

Late-Life Hoarding Behaviors and Interpersonal Relationships: A Descriptive Correlational Study

Mona Metwally El-Sayed¹, Heba Ahmed Mohsen² & Eman Mahmoud Mohammed Shoukr³.

¹ Assistant Professor of Psychiatric Nursing, and Mental Health, Alexandria University, Egypt.

² Lecturer of Gerontological Nursing, Faculty of Nursing, Alexandria University, Egypt.

³ Lecturer of Gerontological Nursing, Faculty of Nursing, Alexandria University, Egypt.

Abstract

Background: Hoarding behaviors are now a widespread issue among aged people and have a profound effect on several aspects of their lives, such as interpersonal relationships. However, the relationship between hoarding behaviors and interpersonal relationships is insufficiently studied and poorly represented in research. **Objective:** to assess the relationship between late-life hoarding behaviors and interpersonal relationships. **Design:** The study followed a descriptive-correctional research design. **Participants:** A representative sample of 200 randomly recruited older adults Setting: Al Haya and Al-Amal clubs in Alexandria, Egypt. **Measurements:** A Socio-demographic and Clinical Data Sheet, The Saving Inventory-Revised (SI-R), and The Functional Idiographic Assessment Template-Questionnaire-Short Form (FIAT-Q-SF). **Results:** A statistically significant relationship was found between older adults' hoarding behaviors and their interpersonal relationships ($t = 9.396$ and $P = 0.000$). **Conclusion:** Most of the older adults exhibited moderate to high levels of hoarding behaviors, and almost all of them had the same levels of interpersonal relationship problems. Evidence of an association between hoarding behaviors and interpersonal relationship problems is found. **Recommendation:** Provide face-to-face or online videos or telemental health applications with psychoeducational programs for the elderly, family members, relatives, neighbors, and friends about hoarding behaviors and how they affect their interpersonal relationships.

Keywords: *Late life, Hoarding Behaviors & Interpersonal Relationships*

Introduction

The fast increase in the number of aged populations has recently been recognized, as well as the number of elderly with hoarding behaviors, which is also rapidly increasing (Roane et al., 2017). Hoarding behaviors are the intense difficulty of discarding possessions that have lost their objective value, a strong urge to purchase items, and the unnecessary collection of clutter around the home (Yap, et al., 2020). Although hoarding behavior usually begins in early adolescents, its severity increases with age across the lifespan (Cath, et al., 2017). According to the study of Hopkins Epidemiology of Personality Disorder, which reported that the probabilities of hoarding behaviors were over doubled in the elderly compared with the younger age group (Chen, et al., 2017). Further, another study revealed that the studied older adults with compulsive hoarding problems have an average age of beginning and development of hoarding symptoms of 67.5, ranging from 60-87 (American Psychiatric Association, 2013; Dozier et al., 2016).

The act of acquisition among older adults with hoarding behaviors gives them a sense of reassurance, productivity, and more self-control (Chen et al., 2021). Their possessed items helped them feel more

connected to others as well as their personal history. However, in severe cases, these hoarded items may clog living spaces and rooms, making them impossible or difficult to use for the intended purpose, causing significant stress to the elderly themselves (Roane et al., 2017). Moreover, on serious occasions, cluttered possessions may interfere with and/or inhibit daily activities such as moving freely at home, preparing food, using the bathroom, and even sleeping in bed. The strong emotional attachment to their possessed items, as well as the difficulty in making the discard decision, may be regarded as the primary reasons for such a complicated condition (Raines et al., 2014).

Even though the magnitude of this problem and its consequences for elderly people go largely untreated and unrecognized, people with hoarding behaviors often have an intolerance of uncertainty and increased levels of behavioral as well as experiential avoidance (Castriotta et al., 2019) They often tend to be unmarried, live alone, and are sometimes socially isolated. Living alone can offer them the freedom to accumulate clutter. On the other hand, this accumulated clutter may drive away their significant others, neighbors, and friends Thus, their interpersonal relationships could be much more affected.

