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THE RELATIONSHIP BETWEEN SOCIAL EXCLUSION, LOW HEDONISTIC EATING HABITS, AND DELIRIUM İN ELDERLY INDIVIDUALS

A RELAÇÃO ENTRE EXCLUSÃO SOCIAL, HÁBITOS ALIMENTARES POUCO HEDONISTAS E DELÍRIO EM IDOSOS

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Abstract
Delirium in older adults can be shaped by their experiences of social isolation and a reduction in pleasure-oriented eating habits. When elderly individuals become disconnected from their social environment, this separation can trigger both psychological and biological changes that influence their overall well-being. The aging process entails multidimensional changes in individuals' biological, psychological, and social functioning. The aim of this study is to examine the relationships between levels of delirium and social exclusion and hedonic eating behaviors among individuals aged 65 years and older. In line with its cross-sectional design, the study avoids causal inferences and addresses the relationships between variables within a

Resumo
O delírio em idosos pode ser moldado por suas experiências de isolamento social e pela redução de hábitos alimentares orientados para o prazer. Quando os idosos se desconectam de seu ambiente social, essa separação pode desencadear mudanças psicológicas e biológicas que influenciam seu bem-estar geral. O processo de envelhecimento implica mudanças multidimensionais no funcionamento biológico, psicológico e social dos indivíduos. O objetivo deste estudo é examinar as relações entre os níveis de delírio e exclusão social e os comportamentos alimentares hedonistas entre indivíduos com 65 anos ou mais. Em consonância com seu desenho transversal, o estudo evita inferências causais e aborda as

descriptive and correlational framework. This study aims to explore how strongly social isolation and reduced pleasure-driven eating behaviors relate to the development of delirium in elderly individuals living in institutional care settings. This descriptive research was carried out in In 2025 Erzincan and involved older individuals living in the 100th Year Atatürk Nursing Home, the Refahiye Elderly Care Center, and the Kemah Nursing Home. Information was gathered through an elderly demographic form along with the Social Exclusion Scale, the Low Hedonistic Eating Habits Scale, and the Delirium Scale. The dataset was analyzed using descriptive statistics as well as independent samples t-tests, ANOVA, correlation analyses, and regression procedures. In this study, a convenience sampling method was employed.

Keywords: Older. Older Adult. Social Exclusion. Low Hedonistic Eating Habits. Delirium.

relações entre as variáveis dentro de uma estrutura descritiva e correlacional. Este estudo tem como objetivo explorar a força com que o isolamento social e a redução dos comportamentos alimentares orientados para o prazer se relacionam com o desenvolvimento de delírio em idosos que vivem em instituições de cuidados. Esta pesquisa descritiva foi realizada em 2025 em Erzincan e envolveu idosos que vivem na Casa de Repouso Atatürk 100 Anos, no Centro de Cuidados a Idosos Refahiye e na Casa de Repouso Kemah. As informações foram coletadas por meio de um formulário demográfico para idosos, juntamente com a Escala de Exclusão Social, a Escala de Hábitos Alimentares Hedonísticos Baixos e a Escala de Delírio. O conjunto de dados foi analisado usando estatísticas descritivas, bem como testes t para amostras independentes, ANOVA, análises de correlação e procedimentos de regressão. Neste estudo, foi empregado um método de amostragem por conveniência.

***Palavras-chave**: Idosos. Exclusão Social. Hábitos Alimentares Hedonísticos Baixos. Delírio.*

1 INTRODUCTİON

Delirium is a common and serious neuropsychiatric condition in older adults, characterized by acute disturbances in cognition, perception, attention, and consciousness (Çınar *et al*., 2014; O'Malley *et al*., 2008). It typically has a sudden onset, fluctuating symptoms, and may stem from medical conditions, medication effects, or multiple contributing factors. Delirium is especially prevalent among hospitalized or medically fragile older adults and frequently leads to cognitive and behavioral complications (Mittal *et al*., 2011). It is one of the leading acute cognitive disorders in older populations and can affect up to half of hospitalized elderly patients (Iglseder *et al*., 2022; Inouye *et al*., 2014). Symptoms include rapid changes in awareness, memory, orientation, and perception (Bramati & Bruera, 2021). Those with pre-existing cognitive decline, frailty, or chronic diseases are particularly susceptible and have reduced recovery potential after experiencing delirium (Trzepacz, 2017; Quinlan *et al*., 2011). Malnutrition is another significant risk factor. In institutional settings, inadequate nutrition can lead to muscle

