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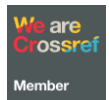
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Social interaction and successful aging in elderly with chronic diseases

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ABSTRACT

Social interaction plays a crucial role in supporting successful aging, particularly among elderly individuals with chronic diseases such as hypertension, diabetes mellitus, and heart disease. This study aims to analyze the impact of social interaction on successful aging among elderly people visiting the Andalas Health Center in Padang City. A causal-comparative design with a cross-sectional approach was used, involving 266 elderly individuals who visited the health center between May and June 2023. Data were collected using a Likert-based questionnaire measuring social interaction and successful aging. The results of the correlation test reveal that various aspects of social interaction positively influence dimensions of successful aging, including lifestyle, physical health, and mental health. Participation in social activities had the highest correlation with lifestyle (0.60) and physical health (0.48), while close social relationships correlated positively with lifestyle (0.49), physical health (0.33), and mental health (0.35). Furthermore, satisfaction with social support had the greatest impact on mental health (0.49), followed by physical health (0.39) and lifestyle (0.44), emphasizing the importance of both active social participation and feeling supported in maintaining overall well-being. These findings suggest that enhancing social interaction, particularly through community engagement and strong interpersonal relationships, is a significant factor in improving the quality of life and supporting successful aging, especially for elderly individuals with chronic conditions. Therefore, community-based interventions and health programs that promote social participation and strengthen social support networks are recommended to foster healthier aging.

Keywords:

Chronic Illness
Aging and social engagement
Elderly
Causal-comparative study
Cross-sectional approach

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Introduction

Aging is a phenomenon shaped by social factors, influenced by culture, societal expectations, and the individual experiences of those undergoing it (Menassa et al., 2023). In Indonesia, particularly in Padang, aging is influenced by local cultural values and social norms that emphasize familial and communal ties. According to government regulations, individuals aged 60 and above are categorized as elderly (Akbar et al., 2021), and healthcare initiatives such as community health centers (Puskesmas) provide critical services for their well-being. However, elderly individuals with chronic conditions, such as hypertension, diabetes mellitus (DM), and heart disease, face additional challenges that could impact their physical, social, and mental health.

The concept of successful aging, as proposed by [Moody & Sasser \(2020\)](#), is characterized by maintaining physical health, mental well-being, and active social engagement, with minimal disease or disability. However, for elderly individuals with chronic illnesses, this definition must accommodate the challenges posed by their health conditions, which often restrict mobility, limit social interaction, and increase dependency on caregivers ([Gutiérrez et al., 2018](#)). These challenges make social interaction a critical factor in achieving successful aging, as it can help mitigate the negative effects of physical decline and foster emotional resilience. Pathological aging, on the other hand, is characterized by the progression of chronic diseases and associated physical and mental deterioration ([Sgarbieri & Pacheco, 2017](#)).

Social interaction has been shown to significantly influence various dimensions of successful aging, including emotional well-being, cognitive health, and overall quality of life ([De Felice et al., 2023](#)). Studies by [Holt-Lunstad \(2018\)](#) also highlight the positive impact of social connections on longevity and physical health. However, for elderly individuals with chronic illnesses, social interaction may be limited due to health-related barriers, such as mobility restrictions or fatigue, which can reduce opportunities for engagement and diminish the quality of their social networks ([Joseph et al., 2023](#)). In Padang City, the cultural emphasis on family and community provides a unique context to examine how social interaction influences successful aging among elderly individuals with chronic conditions. While prior research has demonstrated the importance of social interaction for successful aging, most studies have focused on the general elderly population or those living in institutional settings. For example, [Howie et al. \(2014\)](#) emphasized the role of friendships in promoting successful aging in Assisted Living Residences, while [Sharma \(2020\)](#) demonstrated a positive correlation between social support and quality of life in elderly populations aged 80 and above. However, these studies often fail to address the specific challenges faced by elderly individuals with chronic illnesses or the influence of cultural and socioeconomic contexts on their social interactions.

