Understanding Cognitive Decline in Older Adults: The Effects of Social Isolation, Loneliness, and Psychological Well-Being

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Introduction

India is advancing through demographic transitions at the current time with a steady increase in the population aged above 60 years. The population of older adults constitutes 10.1% of the total population in 2021 and is further likely to increase by almost 2% in the next decade. Aging is associated with the inevitable process of cognitive decline which is determined as one of the predominant factors for deteriorated health and well-being among the elderly. The process of cognitive decline is inevitable. However, the rate of cognitive decline varies largely on individual levels; can be influenced by various psychological characteristics like ways in which an individual thinks, feels, and behaves. A decline in cognitive function can be detrimental to the independence, well-being, and quality of life of the elderly.

With the rapidly changing societal dynamics in the Indian context, there has been a significant rise of social isolation and loneliness among older adults. Social isolation is characterized by limited social networks, sparse social interactions, and restricted involvement in social activities. It can be calamitous to older adults by causing poor health status and lessened health-related quality of life. Furthermore, loneliness is defined as "a perceived deficit between actual and desired quality or quantity of relationships," is often described as a subjective experience resultant of unfulfilled social needs and dissatisfied human needs.

Social isolation and loneliness are believed to have a connection with the cognitive functioning of the individuals. The theory of Cognitive Reserve suggests that maintaining meaningful social relationships enhances mental stimulation by complex communication and interaction with others, thereby helping to build cognitive reserve. On the contrary, social isolation and loneliness fasten the process of cognitive decline and lead to poorer cognitive outcomes. Therefore, poor cognitive health can be a resultant factor of social isolation and loneliness. Contrarily, social interactions help in building cognitive reserve by facilitating mental stimulation.

Moreover, psychological well-being is often considered as a significant factor in determining the cognitive functioning in individuals. Psychological well-being is often defined as multifaceted construct inclusive of six individual components such as purpose in life; personal growth; environmental mastery; autonomy; positive self-regard; and social connections. Literature suggests that individuals with a better psychological well-being experience lowered level of cognitive impairment.

Objectives

Various research evidence cite the detrimental impact of social isolation and loneliness on the cognitive functioning of the older adults. However, in the rapidly changing societal context of India, where there has been a significant rise in individuals experiencing heightened levels of social isolation and loneliness, the impact of these factors on the cognitive decline is less explored. Moreover, scant research has been conducted to assess the impact of the above-mentioned constructs on inmates of old-age homes, which is a rising trend in India. Further, psychological well-being has been recognized as a vital determinant in overall functioning inclusive of cognitive decline in the case of older adults. However, whether psychological well-being has an impact on the way social isolation and loneliness affect the cognitive functioning of older adults is yet to be explored. Hence, the study aims to explore the impact of social isolation and loneliness on the cognitive functioning of the older adults. It also assesses the mediating impact of psychological well-being on the association of social isolation, loneliness, and cognitive functioning in older adults.

Methods

The study participants comprised of 320 individuals aged 60 years and above residing in various old-age homes in Odisha, India. Purposive sampling was employed for the selection of sample. The participants were categorised based on various socio-demographic characteristics like gender, level of education, and marital status. The sample consisted of both males and females. Data was collected using standardized measures like Lubben Social Network Scale-6 (LSNS-6), Revised UCLA Loneliness Scale, Ryff's Psychological Well-Being Scale, and Mini Mental State Examination (MMSE). Data were analysed using statistical software Stata 16.0.

Results

Linear regression analysis (Table 1) was performed to understand the underlying relationship of social isolation and loneliness with the cognitive status of the older adults. A significant regression equation was obtained ($F= 19.28$, $p<.01$), with an R^2 of 0.154. It was observed that loneliness and not social isolation predicted cognition significantly. Further, bootstrap effects were analysed, where a sample replication of 10,000 was performed to enhance the generalizability of the results. It was observed in the bootstrapped samples, loneliness predicted approximately ten percent of the variance in explaining cognitive health. However, social isolation did not predict cognition significantly. Therefore, loneliness can be considered as an important determinant of cognition in older adults.

Table 1: Prediction of Cognition through Loneliness and Social Isolation

	B	***SE B***	***β***	**t**	**Collinearity Statistics**	
					Tolerance	**VIF**
Loneliness	-.084	.033	-.158**	-2.52	.670	1.49
Social Isolation	-.004	.066	-.004	-0.07	.771	1.30
Bootstrap Effects (Replications: 10000)						
	B	***SE B***		**z**		
Loneliness	-.102	.033		-2.540**		
Social Isolation	-.044	.061		-.080		

Note: ** represent 5 and 1 % level of significance respectively.
Source: Author's Calculation

Furthermore, mediation analysis was performed to investigate the role of psychological well-being in the way loneliness and social isolation impact the cognitive functioning of the older adults. It was observed that both social isolation and loneliness did not have significant direct effect on cognition. The results indicate that social isolation and loneliness as independent factors may not be adequate to understand the cognitive functioning in older adults. However, it was observed that both social isolation (z= -4.71**) and loneliness (z= 4.03**) had significant indirect effect on the cognitive functioning of the older adults with psychological well-being as a mediating factor. It is indicative of the fact that psychological well-being as a factor can have a significant mediating impact on the way social isolation and loneliness affect the cognition. Furthermore, estimates of direct effect for both social isolation (z= 4.62**) and loneliness (z=-8.90*) were significant for psychological well-being. This implies that socially isolated and lonely individuals will have a declined psychological well-being which may have further have a detrimental impact on their cognition. Therefore, psychological well-being mediates the impact of social isolation and loneliness while assessing the cognition status of older adults.

Conclusion

The findings of the study will provide an insight into the overall functioning of lifestyle patterns of the older adults staying at various care homes. The findings of the study can be incorporated in designing various intervention strategies aimed to alleviate social isolation and loneliness, as well as enhance psychological well-being among older adults. Implications of these intervention strategies might prove beneficial in slowing down the process of cognitive decline in the ageing population. Additionally, the findings of the study can be adopted in the process of policy formulation aimed at empowerment of the older adults and ensuring a fulfilling senescence for them.