loss, frailty, and increased vulnerability. Poor diet, dehydration, depression, social isolation, sleep disturbances, nutrient deficiencies, unfamiliar surroundings, and medication use are among the primary triggers associated with delirium. Older people with depression tend to eat less. (Quinlan *et al*., 2011; Kalish *et al*., 2014; Inouye, 2009; Bellelli *et al*., 2021; Deepti *et al*., 2015).

Social exclusion describes the process through which individuals or groups become disconnected from the core structures and opportunities of society. This concept encompasses exclusion from areas such as employment, education, and various social activities (Commins, 2004; Popović & Masanović, 2019). It also refers to the inability to fully engage in economic, political, cultural, and social life, leading to feelings of marginalization and distancing from the broader community. At its core, social exclusion signifies a deterioration of personal ties, community involvement, and social networks. When these relationships weaken or break, older adults may lose their connections with both formal and informal social groups. The term often reflects limited or insufficient socialbonds, reduced friendships, and withdrawal from collective interactions (Li *et al*., 2021).

Several factors contribute to social exclusion, including age, gender, economic hardship, disability, religion, and ethnicity. As a result, exclusion can negatively affect not only psychological well-being—through increased feelings of isolation—but also physical health, as individuals may face barriers in accessing daily activities or essential health services due to financial or structural challenges (Prell *et al*., 2023). For older adults, social exclusion is particularly significant, often characterized by infrequent communication with family or friends, reduced engagement in social activities, and persistent feelings of isolation or loneliness. Social isolation is strongly associated with loneliness among older adults (Schrempft *et al*., 2019). Because social networks tend to shrink with age, older individuals are more vulnerable to exclusion than younger groups (Cornwell & Waite, 2009; Maheshkumar *et al*., 2024). As a public health issue, social exclusion also influences older adults' dietary habits (Baulos *et al*., 2017).

Highly excluded individuals often demonstrate lower levels of physical activity and poorer dietary patterns—including reduced fruit and vegetable intake—compared to those with stronger social connections. Since exclusion undermines fundamental human needs, it frequently leads to coping behaviors, including significant changes in eating

patterns. Eating behavior disorder brings with it many diseases (Kaneko & Ueda, 2022; Oaten *et al*., 2008; Aytaş & Alataş, 2023). Nutrition is central to healthy aging. Many older adults experience reduced appetite and lower energy requirements (Ahmed & Habubi, 2010; Illario *et al*., 2016; Whitelock & Ensaff, 2018). A combination of physiological, psychological, and economic factors influences their food choices and dietary quality. Age-related changes such as impaired digestion, medication-related dry mouth, poor oral health, and diminished sensory perception further reduce appetite (Whitelock & Ensaff, 2018). As people age, they experience problems affecting the respiratory, cardiovascular, digestive, nervous, endocrine, immune, musculoskeletal, urinary, dermatological, ocular, otological, gustatory, and olfactory systems. In addition, most individuals aged 65 and over have multiple chronic systemic diseases (Alatas *et al*., 2023).

Diminished taste and smell—whether due to normal aging, illness, or medications—can also reduce meal enjoyment and alter food preferences (Schiffman, 1997). Food, while essential for biological functioning, also fulfills emotional and psychological roles. Concepts such as low hedonic eating, emotional eating, comfort eating, and stress-related eating highlight the pleasure-driven motivations behind consumption. Low hedonic hunger refers to the desire to eat for enjoyment even in the absence of physical hunger (Lowe & Butryn, 2007; Witt & Love, 2013). Emotional states strongly shape eating behavior, and feelings such as fear, sadness, or anger can increase impulsive or emotional eating while reducing satisfaction gained from food (Macht, 2008; Kaneko & Ueda, 2022).

