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Health Promoting Lifestyle of Older Adults Living in Public Nursing Homes: A Cross-Sectional Study from İstanbul, Türkiye

Kamu Huzurevlerinde Yaşayan Yaşlıların Sağlığı Geliştirici Yaşam Biçimleri: İstanbul, Türkiye'den Bir Kesitsel Çalışma

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ABSTRACT

Background: Preventing the progression of non-communicable diseases, which are the most common health problems in old age, is possible by developing healthy habits. This study aims to assess the healthy lifestyle behaviors of older adults residing in nursing homes.

Materials and Methods: In this cross-sectional study, a questionnaire that contained socio-demographic information, the Health-Promoting Lifestyle Profile-II (HPLP-II), and the first part of the Nottingham health profile (NHP) was administered to 120 accessible participants (31.3% of 383 residents) in five public nursing homes in İstanbul.

Results: The mean age of participants was 75.8 ± 7.8 years; 40% were women. Participants' highest per-question scores on the HPLP-II sub-dimensions were for spiritual growth and stress management (2.7 ± 0.5 and 2.6 ± 0.4, respectively), whereas the lowest were for health responsibility (HR) and physical activity (1.5 ± 0.4 and 1.6 ± 0.4, respectively). The NHP sub-dimensions in which participants scored best were pain, energy level, and emotional reaction (9.0 ± 15.5, 9.0 ± 21.4, and 10.6 ± 14.1, respectively), while the worst were sleep and social isolation (19.2 ± 27.6 and 18.8 ± 19.7, respectively).

Conclusion: Habits such as HR, PA, and sleep were poorer than emotional domains. More suitable and wide-ranging interventions are required to improve lifestyle habits among nursing home residents and promote better health.

Keywords: Healthy aging, nursing homes, healthy lifestyle, health facilities

ÖZ

Amaç: Yaşlılık döneminde en sık görülen sağlık sorunları arasında yer alan bulaşıcı olmayan hastalıkların ilerlemesinin önlenmesi, sağlıklı alışkanlıkların geliştirilmesiyle mümkündür. Bu çalışma, huzurevlerinde yaşayan yaşlı bireylerin sağlığı geliştirici yaşam biçimi davranışlarını belirlemeyi amaçlamaktadır.

Gereç ve Yöntemler: Bu kesitsel çalışmada, İstanbul'daki beş kamu huzurevinde yaşayan 383 bireyden ulaşılabilen 120 katılımcıya (%31,3) sosyodemografik bilgileri içeren bir anket, Sağlığı Geliştirici Yaşam Biçimi Ölçeği II (HPLP-II) ve Nottingham sağlık profili ölçeği'nin (NHP) birinci bölümü uygulanmıştır.

Bulgular: Katılımcıların yaş ortalaması 75,8 ± 7,8 olup, %40'ı kadındır. HPLP-II alt boyutlarından en yüksek puan ortalamaları "manevi gelişim" (2,7 ± 0,5) ve "stres yönetimi" (2,6 ± 0,4) alanlarında, en düşük puan ortalamaları ise "sağlık sorumluluğu" (1,5 ± 0,4) ve "fiziksel aktivite" (1,6 ± 0,4) alanlarında saptanmıştır. NHP alt boyutları arasında en iyi sonuçlar "ağrı", "enerji düzeyi" ve "duygusal reaksiyon" (sırasıyla 9,0 ± 15,5; 9,0 ± 21,4 ve 10,6 ± 14,1) iken, en olumsuz sonuçlar "uyku" ve "sosyal izolasyon" (19,2 ± 27,6 ve 18,8 ± 19,7) alt boyutlarında bulunmuştur.

Sonuç: Sağlık sorumluluğu, fiziksel aktivite ve uyku gibi alışkanlıklar, maneviyatı değerlendiren alt boyutlardan daha kötüydü. Huzurevinde kalanların daha sağlıklı alışkanlıklar ile yaşamasını sağlamak ve yaşam biçimi davranışlarının iyileştirilmesi için uygun ve geniş kapsamlı müdahalelere ihtiyaç vardır.