This study distinguishes itself by employing a causal-comparative study design with a cross-sectional approach, focusing on elderly individuals with chronic illnesses who visit the Andalas Community Health Center in Padang City. This design allows for the comparison of social interaction patterns and their impact on successful aging dimensions, including physical health, mental well-being, and financial conditions, at a single point in time. The integration of this unique approach addresses gaps in the existing literature and provides actionable insights into how social interactions contribute to successful aging in a culturally specific and resource-constrained setting. The four dimensions of successful aging examined in this study include healthy lifestyle, physical health, mental and cognitive health, and financial condition. The financial dimension is particularly critical in this context, as it directly influences access to healthcare and the ability to maintain an adequate quality of life. By focusing on elderly individuals with chronic illnesses, this study aims to provide a nuanced understanding of the interplay between social interactions and successful aging in a specific cultural and healthcare setting.

The findings of this study are expected to inform the development of tailored interventions and programs that enhance the quality of life for elderly individuals with chronic illnesses. By leveraging a cross-sectional approach, this research provides a snapshot of the current state of aging among this population, highlighting key areas for improvement and supporting evidence-based decision-making in healthcare and community planning.

Methods

This study employs a causal-comparative design with a cross-sectional approach to analyze differences in successful aging among elderly individuals with chronic diseases based on their social interactions. The cross-sectional approach was chosen for its efficiency in capturing data at a single point in time, providing a snapshot of the relationship within the specific context of elderly patients visiting the Andalas Community Health Center in Padang City. However, this design has limitations,

including the inability to establish causality, which highlights the need for future longitudinal studies to explore these relationships more deeply. The population of this study comprised elderly individuals aged 60– 75 years who visited the health center during May– June 2023. The sampling technique applied was quota sampling, resulting in a total of 266 elderly participants divided into three groups: 99 participants with hypertension, 80 with diabetes mellitus (DM), and 87 with heart disease. This method was chosen to ensure balanced representation across chronic disease groups, allowing for a focused analysis of social interaction patterns within each condition. While quota sampling effectively meets the study's objectives, it has limitations compared to probabilistic methods, particularly in ensuring the representativeness of the sample for the broader elderly population. The sample selection was determined based on the inclusion criteria, which included being diagnosed with hypertension, DM, or heart disease for at least one year, having no other comorbid conditions, and receiving routine treatment.

Data collection was conducted through a survey using a Likert-scale questionnaire ranging from 1 to 5. The questionnaire consisted of two parts: the social interaction section with 12 questions and the successful aging section with 14 questions. The social interaction questions measured dimensions such as the closeness of social relationships, participation in social activities, and satisfaction with social support. Meanwhile, the successful aging questions aimed to assess dimensions such as lifestyle, physical health, mental and cognitive health. Data were collected through face-to-face interviews using structured questionnaires to ensure clarity and completeness of responses. The interviews were conducted directly with elderly participants by trained healthcare staff from the Andalas Community Health Center, who provided assistance when necessary. To minimize potential bias, such as respondents' tendency to provide socially desirable answers, interviewers were trained to adopt a neutral tone and reassure participants of the confidentiality and anonymity of their responses.

The data were analyzed in several stages. First, descriptive analysis was performed to illustrate the demographic distribution of the elderly participants and the variables measured across each group. Second, Spearman's rho correlation analysis was used to evaluate the relationship between social interaction and successful aging within each group of elderly participants. Third, the Mann-Whitney comparative analysis was conducted to identify differences in the correlations among the three groups of elderly participants. Ethical approval for this study was obtained from the Ethics Committee of the Faculty of Nursing at Andalas University, under approval number 67/UN16.13.d/PG/2023. Participation in the study was entirely voluntary, with participants providing informed consent after being fully briefed about the study's purpose, procedures, and potential risks. To ensure privacy and confidentiality, all data were anonymized, securely stored, and only accessible to the research team.

Results and Discussion

The research findings on the demographic profile of elderly participants based on gender and age, as presented in Table 1, reveal a pattern of gender dominance and significant age characteristics among elderly individuals with hypertension, diabetes mellitus (DM), and heart disease.