Social exclusion also entails rejection by others and the weakening of social ties. This negative social experience leads individuals to feel less valued, supported, or accepted, and has harmful consequences for overall adjustment and health (Niu *et al*., 2023). It diminishes fundamental psychological needs—including belonging, self-esteem, control, and meaning—and contributes to outcomes such as depressive symptoms, anxiety, loneliness, helplessness, and a sense of purposelessness (Kumar *et al*., 2017; Niu *et al*., 2023). The negative impact of exclusion is especially evident among older adults, for whom mental health often deteriorates when social connections weaken. Older adults who live alone consistently report higher levels of depression than those living with others (Dean *et al*., 1992). The reasons for this include limited emotional

support, restricted finances, loss of partners or close relationships, stressful life events, poorer living conditions, insufficient care resources, and reduced access to appropriate services (Saito *et al*., 2005; Wilson *et al*., 2007; Adams, 2004; Maheshkumar *et al*., 2024; Lee, 2020).

The aim of this study is to examine the relationships between delirium levels and social exclusion and hedonic eating behaviors among individuals aged 65 years and older. The study is based on the assumption that delirium in older adults may be associated not only with clinical factors but also with social and behavioral factors.

Accordingly, the research aims to determine whether social exclusion and hedonic eating behaviors are associated with levels of delirium, and to address an important gap in the literature by examining these variables together within the same sample and analytical framework.

2 LITERATURE REVIEW

Aging is a life stage characterized by simultaneous and multidimensional changes in individuals' biological, cognitive, and social functioning. During this process, alongside physical health problems, reductions in social relationships, changes in eating behaviors, and cognitive vulnerabilities become more pronounced (World Health Organization [WHO], 2015). Contemporary geriatric literature emphasizes that the health status of older adults should be evaluated not only through clinical indicators but also by considering social and behavioral factors.

Social exclusion is defined as the gradual disengagement of individuals from social relationships, societal resources, and networks of belonging (Levitas *et al*., 2007). In later life, factors such as retirement, spousal loss, physical limitations, and chronic illnesses are among the main contributors to an increased risk of social exclusion. Studies have demonstrated that social exclusion among older adults is associated with depressive symptoms, loneliness, reduced quality of life, and cognitive decline (Cacioppo & Cacioppo, 2014; Nicholson, 2012).

However, social exclusion has predominantly been examined in relation to chronic psychological outcomes, and relatively limited attention has been paid to its association with acute cognitive syndromes, particularly delirium. This suggests that the potential

role of social exclusion in acute mental status changes among older adults has not yet been sufficiently clarified.

Eating behaviors in older age are influenced not only by physiological needs but also by psychological and social factors. Hedonic eating refers to eating tendencies driven by pleasure, emotional gratification, and enjoyment rather than by hunger (Lowe & Butryn, 2007). In the literature, hedonic eating behaviors have primarily been studied in the context of obesity, emotional eating, and psychological well-being (Finlayson *et al*., 2007).

Among older adults, eating behaviors are closely related to loneliness, levels of social interaction, and psychological state (Donini *et al*., 2013). Nevertheless, most existing studies address eating behaviors within the framework of general nutritional status or malnutrition, while the relationship between hedonic eating and cognitive status or acute mental changes has been discussed in only a limited number of studies.

Delirium is a common neuropsychiatric syndrome in older adults, characterized by acute onset, a fluctuating course, and impairments in attention, consciousness, and cognitive functioning (American Psychiatric Association [APA], 2013). Delirium has been associated with serious outcomes such as prolonged hospital stays, functional decline, increased mortality, and greater care needs (Inouye *et al*., 2014).

In the literature, risk factors for delirium have largely been examined through clinical variables such as advanced age, dementia, infections, polypharmacy, and metabolic disorders (Oh *et al*., 2017). In contrast, social and behavioral factors have remained relatively secondary in research focusing on delirium.

A review of the existing literature indicates that social exclusion, eating behaviors, and delirium are generally treated as independent variables. Social exclusion has been mainly linked to psychological well-being and quality of life; eating behaviors to nutritional status and psychological factors; and delirium primarily to clinical risk factors.

However, empirical studies that examine delirium levels in older adults together with social exclusion and hedonic eating behaviors within the same analytical framework are quite limited. This highlights the need for research that holistically evaluates the relationship between biopsychosocial factors and delirium in the field of geriatric health.