Anahtar Kelimeler: Sağlıklı yaşlanma, bakım evleri, sağlıklı yaşam tarzı, sağlık tesisleri

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Introduction

Türkiye is aging rapidly, as people aged 65 and over made up 8% of Türkiye's population in 2014, increasing to 9.1% by 2019 (1). Life expectancy is increasing for various reasons, and the number of births per woman is decreasing. The main reasons for this demographic change are industrialization, technological development, urbanization, and other related factors, which create a vicious cycle in which these factors reinforce one another. These changes also affect the family structure, and extended families are beginning to give way to nuclear families. As family size shrinks, the roles of older adults are changing: the number of family members available to meet their needs is decreasing, which negatively affects their mental health (2).

It has become necessary for older adults to meet their needs by receiving services from external providers, especially those living apart from their children in the city. Long-term care systems, such as home care services and institutional care, have begun to develop, as have their associated difficulties, such as unprofessional caregivers and the isolation of older adults from their homes and communities (2). The situation is slightly different in Türkiye. Although children do not typically live in the same household as their parents, they generally prefer to live close to them and do not completely isolate themselves from their parents' care. Despite this, both the number of nursing homes and their occupancy rates are gradually increasing, especially in large cities (3).

The trend of increasing life expectancy at birth is a great success, but the extension of lifespan should be qualified. Life expectancy increases, but so does the number of years over which one is unhealthy; Türkiye experienced an average of 9.69 years of poor health in 1990 and 11.09 years in 2017 (4). The World Health Organization defines healthy aging as developing and maintaining functional abilities that provide well-being in older age (2). In line with this, the Ministry of Health developed the "Türkiye Healthy Aging Action Plan and Implementation Program 2015–2020," which highlights the importance of promoting healthy lifestyle behaviors to prevent non-communicable diseases (NCDs) among older adults (5). This is particularly relevant because NCD risk increases substantially with age (6).

In Türkiye, healthy lifestyle behaviors among older adults living in nursing homes have been insufficiently studied, even though the number of institutionalized older adults and the burden of NCDs continue to increase (7–10). Existing evidence does not adequately describe key daily behaviors such as physical activity (PA), sleep, and health responsibility (HR) within institutional settings. Given these gaps, identifying the Health-Promoting Lifestyle Profile II (HPLP-II) of residents in public nursing homes is important for guiding targeted interventions and supporting healthier ageing.

The aim of this study is to describe the health-promoting lifestyle behaviors of older adults living in public nursing homes and to examine how these behaviors vary according to demographic characteristics.

Materials and Methods

The study is conducted in public nursing homes, as their residents are a disadvantaged group but are also more amenable to intervention. Nine nursing homes in İstanbul are affiliated with the Ministry of Family and Social Services (MoFS). At the time of the study, one of the nursing homes was under renovation, and its residents were transferred to other nursing homes. This cross-sectional study was conducted in five of these that agreed to allow this research to be carried out in their facilities. Of these five nursing homes, three are on the European side of İstanbul and two on the Asian side; all are located in different districts. Nursing homes affiliated with the MoFS provide standard or specialized care to people over the age of 60 who are mentally healthy, free of infectious diseases and drug or alcohol addictions, and economically or socially deprived, depending on their health status (11). Three hundred eighty-three residents, 159 (41.5%) of whom were women, were residing in these five nursing homes and receiving routine care.

People who received special care services in institutions, or who received normal care but had amnesia, loss of limbs, hearing or speech problems, were not included in the study. Random selection could not be achieved because entering a resident's room is forbidden, and identifying them by name alone was not possible, since photographs were not included in every file. Hence, participants who consented were selected by convenience sampling from the common areas of nursing homes. The survey was administered face-to-face by one of the researchers, who read each question aloud and recorded participants' responses, because most residents were unable to complete the form independently.

