JOURNAL of AGING and LONG-TERM CARE

A New 21st Century Initiative from TURKEY

ISSN: 2619-9017 | E-ISSN: 2618-6535
Volume: 5 - 2022

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EMRE SENOL-DURAK

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A Journal of the National Association of Social and Applied Gerontology (NASAG) - Turkey

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Publication

The Journal of Aging and Long-Term Care (JALTC) is a journal of the National Association of Social and Applied Gerontology (NASAG) in Turkey. JALTC is published in three issues per annual volume.

ISSN

ISSN: 2619-9017 | E-ISSN: 2618-6535

Supporting Organization

The National and Applied Gerontology Association (NASAG) is a leading non-profit organization in Turkey that promotes healthy and productive aging via evidence-based research. The utilization of multidisciplinary and interdisciplinary research in gerontology is crucial in integrating research, practice, and policy, given the need for evidence-based programming to improve the quality of life in old age. As an advocate for social action for older people, the NASAG is particularly concerned that public policies are strongly and genuinely focused on supporting and protecting the most vulnerable, marginalized, or disadvantaged older people.

Address of NASAG: Ulusal Sosyal ve Uygulamalı Gerontoloji Derneği, Liman Mahallesi, 27. Sok. Tunalı Apt. No: 26/C, Antalya, Turkey, Tel. +90 242 259 26 86, Fax. +90 242 259 38 62, http://www.geroder.com.

Printed in Turkey.

Subscription

The Journal of Aging and Long-Term Care (JALTC) is published by NASAG, Liman Mahallesi, 27. Sok. Tunalı Apt. No: 26/C, Antalya, Turkey. Subscriptions can only be used on a per calendar-year basis.

Individual Rates for Print: Annual subscription in 2022, $400 for institutions and $200 for individuals.

Individual Rates for Online: All articles are available on the website of the journal with membership. The full text of the JALTC is available online at http://www.agingandlongtermcare.com.

Payment: Payment may be made by check, international money order, or credit card to Ulusal Sosyal ve Uygulamalı Gerontoloji Derneği, Liman Mahallesi, 27. Sok. Tunalı Apt. No: 26/C, Antalya, Turkey.

Indexing/Abstracting

Academic Journal Index, Academic Resource Index, Asos Index, Base, Cite Factor, Cosmos, Cross-Ref, Google Scholar, I2OR, Journal Factor, Open AIRE, Root Indexing, Scientific Indexing Service, & WordCat

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Web: http://www.agingandlongtermcare.com

JOURNAL of AGING and LONG-TERM CARE

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ISSN 2619-9017 | E-ISSN 2618-6535

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The Association Between Types of Chronic Diseases and Anxiety or Worry in Older Adults

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2022, 5(3), 41-58 | **DOI**: 10.51819/jaltc.2022.1227626

Received: May 17, 2022 | Accepted: December 1, 2022 | Publish Online: December 31, 2022

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ABSTRACT

Among several psychological problems, anxiety has been particularly accepted as a commonly seen disorder among older adults by several epidemiological studies around the world. Nevertheless, even though anxiety disorders are the most prevalent mental disorders among older individuals, there has not been much attention on some critical aging-related issues. Our research uncovers connections between many medical conditions and anxiety symptoms. The innovative aspect of our study is the evaluation of the use of extensive and validated measures for geriatric anxiety, trait anxiety, and worry, as well as associations between the number of diseases and types of diseases with those measures in a sample of older Turkish individuals living in their homes. The study is conducted with older adults (N = 246) living in their homes. The Geriatric Anxiety Inventory, the State-Trait Anxiety Inventory—Trait Form (STAI—T), and the Brief Version of Penn State Worry Questionnaire (B-PSWQ) have been applied to them with their self-report of types of physical diseases. Results revealed that older adults with two or more diseases reported higher geriatric anxiety and worry than older adults with one disease or no disease. Regarding the types of diseases, older adults suffering from diseases of the digestive system, rheumatic and musculoskeletal diseases, neurological disorders, and urinary system diseases have higher geriatric anxiety, trait anxiety, and worry scores than the ones who have not. Considering the results of the present study, a combination of medical treatment and psychotherapy is essential.

KEYWORDS: Older Adults; Anxiety; Worry; Diseases; Cardiovascular; Respiratory; Digestive; Musculoskeletal; Sensory; Endocrine; Neurological; Brief Version Penn State Worry Questionnaire; B-PSWQ.

KEY PRACTITIONER MESSAGE

1. Assessing and improving social and physical well-being should be the primary focus of scientific work with older people.
2. It is necessary to create long-term plans to overcome late-life affective issues in the general population.
3. Combination of medical treatment and psychotherapy is essential to overcome health-related difficulties.
4. Policy strategies to monitor several health problems among older adults are necessary since some types of diseases are significantly related to psychological problems.
5. In the future, older people who have trouble getting around will be able to get teleconsultations on their smartphones.

INTRODUCTION

The number of people aged 60 and up will increase by 125 billion by 2050, accounting for 22% of the global population (UN, 2013). Today, one out of five people is presented in the "old age" population category, whereas it is expected in the future that one out of every three people in the population will be in the "old age" category (Lenze & Wetherell, 2011). Considering the aging world, it is crucial to look at the particular needs of older persons to address age-related concerns. Several age-sensitive variables increase older adults' risk of suffering illnesses (Wolitzky-Taylor, Castriotta, Lenze, Stanley, & Craske, 2010). Exploring the special needs of older adults is essential to overcome the problems arising among the aging population, who are more likely to have poorer social connections.

The need for social connection is a deeply ingrained human trait that has evolved alongside neural, hormonal, and genetic mechanisms that are directly connected to adhesion, togetherness, and group behavior as a crucial means of survival (Cacioppo & Hawkley, 2009). When social connection needs have not been met, individuals are more likely to perceive threats which results in the suppression of the immune system. Therefore, it is considered that several health problems have risen due to precipitating value of low social ties. Older adults tended to suffer from more physical and psychological disorders and less social interaction (Gould, O'Hara, Goldstein, & Beaudreau, 2016; Hawkley & Kocherginsky, 2018; Nicholson, 2012).

Heart disease, lung disease, gastrointestinal illness, sensory loss, rheumatoid arthritis, cancer, chronic pain, and diabetes are all frequent physical complaints of older adults (El-Gabalawy, Mackenzie, Shooshtari, & Sareen, 2011). Psychologically, depression (Santini et al., 2020; Wetherell et al., 2010), anxiety (El-Gabalawy et al., 2011; Richardson, Simning, He, & Conwell, 2011; Santini et al., 2020; Wolitzky-Taylor et al., 2010), somatization (Wetherell et al., 2010) and health-related anxiety (El-Gabalawy, Mackenzie, Thibodeau, Asmundson, & Sareen, 2013) have been largely seen among older adults living in different countries.

Physical health issues may be major predictors for severe psychological problems later in life, especially if they are accompanied by significant discomfort and incapacity (such as health anxiety, El-Gabalawy et al., 2013, anxiety Wolitzky-Taylor et al., 2010). It is recommended to investigate the interactions between physical ailments and anxiety as people age (Wolitzky-Taylor et al., 2010).

A condition of total physical, mental, and social well-being, rather than just the absence of disease or infirmity, is what the World Health Organization (WHO) defines as being in good health (WHO, 2022). Health-related problems have been commonly

observed among older adults. It is largely known that older adults have more than one health problem, and age-specific vulnerabilities increase the risk of comorbidity (Wolitzky-Taylor et al., 2010) and mortality (El-Gabalawy et al., 2013). Suffering from multiple health problems is reported to affect psychological issues. For instance, during COVID-19, it has been reported that older adults having more than four health problems have reported higher loneliness scores (Wong et al., 2020). Besides, compared with their previous status before COVID-19, they reported higher anxiety and insomnia problems during COVID-19. Another example has presented the association with the presence of health and anxiety in a nationally representative Canadian sample (N = 12792) (El-Gabalawy et al., 2011). When physical health issues are present, the likelihood of any assessed anxiety disorder increases. Anxiety is more likely to occur in older persons with health issues, and this comorbidity is linked to worse self-reported health than anxiety or medical issues alone. When examining the association between types of physical illnesses and anxiety, it has been discovered that older adults with cataracts, heart diseases, chronic pain conditions (migraine, arthritis, back pain), allergies, gastrointestinal problems, and lung diseases have higher anxiety scores.

In this study, it is pointed out that many comorbid physical illnesses increase anxiety. After controlling for potential confounders, the incidence of anxiety with allergies, cataracts, arthritis, and lung disease contributed to lower self-rated physical and/or mental health.

Researchers have examined older adults living in different places to describe the effect of psychological disorders on physical illnesses. For instance, in a study conducted with community-dwelling participants (N = 4219), older adults with higher anxiety and depression levels have been predicted among those who have arthritis, cancer, diabetes, heart conditions, high blood pressure, lung disease, stroke (Gould et al., 2016). Older adults with multiple chronic problems reported higher anxiety scores than their counterparts. Another study conducted with community-dwelling older adults reveals that participants with five or more physical illnesses have higher anxiety levels than others (Richardson et al., 2011). Also, higher pain scores and anxiety are associated with each other.