However, only a few studies have looked at the link between hoarding behaviors in older adults and their interpersonal relationships (Grisham et al., 2018).

The concept of interpersonal relationships among older people is recognized as one of the significant spheres in their lives. The network of people who surround the elderly in their surroundings is strongly linked to promoting health and well-being. Choi et al. (2015) found that marital status, number of friends, frequency of social interactions, and many personal roles have long been shown to protect well-being, boost self-esteem, and reduce anxiety and depressive symptoms. The investigation of interpersonal relationships in the context of hoarding behaviors among aged people revealed that clutter noticeably affects the continuity of these relationships (Chen, et al., 2021). It was reported that older adults with hoarding behaviors tend to have diverse beliefs, memories, emotional attachment, control, and responsibility concerning their possessions, which marginally leads to interpersonal problems (Chen, et al., 2021). Even those elderly people with adequate interpersonal relationships, on the other hand, do not invite others to their cluttered homes due to feelings of shame and embarrassment (Mathes & Schmidt, 2020).

Evermore, previous research on interpersonal relationships and hoarding behaviors in the elderly revealed that attachment, as well as social support, plays a significant role in the severity of hoarding symptoms. It was more associated with social support and less with difficulty discarding and acquisition symptoms (Crone, et al., 2019 & Yap, et al., 2020). Other studies that examined the various aspects of interpersonal relationships and hoarding noticed that many psychological problems are related to poor social support (Medard & Kellett, 2014; Chen, et al., 2021).

Nevertheless, the relationship between hoarding behaviors and interpersonal relationships is complex and interrelated. Thus, some studies found that the presence of significant others and friends in an elderly person's life may act as a buffer to the development, maintenance, or exacerbation of hoarding behaviors in numerous ways. Their presence could provide the elderly with a sense of belonging, decrease the need to acquire useless items, facilitate effective organizing and discarding, and occasionally enforce the removal of clutter (Wheaton, et al., 2016 & Chen et al., 2021). On the contrary, other studies have reported that elderly people with hoarding behaviors may perceive the presence of people around them as threatening, violating, intrusive, and disrespectful, which leads to greater stress and conflict (Mathes & Schmidt, 2020; Burnett et al., 2014).

Significance of the study

Because of the restricted nature of the literature and the scarcity of research based on acknowledged hoarding tendencies, this paper focuses first on hoarding behavior, which is a common concern among older people, and its association with their interpersonal interactions.

The aim of the study is to assess the relationship between late-life hoarding behaviors and interpersonal relationships.

Research hypothesis

- There is a high level of hoarding behaviors among community-dwelling older adults.
- There is a relationship between hoarding behaviors and interpersonal relationships among community-dwelling older adults.

Operational definition

Late-life hoarding behavior is defined as the acquisition of and failure to dispose huge numbers of possessions with little value or utility in older adults aged 60 and above.

Materials and Methods

Materials:

Research Design:

The current study used a descriptive correlational research design.

Setting:

The research was carried out at the Al Haya and Al-Amal clubs in Sidi-Bisher, which are affiliated with the Ministry of Social Solidarity in Alexandria, Egypt, and are exclusively for the elderly. The research setting was chosen based on the number of registered elderly and the rate of their attendance at the club. The number of elderly people registered at Al Haya and Al-Amal clubs was larger, accounting for 700 older adults, and daily attendance was 10 to 15 elderly every Sunday and Tuesday of the week.

The Study Participants:

Simple random sampling technique was used in this study to recruit a representative sample of 200 community-dwelling older adults. The Epidemiological Information (EPI INFO 7 program) was used to estimate the sample size based on the following parameters: a 5% acceptable margin of error, a 95% confidence coefficient, a 50% expected frequency, and a total population size of 700 elderly people. The program revealed a minimum sample size of 194 community-dwelling older adults.

The Study Tools:

Three tools were used for data collection in this study, as follows.

- **The Tool I: Older Adults' Sociodemographic and clinical Data Structure interview Schedule:**

The socio-demographic characteristics and clinical data of the studied participants encompassed age, sex, marital status, educational level, occupational history before retirement, current occupation, and income. In addition, if they suffered from chronic illnesses and consumed medications.