Table 1. Gender and Age of The Elderly

Characteristics	Hipertension		DM		Heart disease	
	F	%	F	%	F	%
Gender						
Male	55	55.6	38	47.5	45	51.7
Female	44	44.4	42	52.5	42	48.3
Age (years)						
60-65	35	35.4	25	31.3	30	34.5
66-70	40	40.4	30	37.6	32	36.8
71-75	24	24.2	25	31.3	25	28.7
Total	99	100	80	100	87	100

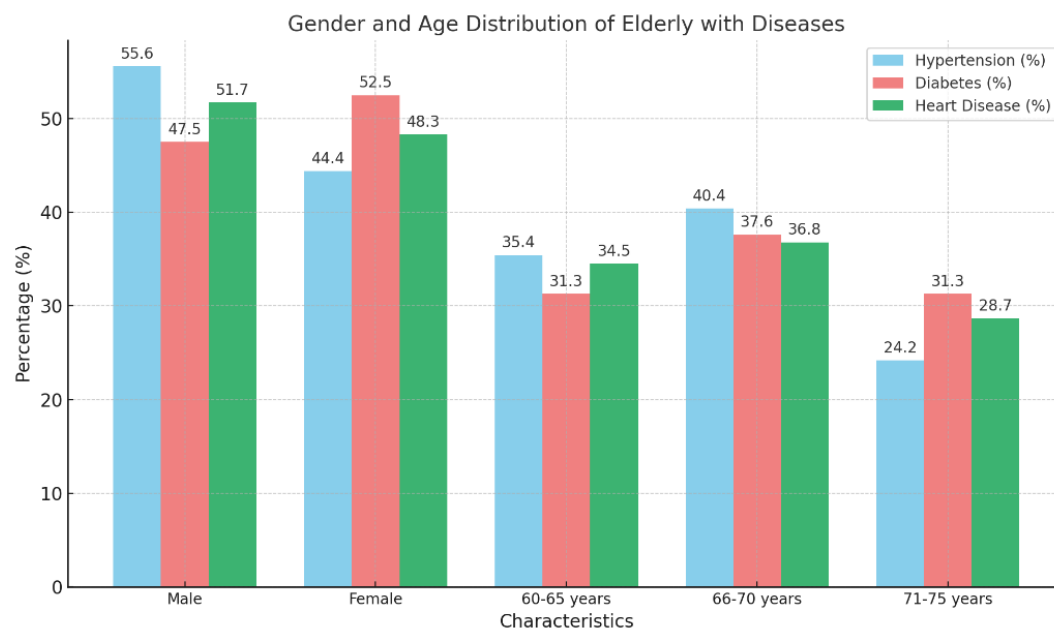


Figure 1. Gender and Age of The Elderly

In terms of gender, men occupy a higher proportion in the elderly group with hypertension (55.6%) and heart disease (51.7%). In comparison, the elderly group with DM has a slightly higher proportion of women (52.5%). This reflects differential prevalence by sex, which related biological and behavioral factors may influence. Furthermore, the age distribution shows an even proportion, with the 66-70-year age group tending to be the dominant age group in the three elderly groups. This condition indicates that this age range is more susceptible to chronic diseases such as hypertension, DM and heart disease in the elderly population (Ciumă rnean et al., 2021). Then, for an overview of social interactions and successful aging of the elderly with each dimension included in the elderly with hypertension, diabetes mellitus (DM), and heart disease, we present it in table 2.

Table 2. Social Interaction and Successful Aging of The Elderly

Variable and Dimension			Social interaction	Close social relationships	Participation in social activities	Satisfaction with social support	Successful aging	Lifestyle	Physical health	Mental health	Total
Hypertension	Not good	F	25	25	20	29	15	10	20	20	99
		%	25.3	25.3	20.2	29.3	15.2	10.1	20.2	20.2	100
	Good	F	50	50	45	40	60	64	50	60	99
		%	50.5	50.5	45.5	40.4	60.6	64.7	50.5	60.2	100
	Very good	F	24	24	34	30	24	25	29	19	99
		%	24.2	24.2	34.3	30.3	24.2	25.2	29.3	19.2	100
DM	Not good	F	20	20	16	20	12	12	15	10	80
		%	25.0	25.0	20.0	25.0	15	15	18.7	12.5	100
	Good	F	40	40	36	35	48	50	54	42	80
		%	50.0	50.0	45.0	43.8	60	62.5	67.5	52.5	100
	Very good	F	20	20	28	25	20	18	11	28	80
		%	25.0	25.0	35.0	31.2	25	22.5	13.8	35	100
Heart disease	Not good	F	15	15	12	15	10	13	8	9	87
		%	17.2	17.2	13.8	17.2	11.5	14.9	9.2	10.3	100
	Good	F	55	55	50	48	52	41	62	53	87
		%	63.2	63.2	57.5	55.2	59.8	47.1	71.3	61	100
		F	17	17	25	24	25	33	17	25	87
		%									