A a priori sample size estimation was conducted using effect size information from a previous study of Turkish nursing home residents (12). Using a significance level of 0.05 and 80% power, the calculation indicated that approximately 60 participants would be adequate. However, because probability-based sampling was not possible and convenience sampling was used, this estimate was considered useful only for planning the study and was not used to support statistical interpretation (13).

The study protocol conforms to the ethical guidelines of the 1975 Declaration of Helsinki, as revised in 2013. Ethics

approval was obtained from the Bezmialem Vakıf University Non-Invasive Research Ethics Committee (approval number: 15/286, dated: 30.07.2019). Verbal informed consent was obtained from all participants prior to data collection. Out of 383 residents, 140 were reachable, and 120 of them agreed to participate in the study. One hundred twenty of them agreed to participate in the study. While 1 participant did not provide a reason for his/her refusal, the remaining 19 participants cited the following reasons for non-participation: 7 participants indicated they were unavailable due to prior commitments or other engagements; 3 participants stated that they were overwhelmed by participating in the surveys; 3 participants reported feeling unwell or indisposed; 1 participant declined to share personal information; 1 participant expressed skepticism about the sincerity of the survey responses; 1 participant felt uncomfortable with the appearance of the interviewer; 1 participant lacked confidence in his/her ability to complete the survey; 1 participant simply stated he/she was not interested in participating; and 1 participant declined to participate due to an ongoing conversation he/she did not want to interrupt.

A questionnaire that included socio-demographic information, HPLP-II, and the first part of the Nottingham health profile (NHP) was administered to the participants between December 2019 and January 2020 by a single interviewer, who also scored the Likert-scale responses based on the participants' answers. Sociodemographic characteristics were treated as independent variables, and the HPLP-II and NHP scale scores were considered as dependent variables.

The Turkish validity and reliability study of the HPLP-II was conducted by Bahar et al. (14). The scale comprises 52 four-point Likert items, all of which are positively worded. On the scale, 1 point = never; 2 points = sometimes; 3 points = often; and 4 points = regularly. HPLP-II comprises six subscales: HR, PA, nutrition (N), spiritual growth (SG), interpersonal relationships (IR), and stress management (SM). PA and SM have eight items; the others have nine items (15). The Cronbach's alpha coefficient was calculated to be 0.92.

The Turkish validity and reliability study for NHP was conducted by Küçükdeveci et al. (16). The first part of the NHP has six subscales and a total of 38 items: eight items for pain, eight for mobility, nine for emotional reactions (ER), five for sleep, five for social isolation (SI), and three for energy. The answer to each item is yes or no. The items in each subscale are weighted within the subscale to total 100 points, where higher scores indicate a lower health profile (17).

Statistical Analysis

Descriptive statistics are presented as frequencies and percentages for categorical variables, and as means and standard deviations for quantitative variables. Normality was tested using the Kolmogorov–Smirnov test. Categorical variables are compared by an appropriate chi-squared test. The Mann–Whitney U or Kruskal–Wallis test was used to compare non-normally distributed data across categorical groups, depending on the number of groups. Spearman correlation was used to evaluate the relationship between non-normally distributed or ordinal data. Cronbach's alpha was used to assess the reliability of the scales. Analyses were conducted using the IBM SPSS Statistics, version 22.0 (IBM Corp., Armonk, NY, USA). A two-sided significance level of 0.05 was used.

Results

Of 120 participants, 40% (n = 48) were women. The gender distribution in the universe (41.5%) and in the sample are statistically similar (p = 0.77). The mean age of participants was 75.8 ± 7.8 years, and 17 of them (14.8%) had no NCD. Ninety-one older adults (75.8%) had at least one living child. İstanbul was the place where 104 participants (87.4%) spent most of their lives. The mean length of stay in a nursing home was 53.9 ± 45.5 months (range: two days to 19 years). The distributions of other demographic characteristics are presented in Table 1.