• **Tool II: The Saving Inventory-Revised (SI-R):**

The SI-R was developed by **Frost, Steketee, & Grisham (2004)**. It is a 23-item standardized self-report inventory used to assess hoarding disorder symptoms. The scale incorporates three subscales as follows: clutter, **saving, or excessive acquisition, consisting of difficulty discarding. The Clutter subscale consists of 9 items, such as "To what extent do you have difficulty throwing things away?" The Saving or Excessive Acquisition subscale consists of 7 items, e.g., "How distressing do you find the task of throwing things away?" Moreover, the Difficulty Discarding subscale, which includes 7 items, e.g., "How often are you unable to discard a possession you would like to get rid of?"** A 5-point Likert-type scale ranging from 0 to 4 was used to rate each item.

The score of **the Clutter subscale** was calculated by summing the items 1, 3, 5, 8, 10, 12, 15, 20, and 22. **The Excessive Acquisition subscale score** was gained by reversing the score of item 2 and summing items 9, 11, 14, 16, 18, and 21. Finally, the score of **the Difficulty Discarding subscale** was obtained by reversing the score of item 4 and adding items 6, 7, 13, 17, 19, and 23.

The total scores range from 0 to 92, with higher scores indicating increased hoarding behavior severity. Thus, a score ranging from 0-30 reflects mild, 31-61 indicates moderate, and 62-92 illustrates severe hoarding behaviors. Cronbach's alpha for the total score ($=.96$) as well as all subscales (clutter: $=.96$, Difficulty Discarding: $=.92$, and Acquisition: $=.88$) has been shown to have high validity and reliability (Mohammad-Zadeh, 2009; Ayers et al., 2017).

• **The Tool III: The Functional Idiographic Assessment Template-Questionnaire-Short Form (FIAT—Q-SF):**

The original FIAT-Q was developed by **Callaghan (2006)**, and then it was shortened and modified by **Darrow et al. (2014)**. The FIAT-Q-SF is a standardised self-reported six-Likert scale that contains 32 items to capture the problems and improvements in interpersonal functioning. It consists of six subscales. **Avoidance of Interpersonal Intimacy** (items 1–8), e.g., "I do not want to share things about myself with others." **Argumentativeness or Disagreement** (items 9 to 15), e.g., "I deliberately upset the other person during an argument." **Connection and reciprocity** (items

16-19), e.g., "close relationships are important to me." **Conflict Aversion** (items 20–22): e.g., "I withdraw in the face of conflict, regardless of the circumstances." **Emotional Experience and Expression** (items 23–27) e.g., "My emotional responses make sense to me when I consider the circumstances." **Excessive Expressivity** (items 28-32) e.g., "People tell me that when I talk about my own experience, I share information that is too personal." Each respondent indicates their agreement on how indicative the statement is of him and his behavior using a numeric scale ranging from 1 = strongly disagreed to 6 = strongly agreed. Modifications to generate an overall total score and six subscale scores were made. Thus, the total score ranged from 32 to 192 (needs to be checked), with a higher score indicating a greater level of **problems** in interpersonal functioning. The scores range from 32-64, indicating mild interpersonal problems, range from 65-128, referring to a moderate level, and from 129-192, reflecting a severe level of problems in interpersonal functioning. With Cronbach's alpha ($= 0.863$), the FIAT-Q-SF has been shown to have high validity and reliability (**Singh & O'Brien, 2017**).