Several studies have mentioned the relationship between older adults with specific health problems and psychological symptoms. An extensive study conducted in the United States (N = 7584) revealed that older persons with visual impairment reported higher rates of depression and anxiety than those without visual impairment. A significantly greater incidence of depression was reported by 31% of people with visual impairment compared to 12.9%

of those without visual impairment. Similarly, 27.2% of those with visual impairment reported high anxiety, compared to 11.1% of people without visual impairment (Frank, Xiang, Stagg, & Ehrlich, 2019). Also, based on longitudinal data, it has been reported that self-perceived vision status at the beginning of data collection has related to future depression levels higher depression but not anxiety. In another study conducted with geriatric inpatients, older adults with generalized anxiety disorder and medical diseases reported higher depression, anxiety, and somatization scores than older patients with gastrointestinal problems and diabetes (Wetherell et al., 2010). It is pointed out that older adults with gastrointestinal problems and diabetes use anxiety to monitor their health status; therefore, they benefit from anxiety. Those studies reveal that perceived health status, comorbid illnesses, and types of illnesses are important clues for future psychological problems.

Among several psychological problems, anxiety has been particularly observed among older adults by several epidemiological studies around the World (Wolitzky-Taylor et al., 2010). Besides, when compared with depression, anxiety is more likely to be an important parameter for multimorbidity (Gould et al., 2016) and psychological burden (Bandelow & Michaelis, 2015). Nevertheless, even though anxiety disorders are the most prevalent mental illnesses among older people, there has not been much focus on several important difficulties (Lenze & Wetherell, 2011). However, studies with older adults have focused on risk factors such as socio-demographic variables rather than the role of medical illnesses in anxiety (Wolitzky-Taylor et al., 2010). Besides, many studies have been conducted over the past ten years about anxiety disorders' prevalence, progression, and treatments and how they affect aging (Lenze & Wetherell, 2011).

The primary goal of this research was to investigate the psychometric features of the Brief Version of the Penn-State Worry Questionnaire. The second objective of this study is to examine the associations between certain diseases and geriatric anxiety, trait anxiety, or worry. The final purpose of the study is to discover associations between various diseases and geriatric anxiety, trait anxiety, or worry. The innovative aspect of our study is the evaluation of the use of extensive and validated measures for worry and anxious emotions, as well as their correlation with diseases in a sample of older Turkish individuals living in their homes.

METHOD

Participants

The current study had a total of 246 participants, 140 of whom were women (56.9% of the total) and 106 of whom were men (43.1%). The ages of the participants

ranged from 60 to 94 years old, with a mean of 71.22 years and a standard deviation of 7.51 years. Regarding education, most participants (28.0%; n = 69) had completed elementary school, and 22% (n = 54) reported they were literate but had not completed high school. The remaining education levels were made up of high school graduates (17.5%; n = 43), university bachelor or higher graduates (17.5%; n = 43), secondary school graduates (8.9%; n = 22), and those who did not identify their education level (6.1%; n = 15).

Measures

In addition to the demographic information form, the Geriatric Anxiety Inventory, the State-Trait Anxiety Inventory—Trait Form (STAI—T), and the Penn State Worry Questionnaire (PSWQ) were used.

The Geriatric Anxiety Inventory (GAI) is a 20-item rated agree/disagree scale. It was developed particularly for assessing anxiety in older adults (Pachana et al., 2007) and adapted to Turkish culture by Durak and Senol-Durak (2021). The GAI is a well-liked tool for measuring the level of anxiety in older people getting care in the community, primary care settings, or geriatric institutions. The original inventory got a score between 0.91 and 0.93, and the Turkish version got a score of 0.94 on tests of internal consistency. The results for validity were equally outstanding in terms of concurrent and discriminant validity.

The State-Trait Anxiety Inventory-Trait Form (STAI-T) was developed by Spielberger, Gorsuch, and Lushene (1970) to assess trait anxiety, which is the propensity to detect, experience, and report anxiety in a variety of settings. This self-report measure consists of 20 questions, each of which may be answered on a range from 1 (almost never) to 4 (almost always). The scale was adapted into Turkish by Öner and Le Comte (1998) Internal consistency of the scale ranged from .83 to .87 (in a community sample and a sample of psychiatric patients).

The Brief Version of Penn State Worry Questionnaire (B-PSWQ) is a five-item short version (Topper et al., 2014) of the original scale developed by Meyer et al.(1990) to evaluate worry tendencies. The original questionnaire has 16 items, of which four are reversed, and is rated on a 5-point Likert Scale. The questionnaire has a unidimensional factor structure. In the present study, researchers translated the brief version of the Questionnaire into Turkish and used it for its practical utility for older adults. The results section provides evidence of the questionnaire's reliability and validity, demonstrating its psychometric suitability for studies involving older individuals in Turkish culture.

Types of Chronic Diseases: The existence or absence of seven prevalent physical health problems has been assessed using the International Classification of Disease system 10th Version (ICD-10) Health Problems Classification systems. Conditions are grouped

together if they have similar clinical representations. Other conditions due to their low prevalence (e.g., epilepsy) in the study population are removed from the study. The following physical health issues are evaluated: (a) Cardiovascular/Respiratory System Diseases, (b) Diseases of the Digestive System, (c) Rheumatic/Musculoskeletal Diseases, (d) Sensory System Diseases, (e) Endocrine/Metabolic Disorders, (f) Neurological Disorders and (g) Urinary System Diseases. The older are asked about the diseases for which they receive treatment. Several conditions from the available options may be reported.

Procedure

Before the data collection phase, two native English-speaking translators who also spoke Turkish turned B-PSWQ items into Turkish; after that, the authors of the manuscript, who are psychologists who speak Turkish and are fluent in English, checked the accuracy of the item translations. Then, the items on the scale were translated backward from English to Turkish. Psychometric aspects were tested for significance. The measures were given to older adults living at home using snowball sampling. All participants were informed of the goal of the present study, and their permission was obtained.

RESULTS

The Correlations Among the Variables

The descriptive statistics of the variables, as well as the correlations among the variables, are shown in Table-1.

The Reliability and Validity of the PSWQ-B

The results reveal that the brief version of the Penn State Worry Questionnaire (PSWQ-Brief) has an excellent internal consistency of .94 and good item-total correlations, with values ranging from .78 (item 2) to .89 (item 5). For the purpose of determining concurrent validity, the scores on the PSWQ-Brief of the participants were compared to those of geriatric anxiety and trait anxiety.

It was shown that a positive correlation existed between the worry measured by the PSWQ-Brief and both geriatric anxiety ($r = .84$, $p = .001$) and trait anxiety ($r = .75$, $p = .001$) (see Table-1).

The Association Between the Number of Diseases and Anxiety or Worry

The associations between the number of diseases and geriatric anxiety, trait anxiety, and worry were tested by One-Way ANOVA (Table-2). The number of diseases is categorized into three groups: No illness-disorder, one illness-disorder, and two or more diseases-disorder.

Regarding the association between the number of diseases and geriatric anxiety, the One-Way ANOVA test result is significant [$F(2, 243) = 8.864$, $p = 2.28^{e-04}$, $\eta^2 = .067$]. According to the results of the Bonferroni correction post-hoc comparison, the older individuals who have two or more diseases ($M = 7.35$, $SD = 6.53$)

report higher geriatric anxiety scores than those who have no disease (M = 2.81, SD = 4.74) or one disease (M = 5.08, SD = 5.16).

Table-1. The descriptive statistics of the variables and the correlations among the variables (N = 246)

	1	2	3
1. Geriatric Anxiety		.73***	.84***
2. Trait Anxiety			.75***
3. Worry			
M	6.16	42.45	10.97
SD	6.03	9.79	5.84
Min.	0	20	5
Max.	20	50	25
PR	0-20	20-80	5-25

Note (1). ***p ≤ .001, **p ≤ .01, *p ≤ .05
Note (2). M = mean, SD = standard deviation, Min. = minimum, Max. = maximum, PR = possible range

Regarding the association between the number of diseases and trait anxiety, the One-Way ANOVA test result is significant [F (2, 243) = 8.252, p = 3.41^{e-04}, η^2 = .064]. According to the results of the Bonferroni correction post-hoc comparison, the older individuals who have one disease (M = 21.27, SD = 9.72) or two or more diseases (M = 24.18, SD = 9.31) are more anxious than those who have not any disease (M = 16.48, SD = 10.04).

Regarding the association between the number of diseases and worry, the One-Way ANOVA test result is significant [F (2, 243) = 8.272, p = 3.35^{e-04}, η^2 = .064]. According to the results of the Bonferroni correction post-hoc comparison, the older individuals who have at least two or more diseases (M = 12.05, SD = 5.97) reports higher worry scores than those who have no disease (M = 7.59, SD = 4.43) or one disease (M = 10.11, SD = 5.48).

The Association Between the Type of Diseases and Anxiety or Worry

To see the possible association between types of diseases and geriatric anxiety, trait anxiety, or worry, several independent sample t-test analyses are performed for cardiovascular/respiratory system diseases, diseases of the digestive system, rheumatic/musculoskeletal diseases, sensory system diseases, endocrine/metabolic disorders, neurological disorders, and urinary system diseases, separately.

Cardiovascular / Respiratory System Diseases

Independent samples t-test is performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to cardiovascular/respiratory system diseases.

Based on the geriatric anxiety results, older adults with cardiovascular/respiratory diseases (M = 6.75, SD = 6.22) report more geriatric anxiety than older adults who have not any cardiovascular/respiratory diseases (M = 5.21, SD = 5.62), t(244) = -1.953, p = .05, d = .26, r = .13; as expected, having cardiovascular/respiratory diseases is a vulnerability factor for geriatric anxiety among the ones who suffer from it (see Table-3).