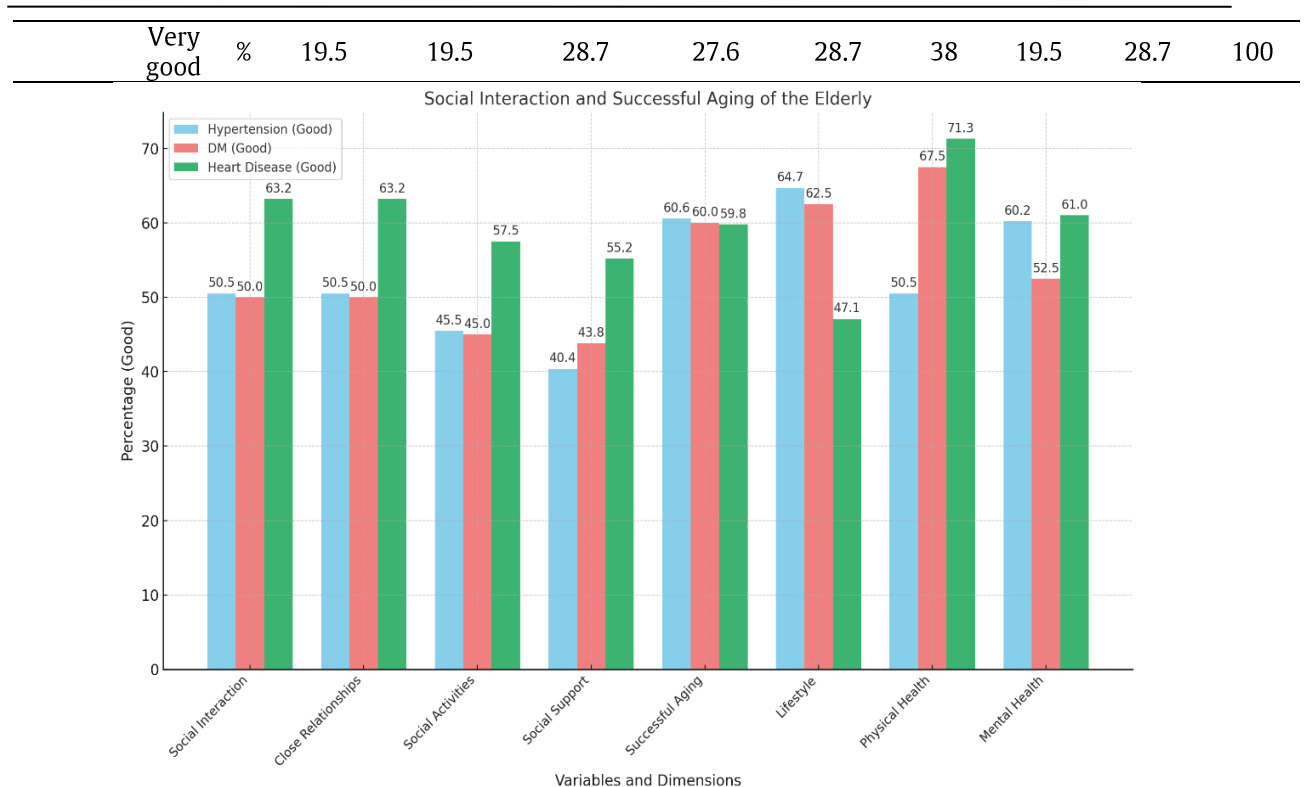


Figure 2. Social Interaction and Successful Aging of The Elderly

The relationship between social interaction and successful aging varies across elderly individuals with different chronic conditions. For the elderly group with hypertension, there is a relatively balanced distribution of social interaction and successful aging categories. However, the higher proportion in the "good" category for both social interaction (50.5%) and successful aging (60.6%) suggests a positive relationship between these two factors. This indicates that elderly individuals with hypertension who maintain good social interactions tend to experience better successful aging outcomes. In the group of elderly individuals with diabetes mellitus (DM), a similar pattern emerges, with 50% of participants reporting good social interaction and 60% reporting successful aging. This reinforces the idea that maintaining strong social connections contributes to successful aging, especially for elderly individuals managing chronic conditions like DM. Social support plays a crucial role in enhancing the quality of life, as it can alleviate the emotional and psychological stress associated with the challenges of managing diabetes.

The group with heart disease shows the most compelling evidence of the importance of social interaction in successful aging. Here, 63.2% of participants report good social interaction, and 59.8% experience successful aging. The higher proportion of individuals in the "good" category for both variables suggests that positive social interactions are particularly important for elderly individuals with heart disease. This is likely due to the emotional and physical stress associated with cardiovascular conditions, which can be alleviated through adequate social support and care. When comparing the three groups, it becomes evident that while all three groups demonstrate a positive association between social interaction and successful aging, the relationship is most pronounced in the heart disease group. The high percentage of individuals reporting both good social interaction and successful aging highlights the importance of maintaining social connections, particularly for those dealing with more severe health conditions. Social support is essential for managing the psychological and emotional impact of heart disease, and it significantly contributes to successful aging in this group.

The findings emphasize the crucial role of social interaction in promoting successful aging, particularly among elderly individuals with chronic conditions such as hypertension, diabetes

mellitus, and heart disease. While good social interaction contributes to successful aging in all groups, the heart disease group demonstrates the strongest relationship, suggesting that social support is vital for elderly individuals facing the complexities of managing cardiovascular disease.