Method:

- Official approval was issued from the Research Ethics Committee, Nursing Faculty, Alexandria University for the study settings to obtain permission to collect the necessary data.
- Official permission was obtained from the responsible authorities of the Faculty of Nursing, Alexandria University.
- Socio-demographic and clinical datasheets of older adults (the tool I) were developed by the researchers.
- The **SI-R** (tool II) and **FIAT—Q-SF** (tool III) were translated into the Arabic language and then reviewed by bilingual experts in the fields of gerontological and psychiatric nursing and mental health.
- A jury composed of five experts in the fields of gerontological and psychiatric nursing and mental health was convened to test the face and content validity of the study tools and to evaluate their comprehensiveness, clarity, relevance, and applicability. The jury confirmed that the tools were valid.
- A **pilot study** was performed on 20 older adults who were not included in the study subjects to assess the applicability, clarity, and feasibility of the study tools. Respectively, no modifications were needed.
- The internal consistency of the study tools was examined by using the Alpha Cronbach's test. Tools

II and III were both highly reliable (= 0.949 and 0.863, respectively).

Actual study:

- For starting the actual study, a list of all registered older adults was obtained from the census of the two clubs' directors.
- The older adults were randomly selected from a software list using a **simple random technique via the computer**.
- A **structured interview schedule** was conducted with each randomly recruited participant to establish rapport and collect the necessary data after explaining the aim of the study and obtaining his written consent.
- The study participants were reassured about the anonymity and confidentiality of their responses.
- General precautionary measures were implemented during all phases of data collection, including wearing masks, washing hands, and keeping a social distance.
- Data collection was done during the period from February 20th, 2021, to August 2021.

Ethical Considerations

Throughout the study, the following ethical steps were considered:

- Informed written consent was obtained from each study subject after clarification of the purpose of the study.
- The privacy of the study subjects, the confidentiality of the collected data, and anonymity were maintained.
- It was emphasized to older adults that they could participate in and withdraw from the study at any time.

Data Analysis:

- After the data was gathered, it was reviewed, coded, and fed to IBM SPSS (Statistical Package for Social Science program, version **26** was used for data analysis.
- Ranges (minimum and maximum), means, standard deviations, numbers, and percentages were used to describe quantitative data.
- The reliability of tools was assessed using Cronbach's Alpha test.
- The correlations between two quantitative variables were assessed using the Pearson coefficient.
- All statistical analysis was done using two-tailed tests such as the Pearson Chi-Square test and a one-way ANOVA test.
- The level of significance selected for this study was a p-value equal to or less than 0.05 and 0.01.

Results

Table (1): Distribution of the studied older adults according to their socio-demographic and clinical data.

Socio-demographic data	Total (N=200)	
	Frequency	%
Age (years)		
▪ 60-	77	38.5
▪ 65-	99	49.5
▪ 70+	24	12.0
Min. – Max.	60.0 – 83.0	
Mean ± SD.	66.04 ± 4.615	
Sex		
▪ Female	111	55.5
▪ Male	89	44.5
Marital status		
▪ Married	122	61.0
▪ Widowed	66	33.0
▪ Divorced	12	6.0
level of education		
▪ Basic education	79	39.5
▪ Secondary education	56	28.0
▪ University and more	65	32.5
Occupation before retirement		
▪ Employee	96	48.0
▪ Housewives	57	28.5
▪ Craft and commercial workers	47	23.5
Living arrangement		
▪ Husband/wife	120	60.0
▪ With one of the sons	56	28.0
▪ Alone	24	12.0

Table (2): Distribution of the studied older adults according to their clinical data.

Clinical data	Total (N=200)	
	Frequency	%
Medical history of chronic diseases		
▪ No	13	6.5
▪ Yes #	187	93.5
▪ Hypertension	111	59.3
▪ Diabetes mellitus	81	43.3
▪ Heart diseases	52	27.8
▪ Other diseases	55	29.4
Consuming medications		
▪ Yes #	185	92.5
▪ Antihypertensive medications	111	60.0
▪ Anti-diabetic medications	81	43.8
▪ Cardiovascular medications	52	28.1
▪ Vitamins and Minerals	80	43.1

Multiple responses questions

Table (3): Distribution of the studied older adults according to their hoarding behaviors.