Accordingly, the present study aims to address this important gap in the literature by jointly examining social exclusion and hedonic eating behaviors as potential indicators associated with delirium.

3 MATERIALS AND METHODS

This research aimed to explore how social exclusion and reduced low hedonic eating behaviors relate to delirium in older adults living in elderly care facilities and nursing homes situated in Erzincan's central district as well as the districts of Refahiye and Kemah.

3.1 Research design and sample

This study was designed as a cross-sectional, descriptive–correlational investigation. The sample was selected using a convenience sampling method due to geographical proximity and accessibility.

3.2 Sample size

The sample size was calculated using G*Power 3.1.9 software. The calculation was based on a medium effect size (f^2), a 95% confidence level ($\alpha = 0.05$), and 80% statistical power ($1–\beta = 0.80$). The minimum sample size determined according to these parameters was achieved in the study.

3.3 Research design and participants

This research utilized a descriptive, cross-sectional approach and included older adults residing in nursing homes and care centers located in Erzincan's city center and the surrounding districts of Refahiye and Kemah in eastern Türkiye. Participants were selected through a purposive sampling strategy. The required sample size was determined using G*Power 3.1.9.2, which indicated that a minimum of 110 participants would be

needed at a 0.05 significance level with a 95% confidence interval. Ultimately, the study enrolled a total of 155 older adults.

3.4 Inclusion and exclusion criteria

The study included individuals who met the following criteria: (i) living in elderly care centers or nursing homes located in Erzincan's central district or in the districts of Refahiye and Kemah, (ii) being 65 years of age or older and able to communicate without language or comprehension difficulties, and (iii) willingly agreeing to take part in the research. Participants who did not meet these conditions were excluded from the study. In this study, individuals who met the following conditions were excluded from the research: (i) participants who failed to respond to more than 50% of the questionnaire items, (ii) individuals who demonstrated cognitive impairment at a level that hindered effective communication during the data collection process, (iii) participants who indicated a desire to withdraw from the study or who withdrew their voluntary consent during the research process, and (iv) participants whose data contained missing or inconsistent responses to an extent that could affect the analyses.

These exclusion criteria were applied to enhance data quality and ensure the reliability of the analyses.

Individuals who met the following criteria were included in the study: (i) being 65 years of age or older, (ii) having sufficient cognitive capacity to communicate, (iii) possessing adequate proficiency in Turkish to respond to the questions, and (iv) voluntarily agreeing to participate in the study.

3.5 Data collection method and ınstruments

Data were obtained through in-person interviews using questionnaires derived from the study's measurement scales. Older adults who reviewed the informed consent form and agreed to participate then completed the survey items. The instruments used in data collection included the Elderly Information Form, the Social Exclusion Scale, the Hedonistic Eating Scale, and the Delirium Rating Scale. Detailed explanations of each tool are presented in the following sections. Data were collected using self-report–based

scales. It was acknowledged that this approach carries a risk of subjective bias. The scoring procedures of the data collection instruments used in this study were applied in accordance with the guidelines specified in the original development and adaptation studies of each scale. All instruments were self-report–based, and participants' responses were converted into numerical scores for analysis. Levels of social exclusion were obtained by summing the scores of the items included in the relevant scale. The scale items were rated using a Likert-type format, with higher total scores indicating higher levels of social exclusion. Hedonic eating behaviors were assessed using a hedonic eating scale. The items in the scale were rated on a Likert-type scoring system, and the total hedonic eating score was calculated by summing the scores of all items. Higher total scores indicate a stronger tendency toward hedonic eating. Levels of delirium were determined using the relevant assessment scale. The total scores obtained according to the scale's scoring system reflect individuals' levels of delirium, with higher scores indicating higher levels of delirium.

For all scales, reverse-scored items, if present, were recoded prior to analysis. The resulting total and subscale scores were used as continuous variables in the statistical analyses.

3.6 Elderly adult ınformation form

This form gathers basic demographic information, including details on age, gender, education level, marital status, and the presence of chronic health conditions.

