018)	China	Cross-sectional	732 participants aged 60	Loneliness	Chronic disease, loneliness, age, and smoking status were negatively associated with QOL (p<0.05).
(Jia&Yuan, 2020)	China	Cross-sectional study	1658 rural older adults	Loneliness	Increased loneliness was associated with increased sleep quality scores ([OR] = 1.111, [95% CI] = 1.078–1.145); poor sleep quality linked to higher levels of loneliness in older adults.
(Lauder et al., 2006)	Australia	Cross-sectional	Total 1278 adults	Loneliness	The proportion of smokers in the lonely group (n = 128, 28.8%) was higher than in the non-lonely group (n = 154, 18.2%). The adjusted OR for smoking and loneliness was 1.55, (95% CI 1.14 – 2.09). The adjusted OR for sedentary behaviour and loneliness was 1.21(95% CI 0.88 – 1.51).
(Kobayashi et al., 2018)	United Kingdom	longitudinal cohort study	Total 3,392 men and women aged ≥52 years	Social isolation and loneliness	Participants who were socially isolated had a lower likelihood of maintaining their weekly physical activity (RR= 0.86; 0.77-0.97) than participants who were not socially isolated or five daily servings of fruits and vegetables (RR = 0.81; 0.63-1.04), and smoking was less likely more sexual (RR = 1.46; 1.17-1.82)

Author and Year of Publication	Country	Design of the Study Used	Sample Characteristics	Quantitative Analysis' Exposure Variables	Summary of Findings
(Veazie et al., 2019)	United States	Cross-sectional study	65-year-old patients with chronic conditions	Social isolation and loneliness	The correlation between loneliness and social isolation was not high (r = 0.201). Loneliness was associated with higher odds of mental health problems (OR: 1.17), and isolation was associated with higher odds of reporting fair/poor personal health (OR: 1.39).
(Yamaguchi et al., 2020)	Japan	Longitudinal study	57 Elderly (65 years and above) with chronic health conditions	Social Isolation and Loneliness	Loneliness was positively correlated with smoking duration and current smoking behaviours, and negatively correlated with moderate-intensity activity frequency. Socially inactive or lonely individuals are less likely to consume a healthy diet and lead a smoke-free lifestyle.

Unhealthy Behaviors Identified: Six common behaviors: smoking, inactivity, alcohol use, poor diet, sleep issues, sedentariness. Hypertension patients' drinking rose from 41.3% (2008) to 47.4% (2017), exceeding general trends.

Physical Activity Decline: Diabetes walking rates fell from 51.8% to 43.2%; depression patients saw steepest decline (47.5% to 38.9%).

Dietary & Sedentary Trends: Ten studies linked loneliness to poor diet/sleep. Sedentary behaviors (e.g., screen time) increased due to low QoL.

Loneliness-Behavior Links: Seven studies tied loneliness to smoking (5) and cardiovascular behavior changes. Reduced QoL deterred activity in bipolar/schizophrenia patients; stress eating/malnutrition linked to loneliness.

5. Discussion

Social isolation/loneliness link to unhealthy behaviors in chronic conditions is clear. Smoking/alcohol use may compensate for social connection deficits. Isolation also drives sedentary behaviors (e.g., screen time) and poor sleep, exacerbating QoL decline.

5.1 Strengths and Limitations

Quantitative/English-only focus; varied measures; self-report biases. Broad chronic disease coverage aids generalizability but hinders condition-specific insights. Cross-sectional majority limits causal inference.

5.2 Implications for research

Longitudinal studies needed to clarify causality/bidirectionality. Subgroup analyses (age, gender, SES, culture) can identify vulnerable populations.

5.3 Implications for practice

Clinicians should assess isolation/loneliness, link to supports. Policymakers should promote social engagement, resource access, and equity.

Addressing social isolation/loneliness is critical for chronic disease management. Further research and actionable policies are essential to improve health outcomes.

References

[1] Biordi, D. L., & Nicholson, N. R. (2013). Social isolation. Chronic illness: Impact and intervention, 85-115.

[2] Coyle, C. E., & Dugan, E. (2012). Social isolation, loneliness and health among older adults. Journal of aging and health, 24(8), 1346-1363.

[3] Christiansen, J., Lund, R., Qualter, P., Andersen, C. M., Pedersen, S. S., & Lasgaard, M. (2021). Loneliness, social isolation, and chronic disease outcomes. Annals of Behavioral Medicine, 55(3), 203-215.

[4] Xia, N., & Li, H. (2018). Loneliness, Social Isolation, and Cardiovascular Health. Antioxidants & redox signaling, 28(9), 837–851.

[5] Malcolm, M., Frost, H., & Cowie, J. (2019). Loneliness and social isolation causal association with health-related lifestyle risk in older adults: a systematic review and meta-analysis protocol. Systematic reviews, 8(1), 48.

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