Hoarding behaviors	(N=200)	
	No.	%
Clutter		
▪ Mild	68	34.0
▪ Moderate	111	55.5
▪ Severe	21	10.5
Saving		
▪ Mild	64	32.0
▪ Moderate	111	55.5
▪ Severe	25	12.5
Difficulty discarding		
▪ Mild	56	28.0
▪ Moderate	108	54.0
▪ Severe	36	18.0
Total hoarding behaviors*		
▪ Mild	57	28.5
▪ Moderate	121	60.5
▪ Severe	22	11.0

* Mild (0 – 30)

Moderate (31 – 61)

Severe (62 – 92)

Table (4): Distribution of the studied older adults according to their interpersonal relationships.

Interpersonal Relationships	(N=200)	
	No.	%
Avoidance of Interpersonal Intimacy		
▪ Low	7	3.5
▪ Moderate	140	70.0
▪ High	53	26.5
Argumentativeness or Disagreement		
▪ Low	34	17.0
▪ Moderate	122	61.0
▪ High	44	22.0
Connection and Reciprocity		
▪ Low	52	26.0
▪ Moderate	131	65.5
▪ High	17	8.5
Conflict Aversion		
▪ Low	12	6.0
▪ Moderate	128	64.0
▪ High	60	30.0
Emotional experience and Expression		
▪ Low	24	12.0
▪ Moderate	165	82.5
▪ High	11	5.5
Excessive Expressivity		
▪ Low	45	22.5
▪ Moderate	124	62.0
▪ High	31	15.5
Total interpersonal relationship*		
▪ Moderate	174	87.0
▪ High	26	13.0

*Low (32 – 64)

Moderate (65 – 128)

High (129 – 192)

Table (5): Relationship between the studied older adults' hoarding behaviors and their interpersonal relationships.

Hoarding Behaviors	Interpersonal Relationships				Test of Significance	
	Moderate		High			
	No.	%	No.	%	Pearson Chi-Square	Sig.
▪ Mild	56	98.2%	1	1.8%		
▪ Moderate	111	91.7%	10	8.3%		
▪ Severe	7	31.8%	15	68.2%		
Total	174	87.0%	26	13.0%		

*Value of $p \leq 0.05$ (significant)

Table (6): linear regression between the studied older adults' hoarding behaviors and their interpersonal relationships

Items	Interpersonal Relationships						
	R	R Square	F	Sig.	B	T	Sig.
Hoarding Behaviors	0.555	0.308	88.282	0.000*	0.607	9.396	0.000*

Dependent Variable: Interpersonal Relationships

Predictors: (Constant), Hoarding Behaviors

F (ANOVA) *Value of $p \leq 0.05$ (significant)