Table 1. The distribution of demographics of participants.

	n (%)
Education status	
Never went to school	17 (14.3)
Primary school	34 (28.6)
Middle school	17 (14.3)
High school	36 (30.3)
Undergraduate or higher	15 (12.6)
Total	119* (100.0)
Income status	
None	9 (7.5)
Retirement pay	106 (88.3)
Retirement pay + side income	5 (4.2)
Total	120 (100.0)
Smoking status	
Never smoked	45 (40.2)
Quit smoking	34 (30.4)
Still smoking	33 (29.5)
Total	112* (100.0)
*There were missing values.	

Participant HPLP-II scores are presented in Table 2. Since the number of items included in each subscale may differ, the mean score per item was also calculated. The highest subscale score per question was SG, and the lowest score was HR.

Table 2. Mean scores and reliability of HPLP-II.

	Mean ± SD	Mean ± SD per question	Cronbach alpha
Scores of subscales			
HR	13.8 ± 3.9	1.5 ± 0.4	0.834
PA	12.9 ± 3.7	1.6 ± 0.5	0.785
N	21.0 ± 2.3	2.3 ± 0.3	0.385
SG	24.2 ± 4.3	2.7 ± 0.5	0.880
IR	21.9 ± 4.1	2.4 ± 0.5	0.890
SM	20.5 ± 3.2	2.6 ± 0.4	0.738
The total score of HPLP-II	114.4 ± 13.5	2.2 ± 0.3	0.892

HPLP-II, Health-Promoting Lifestyle Profile-II; HR, health responsibility; IR, interpersonal relationships; N, nutrition; PA, physical activity; SD, standard deviation; SG, spiritual growth; SM, stress management.

The reliability of the HPLP-II and the subscales was good, except for the N subscale. When the item "I consume limited sugar and dessert" (item N) was removed, Cronbach's alpha increased to 0.452. When the items "I have breakfast" and "I eat 6-11 servings of bread, cereal, rice, and pasta every day" were removed, it increased to 0.520. However, the associated reliability remained unacceptable.

Comparisons of HPLP-II scores across demographic variables are presented in Table 3. Overall, education emerged as the most influential demographic factor associated with HPLP-II. However, no difference was found between the groups in the post-hoc tests. The SG was significantly higher among participants with a high school education and those with an undergraduate degree or higher compared with those with secondary school education or who never attended school. In addition, scores for participants with undergraduate or higher education were higher than those for participants who attended primary school.

The NHP subscales on which participants scored best were pain and energy, and the worst was the sleep subscale. The reliability coefficients of the subscales were suboptimal but acceptable, except for SI. When the item "I think I am a burden on people" was removed from SI, Cronbach's

Table 3. Change in HPLP-II scores by demographics.

	HR	PA	N	SG	IR	SM	Total HPLP-II
Gender							
Women	15.1 ± 4.0	12.7 ± 4.0	21.5 ± 2.4	24.9 ± 4.5	22.4 ± 4.1	20.5 ± 3.5	117.1 ± 13.7
Men	13.0 ± 3.6	13.1 ± 3.6	20.7 ± 2.1	23.8 ± 4.2	21.5 ± 4.2	20.5 ± 3.0	112.6 ± 13.1
p	0.001*	0.373	0.117	0.203	0.258	0.871	0.061
Age							
r	-0.044	-0.127	-0.132	-0.108	0.009	0.138	-0.061
p	0.631	0.170	0.152	0.242	0.925	0.135	0.507
Education grade							
Never went to school	13.9 ± 4.4	12.2 ± 3.0	20.9 ± 2.9	21.2 ± 4.5	21.0 ± 5.1	19.1 ± 4.0	108.4 ± 18.2
Primary school	14.3 ± 3.8	13.7 ± 3.5	21.2 ± 2.3	23.7 ± 3.6	21.9 ± 3.8	20.7 ± 3.1	115.2 ± 13.3
Middle school	13.1 ± 3.4	12.2 ± 3.7	21.5 ± 2.0	22.2 ± 3.5	21.1 ± 5.2	19.8 ± 2.8	109.9 ± 10.2
High school	13.9 ± 4.6	13.3 ± 4.5	21.0 ± 2.3	25.9 ± 4.4	22.3 ± 3.4	20.9 ± 3.0	117.5 ± 13.5
Undergraduate or higher	13.2 ± 1.7	12.3 ± 3.1	20.5 ± 1.6	27.3 ± 2.8	23.1 ± 3.5	21.7 ± 3.0	118.1 ± 7.8
p	0.865	0.477	0.854	<0.001*	0.548	0.178	0.016*
Income							
None	13.0 ± 3.8	12.6 ± 5.3	20.6 ± 2.4	24.6 ± 3.6	22.9 ± 3.0	21.2 ± 3.3	114.8 ± 11.1
Retirement pay	13.8 ± 3.8	12.9 ± 3.5	21.0 ± 2.2	24.1 ± 4.3	21.8 ± 4.2	20.4 ± 3.2	113.9 ± 13.3
Retirement pay + side income	16.2 ± 5.1	13.2 ± 6.1	21.6 ± 3.9	27.2 ± 5.5	23.0 ± 3.6	22.4 ± 3.1	123.6 ± 20.0
p	0.319	0.607	0.799	0.222	0.820	0.463	0.516