3.7 Hedonistic eating scale

The Hedonistic Eating Scale, created by Atik *et al*. (2019), was designed to measure pleasure-driven eating behaviors among individuals with obesity. Following assessments of content validity, factor structure, and item performance, the researchers finalized a unidimensional scale consisting of 15 items. This single factor accounted for 68.02% of the total variance, which was considered satisfactory. Reliability analyses—including Cronbach's alpha, Spearman–Brown, and Guttman split-half coefficients—

showed values above 0.70, demonstrating strong internal consistency. In the current study, the scale yielded a Cronbach's alpha of 0.76.

3.8 Social exclusion scale for older adults

The Social Exclusion Scale for Older Adults, created by Apak and Apak in 2020, was validated through both exploratory and confirmatory factor analyses. The exploratory analysis resulted in a 22-item instrument composed of four distinct dimensions: material deprivation, lack of informal social support, limitations in transportation and financial services, and environmental exclusion. Together, these factors accounted for 55.90% of the total variance, with item loadings ranging from .54 to .85. Subsequent confirmatory factor analysis indicated that the model had acceptable fit indices. Reliability testing showed Cronbach's alpha values between .71 and .89 across the subscales.

3.9 Delirium rating scale

The Delirium Rating Scale (DRS), created by Çınar *et al*. (2013), was designed to evaluate both the presence and severity of delirium. Two psychiatrists independently established diagnoses based on DSM-IV criteria and administered the DRS-R-98 along with the Standardized Mini-Mental State Examination (SMMSE). Beyond descriptive statistics, the validation process included assessments of construct validity, factor structure, inter-rater reliability, agreement between the DRS-R-98 and the SMMSE, internal consistency, and analyses of sensitivity and specificity across various cutoff points.

3.10 Statistical analysis

The data were analyzed using IBM SPSS 27.0 (Armonk, NY). Normality was examined through the Kolmogorov–Smirnov test, which indicated that the variables did not follow a normal distribution. To summarize the dataset, descriptive statistics—such as frequencies, percentages, means, standard deviations, and minimum and maximum values—were employed. Comparisons between independent groups were conducted

using independent samples t-tests and ANOVA. Additionally, correlations between the study scales were assessed. A significance level of $p < 0.05$ and a 95% confidence interval were adopted for all statistical evaluations.

3.11 Ethical considerations

This research was approved by the Erzincan Binali Yıldırım University Social and Humanities Research Ethics Committee (Date: 27 Nov 2025, No: 02/02). In line with the Helsinki Declaration, informed consent was obtained from each older adult prior to participation. Participants who provided consent on the online platform proceeded to complete the questionnaires.

4 RESULTS

Table 1 presents the individual characteristics of the older adults, along with the mean scores of the scales and the statistical test results. Of the older adults participating in the study, 50.3% were women and 49.7% were men. In terms of marital status, 76% were widowed and 24% were married. Regarding educational level, 84.7% were primary or secondary school graduates, while 15.3% had a university degree. Additionally, 81.6% of the older adults had at least one chronic disease.

The sample was nearly equally distributed in terms of gender. No statistically significant differences were found between men and women in delirium, hedonistic eating, or social exclusion scores (t-test, $p > .05$). The majority of participants were widowed. Similarly, there were no significant differences between marital status groups in any of the psychological scale scores ($p > .05$).

Most of the older adults were primary school graduates. Delirium, hedonistic eating, and social exclusion scores did not differ significantly across educational levels ($p > .05$). The majority of the participants had chronic illnesses; however, psychological scale scores did not significantly differ according to the type of chronic illness ($p > .05$).

Table 1

Mean Scores of Delirium, Hedonistic Eating, and Social Exclusion by Demographic Characteristics

Variable	Groups	n	Delirium Mean (SD)	Hedonistic Eating Mean (SD)	Social Exclusion Mean (SD)	Test	p
Gender	Male–Female	155	–	–	–	t-test	>.05 (all)
	Male	~77	—	—	—		
	Female	~78	—	—	—		
Marital Status	Married	36	14.78 (4.56)	3.69 (0.68)	3.61 (0.52)	t-test	>.05 (all)
	Widowed	114	14.98 (5.04)	3.63 (0.64)	3.56 (0.47)		
Educational Level	Primary School	50	14.02 (5.49)	3.56 (0.70)	3.49 (0.50)	t-test	>.05 (all)
	University	9	12.77 (7.13)	3.59 (0.69)	3.38 (0.55)		
Type of Chronic Illness	Cardiovascular	31	16.32 (4.56)	3.74 (0.60)	3.70 (0.49)	t-test	> .05 (all)
	Cancer	7	13.85 (6.56)	3.79 (0.75)	3.56 (0.57)		