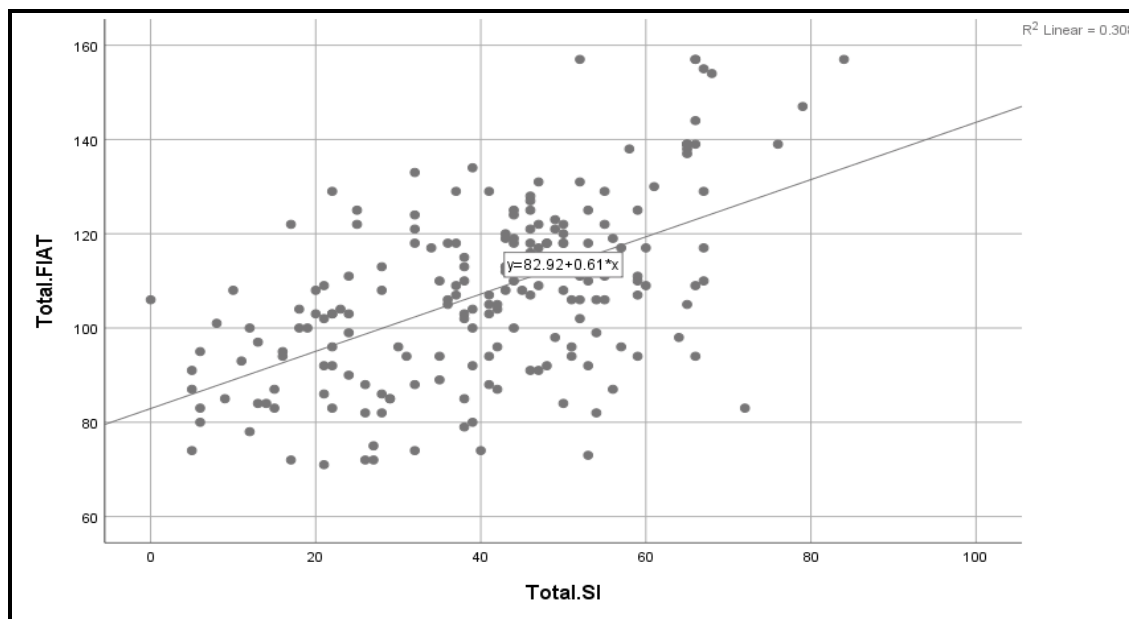


Figure (1): Model of linear regression of the studied older adults'

Table (1): Indicates that the mean age of the studied older adults is 66.04 ± 4.615 years and ranges from 60 to 83 years. 49.5% of the studied older adults are between 65 and 70 years of age. 55.5% of the studied older adults are female and 44.5% of them are male. Concerning marital status, 61% of the studied older adults are married, and 33% of them are widowed. Regarding the education level, 39.5% of the studied older adults have a basic education, followed by

32.5% of them having a university education and more. As for the older adults' previous occupations, this table shows that 48% of them were employees. Concerning living arrangements, 60% of the studied older adults reported living with their husband or wife, while 12% of them lived alone.

Table (2): Shows that 93.5% of the study's older adults have chronic diseases. Hypertension, diabetes mellitus, and heart diseases are the most prevalent

chronic diseases, which were reported by 59.3%, 43.3%, and 27.8% of the study's older adults, respectively. Regarding medication consumption among participants, 60.0% reported taking antihypertensive medications, 43.8% of them using anti-diabetic medications, and 28.1% of them taking cardiovascular medications.

Table (3): Illustrates the distribution of the studied older adults according to their hoarding behaviors, which were explored under 3 subscales as follows: clutter, difficulty discarding, and acquisition. Concerning the clutter subscale, it is noticed that 55.5% of the studied older adults have moderate clutter. Regarding saving or acquisition, this table indicates that 55.5% and 12.5% of the studied older adults have a moderate or severe tendency for object acquisition, respectively. As for difficulty discarding, this table shows that 54% of the studied older adults have moderate difficulty discarding objects, while 28% of them have mild difficulty discarding objects. Concerning the whole hoarding behavior, it is noticed that 60.5% and 28.5% of the studied older adults have moderate and mild hoarding behaviors, respectively.

Table (4): Shows that 70.0% of the studied older adults moderately avoid interpersonal intimacy, while 26.5% of them highly avoid it. Regarding older adults' argumentativeness or disagreement, it is noticed that 61% of the studied older adults are moderately argumentative in their interpersonal relationships. Concerning connection and reciprocity, it is found that 65.5% of the studied older adults have moderate problems in their connection and reciprocity parts of interpersonal relationships. As for the presence of conflict, this table indicates that 64% and 30% of the studied older adults have moderate and high conflict in their interpersonal relationships, respectively. Regarding the studied older adults' emotional experiences and expressions, this table shows that 82.5% of them have moderate problems with their emotional experiences and expressions. Also, it is noted that 62% of the studied older adults have moderate to excessive expressivity. Concerning the studied older adults' overall interpersonal relationships, it can be concluded that 87% and 13% of them reported having moderate and higher problems in their interpersonal relationships, respectively.

Table (5): Illustrates that 98.2% of the studied older adults who have mild hoarding behaviors experience moderate problems in their interpersonal relationships. Also, it can be noticed that 91.7% and 8.3% of the studied older adults who have moderate hoarding behaviors reported having moderate and higher problems in their interpersonal relationships, respectively. On the other hand, this table shows that 68.2% of the studied older adults who have severe

hoarding behaviors experience higher problems in their interpersonal relationships.