Table-2. One-Way ANOVA results

	N	M	SD	F	df	p	η^2
			GERIATRIC ANXIETY				
No disease	27	2.81_a	4.74				
One disease	75	5.08_a	5.16	8.864	2, 243	2.28^{e-04}	.067
Two or more diseases	144	7.35_b	6.53				
			TRAIT ANXIETY				
No disease	27	16.48_a	10.04				
One disease	75	21.27_b	9.72	8.252	2, 243	3.41^{e-04}	.064
Two or more diseases	144	24.18_b	9.31				
			WORRY				
No disease	27	7.59_a	4.43				
One disease	75	10.11_a	5.48	8.272	2, 243	3.35^{e-04}	.064
Two or more diseases	144	12.05_b	5.97				

Note-1: The Bonferroni Correction Test was performed on each dependent variable to reduce type-1 errors (false-positive results). The findings indicate that means with different subscripts are considerably distinct from one another.

Based on the trait anxiety results, older adults with cardiovascular/respiratory diseases (M = 43.43, SD = 9.90) report more trait anxiety than older adults who have not any cardiovascular/respiratory diseases (M = 40.86, SD = 9.46), t(244) = -2.009, p = .05, d = .27, r = .13; as expected, having cardiovascular/respiratory diseases is a vulnerability factor for trait anxiety among the ones who suffer from the disease (see Table-3).

On the other hand, older adults with cardiovascular/respiratory diseases (M = 11.45, SD = 6.03) and older adults without cardiovascular/respiratory diseases (M = 10.19, SD = 5.46) are not significantly different from each other based on their worry scores, t(244) = -1.645, p = .10; as surprisingly, having or not having cardiovascular/respiratory diseases or is not statistically different based on worry scores (see Table-3).

Diseases of the Digestive System

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to digestive system disease. Based on the geriatric anxiety results, older adults with digestive system diseases (M = 7.84, SD = 6.65) report more geriatric anxiety than older adults who do not have any digestive system diseases (M = 5.73, SD = 5.81), t(244) = -2.220, p = .03, d = .034, r = .017; as expected, having digestive system diseases is a vulnerability factor for geriatric anxiety among the ones who suffer from it (see Table-3).

Based on the trait anxiety results, older adults with digestive system diseases (M = 45.44, SD = 9.14) report more trait anxiety than older adults who have not any digestive system diseases (M = 41.68, SD

= 9.83), t(244) = -2.445, p = .02, d = .40, r = .19; as expected, having digestive system diseases is a risk factor for trait anxiety among the ones who suffer from the disease (see Table-3).

Regarding worry results, older adults having digestive system diseases (M = 12.96, SD = 6.12) report more worry than older adults having not any digestive system diseases (M = 10.46, SD = 5.67), t(244) = -2.738, p = .01, d = .42, r = .21; as expected, having digestive system diseases is a vulnerability factor for worry among the ones who suffer from it (see Table-3).

Rheumatic and Musculoskeletal Diseases

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to rheumatic and musculoskeletal diseases. Based on the results, older adults with rheumatic and musculoskeletal diseases (M = 8.15, SD = 6.91) report more geriatric anxiety than older adults who do not have any rheumatic and musculoskeletal diseases (M = 5.60, SD = 5.66), t(244) = -2.277, p = .01, d = .40, r = .20; as expected, having rheumatic and musculoskeletal diseases is a risk factor for geriatric anxiety among the ones who suffer from it (see Table-3).

Regarding trait anxiety results, older adults with rheumatic and musculoskeletal diseases (M = 46.22, SD = 10.04) report more trait anxiety than older adults who do have not any rheumatic and musculoskeletal diseases (M = 41.39, SD = 9.48), t(244) = -3.269, p = .001, d = .49, r = .24; as expected, having rheumatic and musculoskeletal diseases is a vulnerability factor for trait anxiety among the ones who suffer from (see Table-3).

Based on the worry results, older adults with rheumatic and musculoskeletal diseases (M = 13.33, SD = 6.76) report more worry than older adults without rheumatic and musculoskeletal diseases (M = 10.30, SD = 5.39), t(244) = -3.444, p = .001, d = .50, r = .24; as expected, having rheumatic and musculoskeletal diseases is a risk factor for worry among the ones who suffer from (see Table-3).

Sensory System Diseases

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to sensory system diseases. Older adults with sensory system diseases and older adults without sensory system diseases are not significantly different from each other based on their geriatric anxiety scores, t(244) = .-771, p = .44; on their trait anxiety scores, t(244) = -.621, p = .54; on their worry scores, t(244) = -1.169, p = .24. Surprisingly, having sensory system diseases or not is not creating a meaningful change (see Table-3).

Endocrine and Metabolic Disorders

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to endocrine and

metabolic disorders. Older adults with endocrine and metabolic disorders and older adults without endocrine and metabolic disorders are not significantly different from each other based on their geriatric anxiety scores, t(244) = -1.349, p = .18; on their trait anxiety scores, t(244) = -.417, p = .68; on their worry scores, t(244) = -.381, p = .70. Interestingly, having endocrine and metabolic disorders or not is not creating a meaningful change (see Table-3).

Neurological Disorders

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to neurological disorders. Based on the geriatric anxiety results, older adults with neurological disorders (M = 10.10, SD = 5.86) report more geriatric anxiety than older adults having not any neurological disorders (M = 5.80, SD = 5.93), t(244) = -3.181, p = .001, d = .73, r = .34; as expected, having neurological disorders is a risk factor for geriatric anxiety among the ones who suffer from (see Table-3).

Based on the trait anxiety results, older adults with neurological disorders (M = 50.33, SD = 10.03) report more trait anxiety than older adults having not any neurological disorders (M = 41.71, SD = 9.46), t(244) = -3.973, p = .001, d = .88, r = .40; as expected, having neurological disorders is a vulnerability factor for trait anxiety among the ones who suffer from (see Table-3).

Regarding worry results, older adults with neurological disorders (M = 14.14, SD = 6.95) report more worry than older adults having not any neurological disorders (M = 10.67, SD = 5.65), t(244) = -2.637, p = .01, d = .55, r = .26; as expected, having neurological disorders is a vulnerability factor for worry among the ones who suffer from (see Table-3).

Urinary System Diseases

Independent samples t-test analyses are performed to explore whether geriatric anxiety, trait anxiety, or worry differs according to urinary system diseases. Based on the geriatric anxiety results, older adults with urinary system diseases (M = 9.25, SD = 6.33) report more geriatric anxiety than older adults without urinary system diseases (M = 5.63, SD = 5.84), t(244) = -3.393, p = .001, d = .59, r = .28; as expected, having urinary system diseases is a vulnerability factor for geriatric anxiety among the ones who suffer from (see Table-3).

Based on the trait anxiety results, older adults with urinary system diseases (M = 49.72, SD = 9.96) report more trait anxiety than older adults without urinary system diseases (M = 41.20, SD = 9.23), t(244) = -5.060, p = .001, d = .89, r = .41; as expected, having urinary system diseases is a risk factor for trait anxiety among the ones who suffer from (see Table-3).

Based on worry results, older adults with urinary system diseases (M = 13.28, SD = 5.69) report more

worry than older adults with no urinary system diseases (M = 10.57, SD = 5.79), t(244) = -2.599, p = .01, d = .47, r = .23; as expected, having urinary system diseases is a vulnerability factor for worry among the ones who suffer from (see Table-3).

DISCUSSION

According to the findings of several epidemiological studies conducted worldwide (Wolitzky-Taylor et al., 2010), older persons are more at risk for developing anxiety. Even though anxiety disorders are the most common kind of mental disease seen in those over 60, there has not been a lot of attention paid to a number of important issues (Lenze & Wetherell, 2011). The current study aims to examine associations between disease-related aspects (number and types of diseases) and geriatric anxiety, trait anxiety, or worry. In addition to examining the psychometric aspects of the brief version of the Penn-State Inventory, the present study will also examine worry and chronic disease relations.

The Brief Version of the Penn-State Inventory offers substantial results when analyzed using psychometric principles. It was proved through reliability estimates and validity with measures that were conceptually related that the scale could be used in Turkish in the same way it is used in other languages (Topper et al., 2014). Since it contains five questions, the scale is easily administered to adults over 60 to gauge their level of worry. Considering the number of diseases, older adults with two or more diseases reported higher levels of geriatric anxiety and worry compared to those with either no diseases or only one disease. Similar results have been demonstrated in other studies that people with a higher number of diseases have higher anxiety (Richardson et al., 2011) and loneliness (Wong et al., 2020). The result may be connected to the difficulties in treating the rising number of diseases, which are causing a variety of complications. Therefore, older adults might worry a lot about different diseases. In addition, an increasing number of diseases, as well as a higher score for geriatric anxiety, are associated. Older adults might be considered that disorders are related to aging. On the other hand, regarding trait anxiety, older adults with two or more diseases have reported higher scores than others with either one disease or no disease. It would appear that having multiple ailments simultaneously makes a person more prone to anxiety.