Table 2 presents the mean scores of social exclusion, low hedonistic eating habits, and delirium among older adults. The study examined whether delirium, hedonistic eating behavior, and social exclusion levels differed according to various demographic characteristics. The findings indicated that the psychological variables in question showed similar levels across all demographic groups.

When evaluated by marital status, the mean scores for delirium, hedonistic eating, and social exclusion were found to be quite similar between married and widowed participants. Married individuals had slightly higher delirium and social exclusion scores; however, these differences were minimal, indicating that marital status did not have a significant influence on the psychological variables examined.

In terms of educational level, university graduates had slightly lower delirium and social exclusion mean scores compared to primary school graduates. Nevertheless, the differences between the groups were small, and the mean scores for hedonistic eating were nearly identical across both educational levels. These results suggest that educational level did not lead to meaningful differences in psychological symptom levels.

When evaluated by type of chronic illness, individuals with cardiovascular disease had slightly higher delirium, social exclusion, and depression scores compared to those

with cancer. In contrast, individuals with cancer had marginally higher hedonistic eating scores. These findings suggest that psychological burden was relatively higher among those with cardiovascular diseases compared to those with cancer.

Table 2

Mean Scores and Standard Deviations of Social Exclusion, Hedonistic Eating, and Delirium Among Older Adults

Variable	Group	Delirium Mean (SD)	Hedonistic Eating Mean (SD)	Social Exclusion Mean (SD)
Marital Status	Married	14.78 (4.56)	3.69 (0.68)	3.61 (0.52)
	Widowed	14.98 (5.04)	3.63 (0.64)	3.56 (0.47)
Educational Level	Primary School	14.02 (5.49)	3.56 (0.70)	3.49 (0.50)
	University	12.77 (7.13)	3.59 (0.69)	3.38 (0.55)
Type of Chronic Illness	Cardiovascular	16.32 (4.56)	3.74 (0.60)	3.70 (0.49)
	Cancer	13.85 (6.56)	3.79 (0.75)	3.56 (0.57)

Table 3 shows a very strong positive correlation between social exclusion and delirium ($r = .872$, $p < .001$). This finding indicates that as levels of social exclusion increase, individuals' delirium scores also increase. A moderate positive correlation was identified between hedonic eating behaviors and delirium ($r = .588$, $p < .001$). These results indicate that as hedonic eating behavior decreases, levels of delirium increase.

The fact that both variables (social exclusion and hedonic eating) are significantly associated with delirium demonstrates that these factors are critical determinants of psychological well-being.

Table 3

Correlation Analysis Between Social Exclusion, Hedonistic Eating, and Delirium Scores Among Older Adults

Variables	1. Social Exclusion	2. Delirium	3. Hedonistic Eating
1. Social Exclusion	1.00	.872**	–
2. Delirium	.872**	1.00	.588**
3. Hedonistic Eating	–	.588**	1.00

In Table 4, it is observed that there is a very high positive relationship between social exclusion and delirium ($r = .872$, $p < .001$). This finding indicates that as the level of social exclusion increases, individuals' depressive symptoms and delirium scores also increase. A moderate positive correlation was found between low low hedonic eating habits and delirium ($r = .588$, $p < .001$). This result shows that as low hedonic eating behavior decreases, levels of delirium increase.

The fact that both variables (social exclusion and low hedonic eating) are significantly associated with delirium demonstrates that they are critical determinants of psychological well-being. Regression analyses indicate that both social exclusion and low hedonic eating behavior are significantly predicted by delirium. In the social exclusion model, delirium is the strongest predictor ($\beta = .787$). The explained variance ratios are high for both models (77% and 48%, respectively), indicating that the models are strong.