Table (6): Indicates the relationship between the older adults' hoarding behavior and their interpersonal relationships by using linear regression. In this model, the hoarding behavior is expressed as an independent variable while the interpersonal relationship is expressed as a dependent variable. The result of the regression model demonstrated that there is a significant relationship between older adults' hoarding behaviors and their interpersonal relationships as ($t = 9.396$ and $P = 0.000$). Also, this table shows that older adults' hoarding behavior causes an increased problems in their interpersonal relationships by 30.8% ($R^2 = 0.308$). By referring to the value and its P-value ($F = 88.282$, $P = 0.000$), it can be concluded that the model is valid and there is a correlation between older adults' hoarding behavior and their interpersonal relationship problems as follows: ($y = 82.92 + 0.61 * X$).

Figure (1): Model of linear regression of the studied older adults' hoarding behaviors and their interpersonal relationships. From this figure, it can be noticed that the model is valid and that there is a correlation between older adults' hoarding behavior and their interpersonal relationship problems as follows: ($y = 82.92 + 0.61 * X$).

Discussion

The strong urge to acquire possessions and the persistent difficulty letting go of these possessions that have little use or value is called hoarding behavior (Ayers & Dozier, 2015). The accumulation of clutter in the home could lead to congested living areas, greatly compromise the proposed use of it, and even result in unsafe living conditions. Hoarding behaviors are a complicated, multifaceted condition that is not easily understood or treated. The literature paints a clear picture of older adults with hoarding behaviors as a vulnerable population (Burnett et al., 2014; Grisham et al., 2018 & Eliza et al., 2019). Late-life hoarding behaviors could cause important impairments or distress in their functioning, activities of daily living, interpersonal relationships, and occasionally social isolation that could contribute to a new psychiatric or medical disorder (Raines et al., 2014). Hence, this study aimed to assess the late life hoarding behaviors and interpersonal relationships.

The present study revealed that more than two-thirds of the studied older adults exhibited moderate-to-severe levels of hoarding behaviors. These findings are in concert with Snowdon & Halliday (2011), who found that sixty-six percent of elderly people had moderate-to-high levels of significant hoarding activity. As well, Tolin & Villavicencio, (2011)

reported in their study that a greater occurrence of further severe symptoms among hoarding individuals starts at age sixty-five years and persist into old age. The key explanation for these results could be related to the decline in the physical and cognitive functions in the zones of executive function, working memory, and attention that are connected with the normal ageing process. It was documented by **Mackin et al. (2011) & Morein-Zamir et al. (2014)** that executive dysfunction such as categorization, maintaining attention, problem-solving tasks, and use of feedback specifically was linked with compulsive hoarding behavior. Previous studies provide evidence that frontal lobe dysfunction could contribute to information processing difficulties and maladaptive beliefs, which together have a serious role in late-life hoarding (**Dozier et al., 2016 & Davidson, et al., 2019**).

From another perspective, older adults throughout their lifespan might experience a lot of losses (functional, cognitive, physical, and social) that could exacerbate their emotional attachment to objects, save items, and have difficulties discarding them. Some evidence has emphasized the association between hoarding and attachment, as it was found that it increased with anxious and fearful attachment and decreased with secure attachment (**Raines et al., 2014 & Roane et al., 2017**).

Nowadays, a countless number of stressors, such as the novel coronavirus with its multiple mutations and worries around its vaccination, particularly among older people, have gained momentum as a potential risk factor for increased hoarding behaviors. Recent research has reported a significant correlation between late-life hoarding behaviors and distress intolerance, emotional reactivity, and indecisiveness (**Grisham et al., 2018 & Eliza et al., 2019**). Elevated distress intolerance among the elderly could play a significant role in reinforcing their avoidance of discarding and excessive acquisition of possessions (**Roane et al., 2017**).

The study findings revealed that a moderate to a high level of interpersonal relationship problems were reported by most of the studied older adults. This finding is consistent with the results of **Vanderhorst & McLaren (2005)**, who implied that having fewer social support resources was linked with greater levels of suicidal ideation and depression among older adults. One possible explanation for these results is the high level of interpersonal sensitivity among the elderly that normally develops with the ageing process, which would make them more vulnerable to interpersonal problems.