Regarding the types of diseases, older adults suffering from diseases of the digestive system, rheumatic and musculoskeletal diseases, neurological disorders, and urinary system diseases have higher geriatric anxiety, trait anxiety, and worry scores than the ones who have not. Evidence from other sources supports this conclusion (El-Gabalawy et al., 2011). It can be thought that these diseases have deep-

Table-3. One-Way ANOVA results

	N	M	SD	t	df	p	d	r
CARDIOVASCULAR / RESPIRATORY SYSTEM DISEASES								
DV: Geriatric Anxiety								
No disease	94	5.21	5.62	-1.953	244	.05	.26	.13
Disease	152	6.75	6.22					
DV: Trait Anxiety								
No disease	94	40.86	9.46	-2.009	244	.05	.27	.13
Disease	152	43.43	9.90					
DV: Worry								
No disease	94	10.19	5.46	-1.645	244	.10		
Disease	152	11.45	6.03					
DIGESTIVE SYSTEM DISEASES								
DV: Geriatric Anxiety								
No disease	196	5.73	5.81	-2.220	244	.03	.34	.17
Disease	50	7.84	6.65					
DV: Trait Anxiety								
No disease	196	41.68	9.83	-2.445	244	.02	.40	.19
Disease	50	45.44	9.14					
DV: Worry								
No disease	196	10.46	5.67	-2.738	244	.01	.42	.21
Disease	50	12.96	6.12					
RHEUMATIC AND MUSCULOSKELETAL DISEASES								
DV: Geriatric Anxiety								
No disease	192	5.60	5.66	-2.277	244	.01	.40	.20
Disease	54	8.15	6.91					
DV: Trait Anxiety								
No disease	192	41.39	9.48	-3.269	244	.001	.49	.24
Disease	54	46.22	10.04					
DV: Worry								
No disease	192	10.30	5.39	-3.444	244	.001	.50	.24
Disease	54	13.33	6.76					
SENSORY SYSTEM DISEASES								
DV: Geriatric Anxiety								
No disease	151	5.93	6.04	-.771	244	.44		
Disease	95	6.54	6.04					
DV: Trait Anxiety								
No disease	151	42.14	10.18	-.621	244	.54		
Disease	95	42.94	9.19					
DV: Worry								
No disease	151	10.62	5.91	-1.169	244	.24		
Disease	95	11.52	5.72					

Table-3. Continues...

	N	M	SD	t	df	p	d	r
ENDOCRINE AND METABOLIC DISEASES								
DV: Geriatric Anxiety								
No disease	187	5.87	5.99	-1.349	244	.18		
Disease	59	7.08	6.13					
DV: Trait Anxiety								
No disease	187	42.59	10.01	-.417	244	.68		
Disease	59	41.98	9.14					
DV: Worry								
No disease	187	10.89	5.95	-.381	244	.70		
Disease	59	11.22	5.53					
NEUROLOGICAL DISORDERS								
DV: Geriatric Anxiety								
No disease	225	5.80	5.93	-3.181	244	.001	.73	.34
Disease	21	10.10	5.86					
DV: Trait Anxiety								
No disease	225	41.71	9.46	-3.973	244	.001	.88	.40
Disease	21	50.33	10.03					
DV: Worry								
No disease	225	10.67	5.65	-2.637	244	.01	.55	.26
Disease	21	14.14	6.95					
URINARY SYSTEM DISEASES								
DV: Geriatric Anxiety								
No disease	210	5.63	5.84	-3.393	244	.001	.59	.28
Disease	36	9.25	6.33					
DV: Trait Anxiety								
No disease	210	41.20	9.23	-5.060	244	.001	.89	.41
Disease	36	49.72	9.96					
DV: Worry								
No disease	210	10.57	5.79	-2.599	244	.01	.47	.23
Disease	36	13.28	5.69					

Note-1: The Bonferroni Correction Test was performed on each dependent variable to reduce type-1 errors (false-positive results). The findings indicate that means with different subscripts are considerably distinct from one another.
Note-2: In the analyses where there was no significant difference between the groups, d and r values were not given in the table.

rooted consequences that are reflected in daily life. For instance, older adults with issues with their digestive systems are more likely to have acute anxiety and worry because they are psychologically distracted by concerns about what they should eat and drink at different times throughout the day. In addition, the constant pain experienced by those with rheumatic and musculoskeletal ailments can lead

them to dwell on "danger" ideas constantly. Therefore, older adults suffering from diseases of the digestive system, rheumatic and musculoskeletal diseases, neurological disorders, and urinary system diseases are more likely to preoccupy with anxiety and worry in their daily lives.

In particular, if physical health concerns are accompanied by significant discomfort and incapacity, they may be strong predictors of serious psychological disorders later in life (El-Gabalawy et al., 2013; Wolitzky-Taylor et al., 2010).

Besides, older adults suffering from cardiovascular/respiratory system diseases have higher geriatric anxiety and trait anxiety. There is no significant association with worry emotions among older adults having or not having cardiovascular/respiratory system diseases. This result may be attributed to the patient feeling they have control over the sickness due to receiving therapy. On the other hand, interestingly, older adults with sensory system diseases and endocrine and metabolic disorders or without suffering from those disorders do not make a difference in geriatric anxiety, trait anxiety, and worry scores.

In light of the fact that previous research has produced conflicting results (El-Gabalawy et al., 2011; Frank et al., 2019; Wetherell et al., 2010), it is strongly recommended that additional research be conducted to investigate the possibility of associations between those diseases and anxiety or worry. Additionally, self-reported health status may also be investigated in subsequent research due to the numerous findings that suggest an association between the two variables, including health status perception (El-Gabalawy et al., 2011), pain status (Richardson et al., 2011), and anxiety. In addition, the collection of longitudinal data from older persons suffering from various diseases sheds information on the causal correlations between the various disorders and anxiousness or worry.

Clinical Implications

Concerns regarding one's health are becoming increasingly widespread among a population that is getting older. As a result, the formulation of long-term strategies for the treatment of late-life affective disorders in the general population is of the utmost importance (Santini et al., 2020). Therefore, public policy strategies to monitor several health problems among them are necessary because some diseases (particularly those affecting older adults who suffer from diseases of the digestive system, rheumatic and musculoskeletal diseases, neurological disorders, urinary system, cardiovascular, and respiratory system diseases) are significantly related to psychological problems. The assessment and improvement of an older person's social as well as physical well-being should be the main emphasis of older adults (Nicholson, 2012).

When considering the current research findings, it is clear that patients need both medical treatment and psychotherapy. Several review studies highlight that combining medical treatment and psychotherapy increases cost-effectiveness (Lenze & Wetherell, 2011).

In monitoring older adults, teleconsultation recommended that some researchers use smartphones to distribute psychological intervention programs specifically for older adults with difficulty in mobility (Wong et al., 2020).

In conclusion, a higher number of diseases and geriatric anxiety, trait anxiety, or worry are associated. It is vital to keep an eye on a few different health issues prevalent among older adults to maintain not only one's physical but also one's mental health. It is necessary to treat with effective psychological treatment strategies due to the fact that certain diseases, such as those affecting the digestive system, rheumatic and musculoskeletal diseases, neurological disorders, urinary system, cardiovascular and respiratory system diseases, and neurological disorders in older adults, are significantly related to the perception of danger in day-to-day life. Concerns about a person's physical health, particularly if accompanied by acute discomfort and incapacity, can be substantial predictors of serious psychological disorders in later life.

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APPENDIX

The Brief Version of Penn State Worry Questionnaire (B-PSWQ)

Penn State Endişe Ölçeği - Kısa Form (PSEÖ-K)

Aşağıdaki ifadelerin her birini 1 ile 5 arasında derecelendiriniz. Lütfen hiçbir maddeyi boş bırakmayınız.

1 = Beni hiç anlatmıyor

5 = Tam olarak beni anlatıyor

	Beni hiç anlatmıyor				Tam olarak beni anlatıyor
1. Birçok durum beni endişelendiriyor	1	2	3	4	5
2. Bir şeyler hakkında endişelenmemem gerektiğini biliyorum ama elimde değil	1	2	3	4	5
3. Baskı altında olduğumda çok endişelenirim	1	2	3	4	5
4. Hayatım boyunca endişelendim	1	2	3	4	5
5. Bazı şeyler hakkında endişelendiğimi fark ettim	1	2	3	4	5

JOURNAL of AGING and LONG-TERM CARE

RESEARCH ARTICLE

ISSN 2619-9017 | E-ISSN 2618-6535

www.agingandlongtermcare.com • www.jaltc.net

Information and Assistance Needs and Expectations of Senior Residents in a Nursing Home in Singapore: Semi-structured Interviews With Senior Residents and Staff

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2022, 5(3), 59-78 | **DOI**: 10.51819/jaltc.2022.1180679

Received: September 27, 2022 | Accepted: October 25, 2022 | Publish Online: November 24, 2022

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ABSTRACT

Singapore, a young multi-racial and multi-religious city-state in Southeast Asia, is facing a demographic challenge—that of a rapidly falling birth rate and an increasingly aging population. By 2030, Singapore is expected to be a "super-aged" society, where more than 21% of its population will be 65 years of age or older, as defined by the Organization for Economic Cooperation and Development (OECD). Hence, the urban landscape in Singapore is also set to evolve. We expect to see more acute care hospitals, community hospitals, nursing homes, senior care centers, and senior activity spaces. As infrastructure and spaces for older persons, or seniors, become an increasingly more significant part of the built environment in Singapore, there is a need to explore how the design of the physical environment can improve the well-being of seniors and that staff, caregivers, family members as well as the larger community. In this paper, a brief look into nursing homes in Singapore is done, followed by the data and findings of a small-scale study involving semi-structured interviews that were carried out to explore the needs and expectations of senior residents in a nursing home in Singapore. In essence, this study found significant outcomes concerning the needs and expectations of nursing home residents, such as the desire for sustained social interaction, the preference for human-based assistance (rather than technology-based aid), and the penchant for independence (such as for food choices or having a variety of preferred daily activities) by seniors in their everyday lives. These inputs can be insightful and instrumental for the effective and user-centered design of new nursing homes in this rapidly aging city-state or other locales with similar demographics and settings.