Table 3. Continued

	HR	PA	N	SG	IR	SM	Total HPLP-II
Where most of life takes place							
İstanbul	14.0 ± 3.8	13.0 ± 3.8	21.1 ± 2.4	24.4 ± 4.1	22.1 ± 4.0	20.6 ± 3.2	115.2 ± 13.3
Out of İstanbul	13.1 ± 4.4	12.5 ± 3.4	20.4 ± 1.5	23.9 ± 4.5	21.4 ± 3.4	20.3 ± 2.8	111.5 ± 12.3
p	0.188	0.757	0.247	0.682	0.353	0.640	0.276
Children							
None	13.4 ± 3.5	11.8 ± 3.2	21.0 ± 1.8	23.5 ± 5.0	21.9 ± 5.2	20.3 ± 3.6	111.8 ± 14.7
Exist	14.0 ± 4.0	13.3 ± 3.9	21.0 ± 2.4	24.5 ± 4.1	21.9 ± 3.7	20.6 ± 3.0	115.2 ± 13.1
p	0.583	0.045*	0.649	0.803	0.382	0.863	0.481
NCDs							
None	11.5 ± 2.8	15.2 ± 3.9	21.6 ± 2.0	24.8 ± 5.5	21.5 ± 5.2	20.7 ± 3.6	115.3 ± 16.4
Exist	14.2 ± 3.9	12.6 ± 3.6	20.9 ± 2.3	24.1 ± 4.1	21.9 ± 3.9	20.5 ± 3.1	114.3 ± 13.0
p	0.003*	0.006*	0.188	0.210	0.910	0.649	0.660
Smoking							
Never smoked	14.4 ± 4.1	12.3 ± 3.3	20.7 ± 2.4	24.4 ± 4.4	21.8 ± 3.9	20.1 ± 3.4	113.8 ± 12.8
Quit smoking	13.0 ± 3.2	13.5 ± 4.4	21.1 ± 2.0	24.9 ± 3.0	23.1 ± 2.9	21.2 ± 2.7	116.8 ± 10.0
Still smoking	13.4 ± 4.0	13.3 ± 3.4	21.2 ± 1.8	23.2 ± 4.9	20.9 ± 4.9	20.5 ± 3.0	112.6 ± 15.5
p	0.247	0.348	0.222	0.529	0.227	0.334	0.615

*p < 0.05. HPLP-II, Health-Promoting Lifestyle Profile-II; HR, health responsibility; IR, interpersonal relationships; N, nutrition; PA, physical activity; SD, standard deviation; SG, spiritual growth; SM, stress management.

alpha increased to 0.568. When the item "I feel lonely" was removed, the associated Cronbach's alpha increased to 0.625, but remained unacceptable (Table 4).