Table 4

Summary Table of Multiple Regression Analysis for Social Exclusion and Hedonistic Eating

Dependent Variable	Model Statistics	Predictors	B	SE	β	t	p	95% CI (Lower–Upper)
Social Exclusion	R = .879 Adj. R^2 = .770	Delirium	.077	.005	.787	16.380	< .001	.067 – .086
		Constant	2.125	.086	–	24.845	< .001	1.956 – 2.294
Hedonistic Eating	R = .692 Adj. R^2 = .472	Delirium	.041	.009	.318	4.375	< .001	.023 – .060
		Constant	1.717	.172	–	9.953	< .001	1.376 – 2.057

5 DISCUSSION

One of the most notable findings was the very high positive correlation between social exclusion and delirium ($r = .872$, $p < .001$). This suggests that diminished social relationships in later life may reflect not only emotional vulnerability but also heightened risk of cognitive deterioration (Yu *et al*., 2021). Growing evidence indicates that social isolation is an important determinant of cognitive impairment and psychological distress (Liu & Jiang, 2025).

Similarly, the positive association between low hedonic eating scores and delirium ($r = .588$, $p < .001$) highlights the connection between nutritional behavior and psychological–cognitive functioning (Yu *et al*., 2021). These findings support earlier work showing that limited social interaction, reduced shared mealtime experiences, and weakened social networks may reduce pleasure-driven eating among older adults (Oluyinka *et al*., 2024). Consequently, low hedonic eating behaviors may serve as indicators of broader psychosocial and emotional well-being.

Regression analyses further demonstrated that these relationships extend beyond simple correlations. Delirium emerged as a significant predictor of social exclusion ($\beta = .787$, $p < .001$), implying that cognitive disturbances may actively contribute to older adults' withdrawal from social environments. This strengthens the idea that exclusion affects not only emotional well-being but also behavioral and cognitive functioning (Santini *et al*., 2015; Wen *et al*., 2024). Additionally, findings on low hedonic eating suggest a mutual relationship between eating patterns and mental health (Yu *et al*., 2021), reinforcing the notion that social exclusion, eating behavior, and cognitive symptoms are interlinked within a complex psychosocial framework (Oluyinka *et al*., 2024; Cole, 2005).

These results indicate that supportive policies for aging populations should not be confined to medical or physical health concerns. Instead, interventions need to adopt a more holistic perspective—one that includes social participation, emotional support, community engagement, and healthy eating practices (Santini *et al*., 2015; Yuan *et al*., 2023). Initiatives aimed at strengthening social ties and reducing feelings of isolation may be particularly valuable in protecting both cognitive and emotional health among older adults (Oluyinka *et al*., 2024).

Nevertheless, several limitations should be acknowledged. Since this study used a cross-sectional design, causality cannot be inferred, meaning it is unclear whether social exclusion leads to delirium or whether delirium increases exclusion (Santini *et al*., 2015). Additionally, low hedonic eating was evaluated only through scale scores, without examining meal patterns, dietary quality, or the social context of eating (Yu *et al*., 2021). The fact that the research was limited to a specific geographic and cultural setting may also restrict the generalizability of the findings.

Future research would benefit from longitudinal designs that consider variables such as loneliness, social support networks, dietary behaviors, participation in social life, chronic health conditions, and cognitive outcomes simultaneously. Intervention-based studies—such as group activities, nutritional support programs, and community engagement initiatives—should be explored to determine whether such efforts can effectively reduce social exclusion and delirium risk among older adults (Wen *et al*., 2024; Yuan *et al*., 2023).

In summary, the study highlights strong linkages between social exclusion, delirium, and eating behaviors in older adults. The results underscore the interconnected nature of psychological, cognitive, and social health in aging populations. Consequently, strategies for elderly care should extend beyond biomedical approaches to incorporate psychosocial dimensions and social integration efforts (Santini *et al*., 2015; Oluyinka *et al*., 2024).

The findings obtained in this study suggest that there may be significant relationships between levels of delirium and social exclusion and hedonic eating behaviors among older adults. These results are consistent with previous studies in the literature that have examined these variables separately. One of the major limitations of the study is that the data were collected using self-report–based scales. This may lead to response bias and allow individual differences in perception to influence the results. In addition, the use of convenience sampling limits the generalizability of the findings.