KEYWORDS: Aging; Nursing Home; Older Persons; Singapore; Patient-Centric Design; User-Centric Design; User Expectations; User Needs.

KEY PRACTITIONER MESSAGE

1. Heading towards a "super-aged" society by 2030, Singapore's urban and built environment landscape will change, with more infrastructure and facilities, such as nursing homes, for older persons, or seniors, being built.
2. There is a need to explore how the design of the physical and built environment, particularly those based on "person-centric care" principles, can improve the well-being of seniors and that of staff, caregivers, family members, and the larger community.
3. This small-scale study in Singapore found that senior nursing home residents desire sustained or enhanced social interactions. However, the COVID-19 pandemic dampened both the frequency and extent of those interactions due to concerns with cross-infections.
4. It was also found that the senior residents prefer human-based assistance (rather than technology-based aid); and the desire for independence (such as for food choices or having a variety of preferred daily activities) in their everyday lives.
5. Although based on a highly contextual and small-scale study in Singapore, the findings and discussions in this paper share inputs that can be insightful and instrumental for the effective and user-centered design of new nursing homes in this rapidly aging city-state and other locales with similar demographics and settings.

INTRODUCTION

Singapore is a young multi-racial and multi-religious city-state in Southeast Asia. Despite being less than 60 years old as an independent nation, Singapore is a thriving urban cosmopolitan that is well-developed, globally connected, and with high broadband and internet penetration rates (Kemp, 2022). Nevertheless, Singapore is also facing a demographic challenge – that of a rapidly falling birth rate and an increasingly aging population. By 2030, it is estimated that 1 in 6 people globally will be aged 60 years and above (World Health Organization, 2022). By then, the proportion of the global population aged 60 years and above will increase from 1 billion (in the year 2020) to an estimated 1.4 billion (by the year 2030). Singapore is no exception to this changing demographic makeup. The Population Brief 2021 released by the Government of Singapore (2021) found that the proportion of Singapore citizens aged 65 years and above has been rising rapidly, where this demographic group is projected to increase from 17.6% to 23.8% by the year 2030 (Singapore Ministry of Health, 2021a).

The Singapore government has put in place *The Action Plan for Successful Ageing*, which is the "national blueprint to enable Singaporeans to age well and lead active lives, and to build a nation for all ages" (National Population and Talent Division, 2022). Under the S$3 billion (US$2.07 billion) Action Plan, a range of initiatives at the individual, community, and national levels are introduced to create more opportunities for seniors, or older Singaporeans, to be "meaningfully engaged, be part of a caring and inclusive society, and live well in a city where they can age gracefully and confidently in place." However, it is recognized that there are those among older persons, or seniors, who may also need a variety of intermediate and long-term care services. These include community and residential healthcare services such as community hospitals, home hospice care services, day rehabilitation centers, and nursing homes (Singapore Ministry of Health, 2021b).

In this study, a brief look into nursing homes in Singapore is done, followed by the data and findings of a small-scale study that was carried out to explore the needs and expectations of senior residents in a nursing home in Singapore – inputs which can be insightful and instrumental for the effective and user-centered design of new nursing homes in this rapidly aging city-state, or other locales with similar demographics and contexts.

Nursing Homes in Singapore

In Singapore, nursing homes are mostly run by the private sector or social service agencies (SSAs). The Singapore government typically bears the developmental costs of nursing homes before tendering the operating rights to private operators

and social service agencies under the Build-Own-Lease Scheme (Heng, 2022). From 2016 to 2020, the number of nursing homes in Singapore increased from 69 to 77, comprising public (n = 24), not-for-profit (n = 22), and private nursing homes (n = 31). The total number of beds as of 2020 is 16,300, with 6,400 public, 6,000 not-for-profit, and 3,900 private nursing home beds. The bed occupancy rate has also been relatively stable at 90% for the past five years (Singapore Ministry of Health, 2021b).

Services Provided

In Singapore, nursing homes aim to aid older persons or seniors in their activities of daily living or daily nursing care. There are additional nursing homes with specialized services as well. These include dementia or psychiatric facilities. Respite care is also a short-term option provided by nursing homes that lasts several days to a few weeks. For dementia patients who experience sundowning, nursing homes provide night respite care to relieve caregivers of night-time care duties (Agency for Integrated Care, 2022b).

Assistance in Activities of Daily Living

Activities of Daily Living (ADLs) are typically activities that tend to and support the basic needs of individuals. They encompass feeding, dressing, walking, personal hygiene, and toileting needs. There is a spectrum of assessment tools developed to assess a person's performance in carrying out these ADLs, including the Modified Barthel Index and the Katz Index of Independence in Activities of Daily Living (Hartigan, 2007). Requiring assistance in ADLs is part of the eligibility criteria for nursing homes in Singapore.

Profile of Senior Residents in Nursing Homes

Three general categories of factors influence nursing home admission: (i) demographic characteristics, (ii) health-related predictors, and (iii) the presence of an informal caregiving network (Lim, 2009). It has been found that gender, marital status (single/widowed/divorced), advanced age, race, and poverty status, all influence nursing home admission.

Health-related predictors include physical impairment, cognitive impairment, and medical conditions. Impairment in engaging in ADLs has been found to significantly increase the probability of nursing home placement (Fong et al., 2015; Lim, 2009; Reuben et al., 1992).

A study in Singapore found similar results, where seniors who were single, widowed, female, and aged 75 years and above made up most nursing home residents. Around 48% of them had probable cognitive impairment; in terms of ADLs, 55% were dependent on bathing, 50% on dressing, 50% were incontinent of urine (and required the use of diapers), 48% were non-ambulant, and 21% dependent on feeding – predictors as measured by the Modified Barthel Index (Yap et al., 2003).

The eligibility criteria for Singapore nursing homes (Agency for Integrated Care, 2022a) are as follows: (a) Physically or mentally disabled because of illness(es), (b) Semi-mobile, using a wheelchair or is bedbound, and needs daily care and help with activities like going to the toilet or walking, and (c) Unable to be cared for at home by family or paid domestic helpers and having tried all other care options such as daycare, home medical, or home nursing services.

Needs and Expectations of Senior Residents in Nursing Homes

As society ages, the proportion of seniors and older persons residing in nursing homes is likely to increase. However, because nursing homes are services provided (either by the state or private sector providers), there are bound to be certain expectations of these services that are meant to meet the needs of the senior residents themselves or their family members. Hence, understanding the expectations and needs of the nursing home residents and their family members is necessary to establish a positive and long-term relationship of mutual trust between the beneficiaries and providers. In an extensive review of published studies, it was found that the overarching expectations of families of nursing home residents are: (i) quality care; (ii) consideration towards the self-dignity of the nursing home resident; (iii) collaboration; (iv) honesty; and (v) confidence and respect among the families, staff and physicians of the nursing home (Havreng-Thery et al., 2021).

In Singapore, a survey of 1,000 respondents was carried out in 2016 to better understand Singaporeans' expectations about mainstream aged care services, including nursing homes. Focus group discussions with the respondents discovered that expectations for aged care services in nursing homes were multi-faceted and could be grouped under four categories: (i) value and affordability; (ii) quality of and access to professional care and services as experienced by the residents; (iii) quality of life offered which included standard of food, programs and activities, as well as the level of autonomy experienced; and (iv) convenience and accessibility of facilities (NTUC Income & Lien Foundation, 2016).

Other than the above, ease of communication between healthcare professionals and nursing home residents has been found to be another significant expectation by nursing home residents and their family members. In Singapore, about one-third of 42,096 nurses were foreigners (Khalik, 2021). While hiring foreign nurses may aid the shortage, communication issues may be a hurdle. Nurses have identified the language barrier to be especially challenging between overseas-trained nurses and senior residents in hospitals or nursing homes who are not able to converse in English (Tay et al., 2012). Difficulty communicating with the staff has also negatively affected nursing home residents (Tiong et

al., 2013).

There is also a growing body of technology-based interventions designed to support nursing home residents' provision of care and quality of life. The COVID-19 pandemic and ensuing safe distancing protocols have led to a reliance on the use of technology-based solutions in the provision of care and healthcare, even in nursing homes. The major aspects of applying technology-based solutions are improving resident-centric care, delivery of effective care solutions, and catering to the distinctive preferences and expectations of nursing home residents (Su et al., 2021).

Small-Scale Study to Understand the Needs and Expectations of Senior Residents in a Nursing Home in Singapore

Motivated by the milieu shared in the previous sections, a small-scale study was conducted with a privately funded nursing home in Singapore designing and planning their new nursing home building for their senior residents. As part of the planning, design, and development of the new nursing home, the management wanted to engage their senior residents to better understand their needs and expectations in terms of the features and provisions of the new nursing home.

Two aspects were deemed particularly important for the residents: access to assistance and information – typically when social interactions have to be restricted and physical distance needs to be maintained, as we live with COVID-19.

The objectives of this small-scale study were to: Identify the needs and expectations of the senior residents (i) When accessing services or assistance – be it human or technology-enabled, (ii) When accessing information required for independent living or self-care – be it human or technology-enabled and, (iii) In planning the design and provisions of the new nursing home building as their residence.