Table 3. The Results of Testing The Correlation Between Social Interaction and Successful Aging

Variables and Indicators	Significance	Correlation
		Coefficient
Social interaction	0.00	0.78
Close social relationships	0.00	0.77
Participation in social activities	0.00	0.89
Satisfaction with social support	0.00	0.70

The correlation test results in Table 3 show that all social interaction indicators have a significant relationship with successful aging, as shown by a significance value of 0.00 ($p < 0.05$) for each indicator. Participation in social activities has the highest correlation with a coefficient of 0.89, indicating that active involvement in social activities is a very important factor in supporting successful aging. Other indicators also show a strong correlation, namely general social interaction (0.78), close social relationships (0.77), and satisfaction with social support (0.70). These results indicate that social aspects, such as building close relationships, actively participating in the community, and feeling satisfied with the social support received, play a significant role in improving quality of life and supporting individuals to achieve healthy and successful aging.

Table 4. The Results of Correlation Testing Between Variables of Social Interaction and Successful Aging

Social interaction	Successful aging		
	Life Style	Physical Mental	Mental Health
Closeness of social relationships	0.49	0.33	0.35
Participation in social activities	0.60	0.48	0.37
Satisfaction with social support	0.44	0.39	0.49

The correlation test results in Table 4 show that various aspects of social interaction have a positive relationship with the dimensions of successful aging, including lifestyle, physical health and mental health. Participation in social activities has the highest correlation with lifestyle (0.60) and physical health (0.48), which shows that active involvement in social activities supports the adoption of a healthy lifestyle and maintaining physical condition. Close social relationships have a lower correlation than social participation, with a value of 0.49 to lifestyle, 0.33 to physical health, and 0.35 to mental health, but still show a positive contribution. Meanwhile, satisfaction with social support has the greatest influence on mental health (0.49), followed by physical health (0.39) and lifestyle (0.44), which emphasizes the importance of feeling satisfied with social support in supporting mental and physical balance. Overall, these results underscore that social engagement in various forms, both through direct activities and interpersonal relationships, plays an important role in improving quality of life in aging.