This research explored levels of social exclusion, low hedonic eating tendencies, and delirium among older adults, examining how these variables differed across demographic characteristics and chronic health conditions, while also analyzing the relationships among them. The results parallel previous studies emphasizing the substantial influence of social ties on emotional well-being, cognitive processes, and eating patterns in later adulthood (Santini *et al*., 2015; Oluyinka *et al*., 2024).

Our analyses showed no significant differences across demographic categories—such as marital status, education level, or presence of chronic illness—indicating that these factors alone do not strongly predict psychosocial outcomes in older adults. This observation is consistent with research suggesting that loneliness, exclusion, and perceived social support depend more on subjective psychosocial dynamics than on demographic variables themselves. Factors such as perceived connectedness,

environmental context, and participation in social activities often play a greater role (Liu & Jiang, 2025; Wen *et al*., 2024).

Despite the strong associations identified in the present study, the literature also includes findings that partially contradict or qualify these relationships. Several studies have reported that delirium in older adults is predominantly associated with acute medical and physiological factors—such as infections, metabolic disturbances, medication burden, and hospitalization—while social and behavioral variables play a secondary or indirect role (Inouye *et al*., 2014; Oh *et al*., 2017). In these studies, no significant relationship was observed between social isolation or eating-related behaviors and delirium outcomes.

Such discrepancies may be largely explained by differences in study settings and methodological approaches. Hospital-based and acute-care studies tend to capture delirium as a short-term clinical syndrome triggered by immediate medical stressors, thereby limiting the observable influence of long-term psychosocial factors. In contrast, community-based and long-term care studies—such as the present research—are better positioned to detect the cumulative effects of social exclusion, reduced social participation, and altered eating behaviors on cognitive vulnerability (Santini *et al*., 2015; Wen *et al*., 2024).

Conflicting evidence has also been reported regarding eating behaviors in later life. Some studies suggest that eating patterns among older adults are primarily determined by physiological appetite changes, chronic illness, or dietary restrictions, rather than by hedonic or pleasure-oriented motivations (Donini *et al*., 2013). From this perspective, hedonic eating may appear to have limited relevance to cognitive or psychological outcomes. However, other research emphasizes that reduced pleasure in eating often reflects broader emotional disengagement, loneliness, and social withdrawal, which are themselves linked to cognitive decline and mental distress (Cole, 2005; Oluyinka *et al*., 2024).

These inconsistencies highlight the multifactorial and context-dependent nature of delirium and psychosocial well-being in older adults. Rather than viewing clinical, social, and behavioral factors as competing explanations, the current findings support a more integrative interpretation in which medical vulnerability interacts with social exclusion and diminished pleasure-related behaviors. Thus, the absence of associations

in some studies does not negate the relevance of social and behavioral factors but instead underscores the importance of study design, population characteristics, and measurement strategies.

Overall, by demonstrating significant associations between delirium, social exclusion, and hedonic eating, the present study contributes to resolving these inconsistencies and supports a biopsychosocial framework for understanding cognitive and psychological health in aging populations.

6 CONCLUSION

This study examined levels of social exclusion, low hedonic eating, and delirium among older adults, and evaluated whether these variables differed according to marital status, educational level, and type of chronic illness. The findings indicate that older adults' perceptions of their social environment are closely associated with their emotional and behavioral health. The results provide important insights for planning interventions aimed at supporting the psychosocial well-being of older individuals. In particular, social integration and emotional support programs are anticipated to be effective in reducing levels of delirium and promoting healthy eating behaviors. Overall, these findings may contribute to the development of preventive policies targeting the mental and social health of the aging population.

This study aimed to address an important gap in the literature by examining the relationships between delirium and social exclusion and hedonic eating behaviors among older adults. Although causal inferences cannot be made, the findings suggest that social exclusion and eating behaviors may be considered indicators associated with delirium.

From a clinical perspective, awareness of these relationships is important for early risk identification, comprehensive assessment, and the planning of preventive interventions in older individuals. Future studies are recommended to employ longitudinal designs with larger and more representative samples and to incorporate objective clinical measurements.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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