Comparisons of NHP scores according to demographic variables are given in Table 5. Among NHP subscales, age and smoking status showed the clearest differences. In the post-hoc analysis, non-smokers had worse pain (p = 0.03) and mobility (p = 0.01) profiles than smokers and had worse energy profiles than those who had stopped smoking (p = 0.03).

Exploratory correlation analyses are presented in Table 6. PA was moderately associated with pain, mobility, energy and the total NHP score, indicating that more active residents tended to report fewer functional limitations. Psychosocial domains, such as SG, IR, and SM, were most strongly correlated with ER, SI, energy, and overall health profile. The total HPLP-II score was moderately correlated with the total NHP score. These relationships suggest that both physical and emotional aspects of health-promoting behaviors are linked to perceived health status.

Table 4. Mean score and reliability of NHP.

	Mean ± SD	Cronbach alfa
Scores of subscales		
Pain	9.0 ± 15.5	0.774
ER	10.6 ± 14.1	0.643
SI	18.8 ± 19.7	0.410
Mobility	16.1 ± 16.9	0.685
Energy	9.0 ± 21.4	0.602
Sleep	19.2 ± 27.6	0.697
The total score of NHP	82.6 ± 70.8	0.791

ER, emotional reaction; NHP, Nottingham Health Profile; SD, standard deviation; SI, social isolation.

Discussion

This study examined the health-promoting lifestyle behaviors of older adults residing in public nursing homes in İstanbul. The overall lifestyle scores of the participants were at a moderate level, with the highest mean score observed in the IR subscale and the lowest in the PA subscale. In addition, significant associations were identified between health-promoting behaviors and sociodemographic characteristics such as age, education level, and length of stay in the institution. These findings provide important insights into the health behaviors of institutionalized older adults and indicate potential areas for targeted interventions.

Globally, women have a longer life expectancy at birth than men (1). Therefore, the proportion of female residents in nursing homes is expected to be higher than that of males. However, men outnumbered women in all five

Table 5. Change in NHP scores by demographics.