The results of this analysis reveal an interesting pattern of relationships between elderly characteristics, social interactions, and successful aging. In terms of gender distribution, the findings show that men are more likely to experience hypertension and heart disease, while women are slightly more likely to have diabetes mellitus (DM). These findings are consistent with the theory that biological and hormonal factors, such as differences in lipid metabolism and insulin sensitivity, influence the prevalence of certain diseases in men and women. Previous research also shows that health behaviours, such as smoking habits and dietary patterns, more often contribute to the risk of cardiovascular disease in men compared to women (T TRAN et al., 2022).

In addition, the even distribution of age with a predominance of the 66-70-year group indicates that this age range is a phase that is more susceptible to chronic diseases such as hypertension, DM

and heart disease. This supports the theory that the body's degenerative processes that take place in old age tend to accelerate the risk of chronic disease due to decreased organ function and changes in lifestyle (Sharifi-Rad et al., 2020). Furthermore, the relationship between social interaction and successful aging strengthens the importance of social support in maintaining the quality of life of the elderly. In older adults with hypertension, diabetes mellitus, and heart disease, the results show that those who have good social interactions tend to have better successful aging. This is in accordance with Hijas-Gómez et al. (2020) regarding successful aging, which emphasizes that social involvement is one of the important pillars for achieving healthy aging. Older adults who are socially active tend to have better mental health, maintained cognitive abilities, and a higher quality of life.

In the elderly group with hypertension, the high proportion in the "good" category for social interaction and successful aging reflects that social engagement can mitigate the psychological impact of chronic illnesses, such as anxiety and social isolation. A study by Zhang et al. (2021) indicates that strong social support can reduce stress levels, which is a key risk factor for hypertension. The elderly with diabetes mellitus also exhibits a similar pattern, where good social interaction contributes to successful aging. Research findings show that positive social relationships can motivate individuals to maintain healthy lifestyle habits, such as adhering to a proper diet and engaging in regular physical activity, which is crucial for managing DM (Lakerveld et al., 2020). Meanwhile, the elderly group with heart disease shows an even stronger relationship between social interaction and successful aging. The dominance of the "good" category for both variables highlights that social support plays a critical role in helping elderly individuals cope with the emotional and physical challenges of heart disease. Research by Enssle & Kabisch (2020) found that close social relationships not only provide emotional support but also assist in managing treatment and promoting better healthcare practices.

The results of the correlation test, which identified participation in social activities as the factor with the highest correlation to successful aging, emphasize the importance of active community engagement. Social activities provide cognitive stimulation, a sense of belonging, and purpose in life, all of which contribute to the mental and physical health of elderly individuals. This aligns with the study by Xue et al. (2021), which highlights that social engagement helps reduce the risk of depression and enhances overall well-being. Moreover, aspects of the closeness of social relationships and satisfaction with social support also contribute positively to successful aging, albeit with a lower correlation compared to social participation. Satisfaction with social support significantly impacts mental health, supporting the theory that the quality of social relationships is more critical than quantity in maintaining emotional balance in elderly individuals (Newman & Zainal, 2020).

Overall, these analytical results affirm that social aspects play a vital role in supporting successful aging, particularly for elderly individuals with chronic illnesses. Interventions that strengthen social interactions, whether through community activities or interpersonal support, can be an effective strategy to enhance the quality of life for elderly individuals and promote healthy aging.

Conclusion

This study highlights the significant role of social interaction in supporting successful aging, particularly among elderly individuals with chronic diseases like hypertension, diabetes mellitus, and heart disease. Key dimensions such as participation in social activities and satisfaction with social support were found to have distinct correlations with successful aging. Active involvement in social activities provides cognitive stimulation and emotional support, which are essential for maintaining mental health and overall well-being, while satisfaction with social relationships contributes to emotional balance and resilience in the face of chronic illness. Based on these findings, interventions that focus on enhancing social engagement, such as community-based programs and initiatives to strengthen social support networks, are essential for improving the quality of life for elderly individuals. Moreover, future research should also consider other dimensions like financial well-

being, which was mentioned in the study' s objectives but not deeply explored, as part of a more comprehensive approach to promoting healthy aging.

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