A significant relationship between hoarding behaviors and interpersonal relationship problems among the studied older adults was demonstrated in the current

study. This finding is consistent with previous research that found a link between social isolation and hoarding symptom severity in older adults (**Koeing et al., 2013; Burnett et al., 2014**). **& Grisham et al. (2018)** found that individuals with hoarding behaviors had increased interpersonal problems relative to healthy individuals and did not differ from those diagnosed with mood and anxiety disorders. According to (**Ayers & Dozier, 2015**), disruptions in caregiver and/or family relationships undesirably influence social well-being and isolation of various sorts significantly occur in the appearance of late-life hoarding.

These findings may be related to previous research that found individuals with hoarding behaviors to have high levels of attachment-related anxiety and avoidance (**Crone, et al., 2019 & Grisham et al., 2018**). Older adults with attachment-related avoidance patterns tend to explore the environment with little direction from their caregivers. Those elderly often learned to inhibit their attachment behaviors, as they had been constantly ineffective in obtaining care from the attachment figure. Meanwhile, older adults with attachment-related anxiety patterns exhibit minimal exploration. They are highly worried by separations and have difficulty releasing tensions during reunions, demonstrating an ambivalent mixture of clinging behavior and anger. Thus, they often form attachments with possessions instead of attachments with people's references (**Chia et al., 2021**).

Another possible element that could explain these results is emotion regulation difficulties. Some studies have shown that those individuals with hoarding behaviors report greater emotion dysregulation compared to community controls (**Kyrios, et al., 2018 & Taylor, et al., 2019**). The elderly with hoarding behaviors tends to use maladaptive emotion regulation strategies such as expressive suppression. The recurrent usage of expressive suppression is by no means considered a specific risk factor for the accumulation of negative emotions such as irritability, anger, and hostility, which could impair their interpersonal relationships (**Crone, et al., 2019**).

An alternative explanation is that hoarding behaviors in late life may act as a catalyst that causes more stress in their interpersonal relationships. These could be reflected in family members' interactions that were recognised in the previous studies as "a highly expressed emotion interpersonal style" (**Ayers & Dozier, 2015 & Kyrios, et al., 2018**). This style is known for expressing strong emotions such as hostility, aggression, and critical comments between family members that could cause more frustration and increase the severity of hoarding symptoms among

older people (Neziroglu, et al., 2020). These findings, in contrast, differ from those of Grisham et al. (2018), who claimed that while hoarding-related beliefs were associated with interpersonal difficulties, the association was weak, and mood was the more powerful predictor.

Conclusion

Based on the results of the current study, it can be concluded that most older adults exhibit moderate-to-high levels of hoarding behaviors, and almost all of them have the same levels of interpersonal relationship problems. Evidence of an association between hoarding behaviors and interpersonal relationship problems is found. Finally, their hoarding behaviors affect their interpersonal relationships.

Recommendations

Considering the following recommendations can be made:

Recommendations geared toward nursing staff:

- Delivering face-to-face or online videos or tele-mental health applications, psychoeducational programmes for the elderly, family members, relatives, neighbors, and their friends regarding hoarding behaviors and how they can affect their interpersonal relationships.
- Implementing Cognitive Interpersonal Therapy, Social Skills Training, Interpersonal Social Rhythm Therapy, Compensatory Skills, Attention Retraining, Cognitive Restructuring, and Dialectical Behavior Therapy for those elderly with hoarding behaviors to modify the severity of their interpersonal relationships' problems.
- Refining the elderly person's activity schedule to include relaxation techniques such as Deep Breathing Exercises, Mindfulness Meditation, Mental Imagery, and Laughter Yoga Exercises to decrease the urge to clutter possessions.

Recommendations for future research:

- A longitudinal study that notices the presentation of hoarding behaviors in older people over time could aid in identifying the aetiology of hoarding symptoms and permit significant assessment of therapeutic interventions.
- Empirical research to explore hoarding behaviors at earlier stages needs to be done to intervene earlier.

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