	Pain	ER	SI	Mobility	Energy	Sleep	Total NHP
Gender							
Women	12.4 ± 20.3	12.9 ± 17.3	17.7 ± 21.1	20.5 ± 18.7	10.3 ± 22.1	20.5 ± 27.7	94.3 ± 83.7
Men	6.7 ± 10.7	9.1 ± 11.4	19.5 ± 18.9	13.1 ± 15.0	8.1 ± 21.1	18.3 ± 27.6	74.7 ± 60.0
p	0.437	0.531	0.549	0.037*	0.536	0.631	0.309
Age							
r	0.230	0.029	0.001	0.307	0.217	-0.041	0.161
p	0.012*	0.754	0.990	0.001*	0.018*	0.655	0.080
Education grade							
Never went to school	13.4 ± 22.4	17.7 ± 16.8	23.6 ± 24.7	20.0 ± 15.9	23.5 ± 34.8	20.5 ± 28.4	118.8 ± 96.6
Primary school	6.8 ± 13.0	9.3 ± 13.1	20.3 ± 18.0	14.6 ± 16.0	5.0 ± 12.5	18.6 ± 23.8	74.6 ± 52.5
Middle school	10.8 ± 16.0	11.2 ± 15.0	18.8 ± 15.8	14.7 ± 15.4	6.4 ± 12.2	18.2 ± 32.1	80.2 ± 51.5
High school	7.9 ± 14.9	10.4 ± 13.9	17.8 ± 20.5	14.7 ± 18.6	9.3 ± 24.7	22.1 ± 32.1	82.2 ± 81.5
Undergraduate or higher	7.5 ± 10.4	3.9 ± 8.0	9.4 ± 16.5	16.9 ± 15.7	1.6 ± 6.2	14.2 ± 19.2	53.6 ± 40.7
p	0.700	0.100	0.237	0.683	0.142	0.965	0.257
Income							
None	4.7 ± 11.9	11.6 ± 14.1	14.6 ± 20.7	18.2 ± 15.5	8.2 ± 16.2	26.0 ± 35.9	83.2 ± 69.7
Retirement pay	9.7 ± 16.0	10.8 ± 14.4	19.2 ± 19.7	16.3 ± 17.2	9.5 ± 22.3	18.1 ± 27.2	83.6 ± 72.4
Retirement pay + side income	2.3 ± 3.2	6.1 ± 5.6	16.1 ± 22.1	6.4 ± 9.6	-	29.5 ± 20.7	60.5 ± 34.0
p	0.395	0.924	0.645	0.310	0.554	0.291	0.904
Where most of life takes place							
İstanbul	9.1 ± 16.0	11.0 ± 14.8	17.0 ± 18.6	16.6 ± 16.6	8.7 ± 21.8	19.0 ± 28.0	81.3 ± 72.0
Out of İstanbul	8.2 ± 12.2	7.3 ± 8.4	28.7 ± 23.0	13.4 ± 19.3	9.0 ± 19.3	21.8 ± 25.5	88.3 ± 65.8
p	0.928	0.611	0.047*	0.358	0.809	0.386	0.522
Children							
None	10.0 ± 16.7	7.8 ± 11.2	15.0 ± 22.8	17.5 ± 18.4	11.0 ± 23.5	13.9 ± 22.6	75.2 ± 72.7
Exist	8.7 ± 15.1	11.5 ± 14.9	20.0 ± 18.6	15.6 ± 16.5	8.3 ± 20.9	20.9 ± 28.9	84.9 ± 70.4
p	0.790	0.265	0.078	0.737	0.406	0.222	0.255
NCDs							
None	1.5 ± 4.4	7.2 ± 9.7	20.4 ± 20.6	6.5 ± 14.4	13.8 ± 28.7	17.7 ± 30.0	67.1 ± 72.7
Exist	10.2 ± 16.3	11.2 ± 14.7	18.5 ± 19.7	17.6 ± 16.8	8.2 ± 20.1	19.4 ± 27.3	85.1 ± 70.5
p	0.009*	0.390	0.763	0.002*	0.486	0.560	0.142
Smoking							
Never smoked	14.0 ± 20.0	12.7 ± 16.2	16.3 ± 20.7	21.1 ± 18.9	13.2 ± 24.0	19.7 ± 26.3	96.9 ± 87.0
Quit smoking	6.5 ± 12.1	7.5 ± 13.0	14.1 ± 12.0	15.8 ± 14.9	1.4 ± 5.7	18.7 ± 29.8	64.0 ± 47.1
Still smoking	3.8 ± 6.5	11.0 ± 12.4	22.4 ± 20.8	8.6 ± 10.8	9.0 ± 25.4	21.4 ± 29.4	76.1 ± 62.2
p	0.019*	0.196	0.287	0.011*	0.039*	0.795	0.371

*p < 0.05. ER, emotional reaction; NCD, non-communicable diseases; NHP, Nottingham health profile; SI, social isolation.

nursing homes where this study was conducted. In Turkish culture, older men in particular believe that a man cannot do anything without his wife, which may explain why they choose to stay in nursing homes (18,19). It is a common belief in Türkiye that living with children is easier for mothers than for fathers (20).

The reliability of the HPLP-II subscales, with the exception of the N subscale, was measured by the Cronbach's alpha coefficient and found to be good (Table 2). Even after the statements that reduced reliability were removed, Cronbach's alpha did not exceed 0.520 for the N subscale. This may be because the portion, as expressed on the scale, is not explicitly stated. Although a single interviewer was expected to reduce this ambiguity, this expectation did not sufficiently increase reliability.

Participants had higher scores on the SG, IR, and SM subscales, which provide information about their inner world, than on the PA and HR subscales, which are related to their habits. Since N was mostly provided through meals in nursing homes, it was usually not affected by preferences; therefore, the score of this N subscale was average. Therefore, it was observed that participants' nutritional status was not affected by demographic, social, or economic factors in this study, although education and income have been reported as the most important factors affecting N in other studies (21,22).