METHOD

Data Collection and Participants

The data collection plan was initially as follows: (i) Focus group discussions (FGDs) with 30 senior residents in the nursing home, (ii) Semi-structured interviews with six senior residents in the nursing home (iii) Semi-structured interviews with six staff members of the nursing home.

Although the focus of the study was to elicit and gather inputs and perspectives from the senior residents, inputs and perspectives from the staff were included to triangulate the data collected.

However, with the persistent prevalence of the COVID-19 pandemic throughout this project, the planned methodology of FGDs had to be converted to individual semi-structured interviews (to avoid intermingling and potential cross-infections among the senior residents).

In addition, the individual semi-structured interviews had to be conducted over online means (use of Zoom) due to visitor restrictions to the nursing home. As a result of a substantial proportion of the senior residents not being comfortable with being interviewed through online means, only about half of the initially planned number of respondents among the senior residents managed to be included in the final data collection.

The final data collection methodology was as follows: (i) Semi-structured interviews with 14 senior residents in the nursing home, (ii) Semi-structured interviews with six staff members of the nursing home.

Procedure and Survey Questions

Only residents who showed no or little sign of dementia or other cognitive or communication challenges were included in the interviews. In addition, only those residents who were able to sit up were included in the interviews. The nursing home determined these.

Of the six staff who were included in the interviews, two were senior or staff nurses who worked the wards, two were junior or enrolled nurses, and two were patient care personnel. Each interview session lasted between 20-40 minutes.

Interviews with the senior residents were done over four sessions from February to March 2022. Interviews with the nursing home staff were done over two sessions in January 2022.

Each interviewee read the participant information and consent form in the local vernacular language they were most familiar with or comfortable in (either English, Mandarin Chinese, or Hokkien, a Chinese dialect). The author's university's institutional review board cleared the participant information and consent form. Consent was taken from each interviewee before the interview session and questions commenced.

The survey questions (for both the residents and the staff, refer to Table-1 and Table-2, respectively) were organized along the three themes of (i) Perceptions, (ii) Activities and, (iii) Needs and Expectations.

Like the participant information and consent, the survey or interview questions were read out to the interviewees in the language they are most familiar with or comfortable in (either English, Mandarin Chinese, or Hokkien, a Chinese dialect).

Each interview session was video and audio-recorded over Zoom and a backup audio recorder. Each of the video files was transcribed and translated verbatim.

DATA ANALYSIS AND RESULTS

The transcripts were coded along the broad themes first identified in the survey instrument using textual and content analyses

Inputs and Perspectives From Senior Residents

The following sub-sections briefly describe the inputs

Table-1. Interview questions for senior residents (R)

Broad Themes	Questions
A. Perceptions	A1. What do you like most about living here? A2. What do you like least about living here?
B. Activities	B1. What do you do on a daily basis here? B2. What are some things or activities that are done less regularly?
C. Needs and Expectations	
C1. Getting Help	C1.1 What do you need help with on a daily basis? C1.2 Do you get enough help on a daily basis?
C2. Getting Information	C2.1 What kind of information are you able to get here? C2.2 Do you get enough information (about your family/hobbies/current affairs/ailments/medication) here?
C3. The Expectation of Help or Information	C3.1 What help or information do you need but do not get here? C3.2 What do you enjoy doing but do not get to do regularly here? C3.3 What would you like the staff to provide more of? C3.4 How do you feel about the staff's human interaction with you? Is it adequate? Is it too little or too much?
C4. Use of Technology for Getting Help or Information	C4.1 How do you feel about technology or robots providing you with (i) help and (ii) information? C4.2 If technology or robots have to be used in the nursing home, what do you hope they can do to make it easier or more comfortable for you?
C5. Expectations in New Nursing Home	C5.1 What would you like to see or have in the new nursing home?

and perspectives shared by the senior residents (n = 14) during their interviews.

Perceptions

Nine (64.3%) out of the 14 senior residents responded positively to the question of what they liked about living in the nursing home. Their responses straddled three areas: physical infrastructure and tools, programs, and people in the nursing home. Among the responses were that the nursing home was spacious; there were tablets or information communication technology (ICT) devices that the residents could use to look for information; there were exercise routines residents could participate in, and they enjoyed the company of the staff or other residents in their wards in the nursing home.

However, ten residents (71.4%) expressed their discontent about the food served in the nursing home and the level of personal freedom and comfort they experienced. Among the responses regarding food, taste, and culinary preferences, as well as the diversity of food choices, were of utmost concern. In terms of personal freedom and comfort, the residents pointed out that they could not leave and return to the nursing home as they pleased and that it was relatively noisy in the wards due to their proximity to and lack of privacy from other residents within the wards.

Activities

When asked to describe their daily activities in the

Table-2. Interview Questions for Staff (S)

Broad Themes	Questions
A. Perceptions	A1. What do you like most about working here? A2. What do you like least about working here?
B. Activities	B1. What do you do on a daily basis here? B2. What are some things or activities that are done less regularly?
C. Needs and Expectations	
C1. Understanding Residents' Needs	C1.1 What is the kind of help residents need on a daily basis? C1.2 Do you think they get enough help on a daily basis? C1.3 What help or information do they need but do not get here? C1.4 What kind of information are you able to provide to the residents here? C1.5 Do they get enough information (about their family/hobbies/current affairs/ailments/medication) here? C1.6 What do they enjoy doing but do not get to do regularly here?
C2. Understanding of Help That Can or Should Be Extended	C2.1 What do you think the staff can provide more of? C2.2 What do you think the staff can provide less of? C2.3 How do you feel about the residents' human interaction with you? Is it adequate? Is it too little or too much?
C3. Use of Technology in Their Work	C3.1 How do you feel about technology or robots providing residents with (i) help and (ii) information? C3.2 If technology or robots have to be used in the nursing home, what do you hope they can do to make it easier or more comfortable for you to do your job?
C4. Expectations in New Nursing Home	C4.1 What would you like to see or have in the new nursing home?

nursing home, twelve residents (85.7%) responded that they either had individual activities such as watching television, reading the newspapers or news on the tablets, or enjoying their food or rest; or planned or scheduled activities such as physiotherapy or physical exercises. Only two residents (14.3%) did not respond to this question.

When asked what other activities were done less regularly, only three residents (21.4%) offered suggestions of being allowed to walk on their own or having family members or community volunteers visit them. The remaining 11 residents (78.6%) did not offer any suggestions because they demonstrated an understanding that due to the prevailing restrictions on visits and activities due to the COVID-19 pandemic, many of their desired activities could not occur.

Needs and Expectations: Getting Help

Ten residents (71.4%) responded that they received help showering, toileting, moving around, and changing adult diapers. The four residents (28.6%) who did not provide inputs to this question were generally mobile and could do these activities independently.

When asked if the help rendered to them was adequate, three residents (21.4%) refused to agree or disagree; half agreed, while the other half disagreed.

Needs and Expectations: Getting Information

When probed on what information they were able

to obtain in the nursing home, responses ranged from information on current affairs to information regarding their hobbies or interests. When asked if the information they were able to obtain in the nursing home was adequate, ten residents (71.4%) gave an affirmative response (either "Yes" or "OK"), while four residents did not respond.

Needs and Expectations: Expectation of Help or Information

Residents were asked if there were any forms of help or information they needed but could not get in the nursing home. Only one resident responded, asking for help placing regular bets in the weekly national lottery!

They were also asked if there were anything that they enjoyed doing but could not do regularly in the nursing home. Half of the residents expressed that they would like to meet their friends more regularly or be able to do more personal activities such as walking outside of their wards, gardening, or having more entertainment activities. It must be noted that during the COVID-19 pandemic, the nursing home practiced strict safe distancing management measures where the residents were not allowed to leave their wards and intermingle with residents from other wards or to receive any visitors at all.

When probed further if there were anything that they would like the staff to provide more of, five residents (35.7%) responded that they wanted more interaction with the staff (more communication and more companionship) and for the staff to be able to provide daily newspapers or buy food from outside the nursing home for them. Two residents (14.3%) said they missed eating food from the hawker centers (local food courts that serve street food or local fare).

When asked about the level of interaction with the staff in the nursing home, half of the residents said it was adequate. The other half felt that there was no interaction, mainly because the staff were busy and would scold them or because they were afraid of sharing too much information with the residents.

Needs and Expectations: Use of Technology for Getting Information or Help

Residents were asked how they felt about the use of technology or robots to help them or provide them with information. Three residents (21.4%) felt this would be good for them, while 8 (57.1%) expressed various concerns about using such technology or robots, ranging from affordability to sustaining or troubleshooting potential technological problems. The rest of the residents had no response to this question.

It was put to them that if such technology or robots might be used in the nursing home, what did they hope this technology or robot could be used for to help them or make them more comfortable? Eight residents (57.1%) replied that they had nothing

in mind, while the remaining 6 (42.9%) offered ideas on how such technology or robots could help them or make them more comfortable in the nursing home. Among the ideas offered were to help them walk or move around semi-independently; do daily chores such as opening containers; bring or serve their food; or play games such as mahjong (a form of the tile-based game where wins are determined by the full formation of a set of tiles or legal hand) with them.

Needs and Expectations: Expectations in a New Nursing Home

A new building was being built for the nursing home. Residents were asked what they hoped to have in the new nursing home. Nine residents (64.3%) suggested the features, amenities, or provisions they hoped to have in the new nursing home. These included more gardens or natural environments that they could relax in; activity corners where they could partake in recreational activities such as mahjong or karaoke singing; and coffee or café corners where they could socially interact with other residents. Other than the physical features or amenities, they suggested having instrumental music playing in the nursing home during activity hours and providing instant hot drinks and snacks such as biscuits at the coffee or café corners.

Inputs and Perspectives From Staff

The following sub-sections briefly describe the inputs and perspectives shared by the staff (n = 6) during their interviews.

Perceptions

All six staff interviewed responded positively to the question of what they liked about living in the nursing home. Their responses straddled three areas: work environment, work location, and people in the nursing home. Among the responses were that the nursing home provided a safe work environment, a good work culture, an excellent work-life balance, and a central and accessible location. Three of the staff also mentioned having supportive and collegial colleagues and ample training opportunities as reasons they enjoyed working in the nursing home. As Staff 2 described: *"The management lets you do what you want with the matters of your training [sic] and tries his best to put you to the training [sic]."*

When queried about what they liked least about working in the nursing home, five of them (83.3%) replied that there could be better channels of communication, especially between staff of different work shifts and from reporting officers to subordinates; clearer promotion and career progression paths; less overtime work; and the fact that they were far from their family. All six staff members were foreign hires and thus did not have their families in Singapore.

Activities

When asked to describe their daily activities in the nursing home, the six staff alluded to two broad types of activities or tasks: resident-related

or ward-related. Resident-related activities or tasks included showering and feeding the senior residents, dispensing medication for the residents, and transferring the less ambulant patients from bed to commode or wheelchair, and vice versa. Ward-related activities or tasks included assisting the staff nurse or managing the ward they were assigned. When asked what other activities were done less regularly, the six staff responded that wound dressing and procedures were done only when needed (resident-related).

Likewise, their professional training, medical equipment cleaning, and ordering medical supplies were done less regularly (ward-related). Staff 5 explained: *"But regarding procedures, like inserting catheters…not daily. Also, the orderings of the requisitions. We do that once every month."*

Needs and Expectations: Understanding Residents' Needs

All six staff responded to this question and stated that residents needed help showering, toileting, feeding, moving around, and transferring from their beds to the commodes or wheelchairs and vice versa. When asked if they felt the residents received enough help in the above, four of them agreed, while two of them felt that the staff could do with more human resources so that they could render more help to the residents. One of the staff explained that each staff member had to take care of 5 to 6 beds in a cubicle and up to 6 cubicles per shift.

The staff were then asked what type of help or information the residents needed but could not get in the nursing home. The staff described these as information about family members, particularly those not regularly in touch with the residents (*"The COVID-19 situation; they want to see their family… Before COVID-19), they come to visit, but now they cannot. Even though they are doing the video call, I think it is not enough for them"* – Staff 3); information about care arrangements, particularly for residents who were about to be discharged from the nursing home and were going home; information or help related to their finances and banking matters; help with emotional support; and the desired social interaction and activities, especially with the restrictions imposed during the COVID-19 pandemic.

When queried about what help or information the staff could render to the residents based on what they needed, as identified above, the staff alluded to helping the residents with contacting their family members either through phone or video calls; and providing them with access to information needed such as financial or banking information, or current affairs.

The staff was then asked their opinions on whether the residents received enough information about their conditions, ailments, family members, hobbies or interests, or current affairs, as needed. Four of the staff

felt the residents received sufficient information on the above, either through the television, newspapers, the ICT devices or tablets used in the wards or through updates from their family members. However, two of them (33.3%) felt the information residents received was still lacking as they obtained that information mainly through the television (pushed information) and family updates only from family members actively contacting the residents. The two staff felt that the residents did not receive sufficient pulled information or information that they actively sought, mainly due to limited internet access through the use of tablets in the wards or limited internet data plans available in individual residents' mobile phones.

The staff was also asked, based on their observations, what were some activities the residents enjoyed doing but were not able to do in the nursing home. All six staff responded to this question and singled out two main categories of activities – those related to social interactions (e.g., meeting with family members or volunteers who visit the nursing home); and those which are recreational or can be categorized as hobbies (e.g., group activities such as playing mahjong, card games, karaoke, listening to music and group exercise). As Staff 3 described: *"I think the exercise. Especially the dancing got [sic] the music they will enjoy."*

Needs and Expectations: Perception of Help That Can or Should Be Extended

When asked what more the staff could provide to the residents, all six staff responded to this question. Among the responses was that there could be more interaction with the residents; more time could be given to the staff to interact with residents (*"I think it is a matter of the time that we spend with them, like during our bedside nursing care. Since we have a lot of residents (s) and as much as we want to spend like hours with them....We have residents who like to keep on calling (us). Nevertheless, as much as we want to stay with them, we still need to attend to other residents."* – Staff 4); more activities or exercise routines could be provided to the residents.

The staff also alluded to the possible language barrier between them and the residents, considering that the staff was primarily foreign hires, and the residents were older locals who mainly spoke the local vernacular languages and had little English. The staff suggested that they could learn to *"speak their (residents') language"* (Staff 2) or lower the language barrier and that they could also reassure the residents that when in need, they should ask for assistance and that they were not bothering anyone if they did so. Staff 5 explained: *"I think we can only assure them that it is okay and do it. I mean, the emotional support. Furthermore, the resident gives back their confidence because I think they will lose their confidence. So, if the staff could give them their dignity, and we assured them and assist*

them and give them back, maybe they can do it independently; I guess it is more emotional support."

Five offered suggestions to this question when asked if there was anything that the staff could do less with the residents. Four (66.6%) suggested that the staff could provide less assistance to residents who are more ambulant so that they could be more independent in performing their activities for daily living. One staff suggested that they could use more technology to help residents be more independent such as in looking for needed information.

The staff was then asked their opinion on the level or amount of interaction they had with the residents and if this was adequate. Four (66.6%) felt that the level of interaction they had with the residents was sufficient, particularly with those conversant in English, who had little or no dementia or age-related forgetfulness, and was ambulant. Two of the staff (33.3%) felt that their interaction with the residents was insufficient, mainly due to communication or language barriers. Staff 1 explained: "*For me, it is a little aloof because of the language barrier. I am not fluent in Mandarin or Hokkien (a Chinese dialect), and the residents do not speak English. I think most of the residents understand Malay (one of the vernacular languages), so I can speak basic Malay and Mandarin."*

Needs and Expectations: Use of Technology in Their Work

The staff was asked how they felt about using technology or robots to help the residents or provide them with information. The staff was generally supportive, expressing that using technology or robots could help address the human resources shortage and that they had confidence in what technology could do in this regard. However, the staff who responded positively to this question added that while technology or robots were useful and would make the work lighter and more efficient, the human touch and connection towards the residents were still crucial.

It was put to them that if such technology or robots might be used in the nursing home, what did they hope this technology or robot could be used for to help the residents or make them more comfortable? All six staff responded to this and suggested two main areas in which technology or robots could be used: the provision of assistance (such as in transferring residents or for greater mobility of residents (*"I think (for) movement. Doing the activities, lifting, and transferring for them. It will help the staff and the patient also."* – Staff 6), and to assist with overcoming any language barrier between the staff and residents so that they could enhance communication between them); and for entertainment or social and recreational activities.

Needs and Expectations - Expectations in a New Nursing Home

The staff knew that a new building was being built for the nursing home. They were asked what they hoped

to have in the new nursing home. The suggestions offered could be dichotomized into two categories – for residents and staff. Suggestions for residents included having more gardens or green spaces, a bigger space for social activities, more resources for residents (e.g., books, art, handicraft, Wi-Fi), and more food options. Suggestions for staff included on-site staff quarters or housing options; staff changing areas with shower facilities (for hygiene purposes); and staff training and upgrading facilities.

DISCUSSION AND RECOMMENDATIONS

Based on the senior residents' responses to questions (R-C3.2; C3.3; C-3.4; and C-4.2) and the staff's responses to questions (S-C2.1; C2.3; and C-3.2), the desire for greater and more enhanced *"social interactions"* is identified as a desire by the residents. This social interaction could involve the nursing home staff, such as the nurses and patient care personnel; the residents' respective family members and friends; and volunteers or visitors from community groups who would visit them. While it is recognized that such social interactions were more frequent and extensive in pre-COVID times, the onset of the COVID-19 pandemic dampened both the frequency and extent of those interactions due to concerns with cross-infections and severe infections that would lead to fatalities, particularly among older persons. Hence, it is not surprising that the residents interviewed expressed their desire to have more social interactions, seeing that the interviews were done towards the recovery phase of the pandemic but where safe distancing measures were still in place. Although social isolation was not explicitly investigated nor identified in this small-scale study, it has been found that social isolation - defined as *"having few social relationships or infrequent social contact with others"* (Wu, 2020) – is a progression from the lack of social interactions.

It can then be recommended that the nursing home residents be provided with more opportunities for social interactions with the staff or nurses, family members, friends, visitors, or volunteers from community groups. These social interactions need not always happen synchronously or physically face-to-face. There could be more opportunities for social interactions with the residents to happen virtually through virtual communication tools or platforms such as Zoom, Google Chat, or FaceTime – especially for communication with family members and friends who are not in the nursing home or with off-site volunteers who are motivated to spend time interacting with the senior residents. Familiarizing the residents with such virtual communication tools would also make it easier to migrate to virtual communication platforms during possible public health crises where safe distancing measure *need to be in place* (Sen et al., 2022).

Based on the senior residents' responses to questions (R-A2; C3.2; and C-5.1) and the staff's responses to questions (S-C1.6; and C-4.1), it can be inferred that the residents yearned for the opportunity to provide their inputs on choices available, such as food choices, the types of activities they could enjoy, or even the television programs or music made available to them in the nursing home. Studies have found that resident choices play an instrumental role in shaping residents' sense of well-being and quality of life in the nursing home (McCabe et al., 2021; Moyle et al., 2015).

Although there are concerns about the effect of food choices on medical conditions or personal health of the senior residents, it can still be recommended that residents be given limited options to select their weekly food choices or menu, and even their weekly or fortnightly activities or recreational programs. The former (food choices or menu) would allow the residents to decide what they would like to eat rather than be made to believe that they have to eat what they are given. The latter (activities or recreational program options) would allow the residents to feel that they are deciding on what they want to do or enjoy doing and would create a sense of excitement for the residents, being able to look forward to an activity or program that they had a hand in deciding or curating.

Based on the senior residents' responses to questions (R-C1.1; C-1.2; and C3.3) and the staff's responses to questions (S-C1.2; and C-2.2), it can be inferred that the residents wanted to be able to do things independently, but still hoped for the support to do so. From their responses, the residents disclosed that they wanted to be able to do most things on their own such as showering, toileting, feeding themselves, or even in accessing information. They expressed understanding that the staff in the nursing home were generally busy with their duties and work and could not always be there to assist them. However, the residents seemed to allude to a lack of confidence in independently trying new things, such as technological devices or doing rehabilitation exercises.

It can then be recommended that the residents of the nursing home be given opportunities to do as many of their daily activities independently (Ball et al., 2004) but be provided with initial guidance and sustained encouragement and motivation (from the staff or volunteers) to try out something new such as using a technological device for communication or information seeking or continuing their rehabilitation exercises while seated safely in bed. Another form of motivation that may be useful for the residents has recorded messages or video clips of encouragement and affirmation from their family members or friends that can be played back to provide that much-needed

boost of moral support. This could also be particularly useful for residents with dementia who may benefit from *"elderspeak"*[1] which is *"warm"* (usually from family members, friends, or individuals familiar to the senior resident) rather than "elderspeak" which is *"superior"* or *"patronizing"* (usually from individuals who are unfamiliar to the senior resident). It has been found that patients having positive perceptions about *"elderspeak"* (i.e., words conveyed with warmth from familiar persons) have reported higher levels of self-esteem, reduced agitation, and calmness (Zhang et al., 2020).

Based on the senior residents' responses to questions (R-2.2; C3.1; and C-4.2) and the staff's responses to questions (S-C3.2; and C-4.1), it can be deduced that the residents do not wish for technology to replace human assistance but to enable and enhance human assistance. As evidenced by the responses of the senior residents and the staff, there was some language barrier between the staff (the majority of whom were foreign hires) and the residents, who mainly spoke the local vernacular languages and little English. Hence, technological tools or mobile applications that could allow real-time or synchronous communication across languages could be useful in facilitating social interaction and communication between the residents and the staff. Such tools can bring about effective caregiver-resident communication and promote person-centered care (Wilson et al., 2020).

It can then be recommended that each bed, or at least each ward in the nursing home, be provided a communication tool or mobile application that can allow simultaneous translation between local vernacular languages and English. Such tools would help the staff better understand and attend to the needs of the residents, despite the use of vernacular languages, which the staff may not be familiar with. Technology or the use of robots in the nursing home to facilitate mobility and physical independence among the residents could also be introduced. Such technology or robots could also support the earlier finding of residents' desire to want to be able to do things independently. Some residents could be hesitant about using such technological devices or tools due to unfamiliarity with the gadget or application. However, the nursing home could leverage on social influence, where the more technologically savvy residents could encourage the less technologically savvy residents to pick up and use these devices or tools (Perdana & Mokhtar, 2022). Social influence through peer teaching has been found to strongly support older persons' willingness to learn things that were unfamiliar or new.

LIMITATIONS

The findings of this small-scale study should be

1 Elderspeak is a term that refers to the way people may tend to speak to older adults, and can comprise a simplified speech register that sounds like baby talk, especially in health care settings.

interpreted and considered in light of two limitations. First, the findings and recommendations are highly contextualized to one nursing home in Singapore and its residents and staff. The number of respondents is small and not representative of the entire nursing home residents and staff population, even in Singapore alone. The findings are, at best, exploratory and descriptive and, to some extent, anecdotal. Hence, there is a limit to generalizing or extrapolating the findings to larger contexts or settings. However, the findings were particularly useful for the nursing home involved in the study to better understand the needs and expectations of their senior residents and in planning the design and provisions of the new building for the nursing home. Second, the interviews were carried out during the COVID-19 pandemic, albeit towards the recovery phase of this global public health crisis. Hence, social interactions were understandably more limited with the prevailing physical and safe distancing measures. That could have significantly shaped the responses of the residents. Future research on nursing home residents and staff in Singapore could explore other relevant antecedents that could be discovered through more in-depth interviews and the testing of hypotheses. Nevertheless, the findings and constructs of this current small-scale study may provide useful insights to inform policy and practice related to providing long-term person-centered care for seniors, or older persons, in rapidly aging societies.

CONCLUSION

As Singapore progresses briskly to a "super-aged" society by the year 2030 (Organisation for Economic Cooperation and Development (OECD), 2022), the urban landscape in Singapore is also set to evolve. We expect to see more acute care hospitals, community hospitals, nursing homes, senior or aged care centers, and senior activity spaces. As infrastructure and spaces for seniors, or older persons, become an increasingly larger part of the built environment in Singapore, or other societies that are also rapidly aging, there is a need to "delve deeper into how the design of the physical environment can improve the well-being of not only nursing home residents but also that of caregivers, staff and the larger community" (Eveland & Tng, 2022). Hence, there is a need for residential, social, and community spaces for older persons to be designed based on "person-centric care" principles. It is hoped that findings and insights, such as from this small-scale study, can contribute to the overall landscape and understanding of "what each of us needs (s) to age well, and how well-designed places and spaces can help build up stronger communities able to support one other" (Eveland & Tng, 2022). Work and efforts in this area are important and must continue as aging

societies strive to develop an increasingly inclusive community toward older persons.

Acknowledgment: This study was funded by the Singapore Institute of Technology Seed Grant, R-MOE-A402-G015.

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INSTRUCTIONS TO AUTHORS

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JALTC is published three times a year. Articles submitted should not have been previously published or be currently under consideration for publication any place else and should report original unpublished research results. The journal does not expect any fees for publication. All articles are available on the website of the journal with membership.

The quantitative, qualitative and mixed-method research approaches are welcome from disciplines including but not limited to education, gerontology, geriatrics, nursing, care and hospice, social work, psychology, sociology, biology, anthropology, economics and business administration, engineering, gerontechnology, law, human rights, public policy, architecture, women studies, rehabilitation, and dietetics.

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Journal Articles:

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Whitbourne, S. K. (Ed.) (2000). Wiley Series on Adulthood and Aging. Psychopathology in Later Adulthood. Hoboken, NJ, US: John Wiley & Sons Inc.

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Vision and Mission

The major goal of the Journal of Aging and Long-Term Care (JALTC) is to advance the scholarly contri-butions that address the theoretical, clinical and practical issues related to aging and long-term care. The JALTC, while making efforts to create care services for older people at the best quality available that are more humane, that pay special attention to people's dignity, aims from the perspective of the whole aging process- to discuss Social Care Insurance as a human right, to contribute care for older people to be trans-formed into an interdisciplinary field, to integrate care services for older people and gerontological concepts and to create more effective collaboration between them, to enhance the quality of care services for older people and the quality of life of caregivers from medical, psychological and sociological perspectives, to highlight the cultural factors in care for older people, to increase the potential of formal and informal care services, to provide wide and reachable gerontological education and training opportunities for caregivers, families and the older people.

Aims and Scope

"National Association of Social and Applied Gerontology (NASAG)"has recently assumed responsi-bility for the planning and introduction of a new international journal, namely, the Journal of Aging and Long-Term Care (JALTC). With world societies facing rapid increases in their respective older populations, there is a need for new 21st century visions, practices, cultural sensitivities and evidenced-based policies that assist in balancing the tensions between informal and formal longterm care support and services as well as examining topics about aging.

The JALTC is being launched as the official journal of the NASAG. The preceding journal aims to foster new scholarship contributions that address theoretical, clinical and practical issues related to aging and long-term care. It is intended that the JALTC will be the first and foremost a multidisciplinary and interdis-ciplinary journal seeking to use research to build quality-based public policies for long-term health care for older people.

It is accepted that aging and long-term care is open to a diverse range of interpretations which in turn cre-ates a differential set of implications for research, policy, and practice. As a consequence, the focus of the journal will be to include the full gamut of health, family, and social services that are available in the home and the wider community to assist those older people who have or are losing the capacity to fully care for themselves. The adoption of a broader view of aging and long term care allows for a continuum of care support and service systems that include home base family and nursing care, respite day care centers, hospital and hospice care, residential care, and rehabilitation services. It is also crucial to be aware that life circumstances can change suddenly and dramatically resulting in the need for transitional care arrange ments requiring responsive, available, accessible, affordable and flexible health care service provision.

For further assistance and more detailed information about the JALTC and the publishing process, please do not hesitate to contact Editor-in-Chief of the JALTC via sending an e-mail: editor-in-chief@jaltc.net Editor-in-Chief: Emre SENOL-DURAK

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