A gender difference was observed only for the HR subscale, with higher scores in women than in men. Although a meta-analysis that included all theses in Türkiye usually found higher total HPLP-II scores for women, this difference has also been shown to be purely incidental (23).

Higher levels of education have been the most frequently mentioned factor for its positive effect on healthy behaviors, especially in total HPLP-II, N, and PA (9,21,22,24). However, in this study, PA and N were not affected by education level. The reason could be that everyone lives under nursing-home conditions. Unlike these, SG score was higher in those with a higher level of education.

Another factor mentioned in the literature as having a positive impact on healthy behaviors is a high income level, especially for total HPLP-II, N, and PA (9,21,22). Since the income levels of the participants were similar, it was not possible to draw meaningful conclusions regarding income; however, participants with higher incomes had higher

Table 6. Correlation between HPLP-II and NHP.

	Pain	ER	SI	Mobility	Energy	Sleep	Total NHP
HR							
r	0.161	0.138	0.046	0.077	-0.014	-0.144	0.014
p	0.080	0.132	0.622	0.406	0.875	0.117	0.882
PA							
r	-0.270	-0.205	-0.165	-0.382	-0.241	0.043	-0.305
p	0.003*	0.025*	0.072	<0.001*	0.008*	0.644	0.001*
N							
r	-0.115	-0.117	0.033	-0.132	-0.116	-0.051	-0.138
p	0.209	0.201	0.718	0.150	0.206	0.582	0.133
SG							
r	-0.111	-0.466	-0.439	-0.116	-0.434	-0.124	-0.491
p	0.229	<0.001*	<0.001*	0.205	<0.001*	0.178	<0.001*
IR							
r	0.054	-0.440	-0.538	0.065	-0.333	-0.175	-0.431
p	0.555	<0.001*	<0.001*	0.483	<0.001*	0.056	<0.001*
SM							
r	-0.069	-0.603	-0.471	-0.039	-0.391	-0.409	-0.602
p	0.454	<0.001*	<0.001*	0.671	<0.001*	<0.001*	<0.001*
Total HPLP-II							
r	-0.061	-0.466	-0.404	-0.136	-0.431	-0.230	-0.544
p	0.506	<0.001*	<0.001*	0.138	<0.001*	0.011*	<0.001*

*p < 0.05. ER, emotional reaction; HPLP-II, Health-Promoting Lifestyle Profile-II; HR, health responsibility; IR, interpersonal relationships; N, nutrition; NHP, Nottingham health profile; PA, physical activity; SG, spiritual growth; SI, social isolation; SM, stress management.

scores.

In this study of older adults, those with children were more physically active than those without children. Interviews revealed that older adults usually went outside the nursing home, which could be the underlying reason (20).

Since physical inactivity can lead to NCDs and NCDs can cause certain disabilities, people with NCDs are expected to be less physically active (25). Contrary to expectations, this study found that people with NCDs had better HR. Paying greater attention to their own health after having the disease may explain this.

The reliability of the NHP subscales, as measured by Cronbach's alpha coefficient, was good, with the exception of the SI subscale (Table 4). Cronbach's alpha increased after removing the items "I think I am a burden on people" and "I feel lonely" from the SI subgroup of five items. These items may have been similar among the participants because they were in nursing homes; consequently, their correlations with the other items of the scale may have been lower.

In this study, the NHP subscales with better scores were pain and energy, whereas the worse subscales were sleep, SI, and mobility; by contrast, in other studies among older adults, energy was the worst subscale and SI the best (26–28). However, none of these studies was conducted in nursing homes, and living in an institution far from home and community may explain why SI was worse in this instance (2). Participants were likely to be more extroverted because they were selected from common areas and agreed to participate in the study. Hence, the better results for energy may be purely due to the selection of participants in this study.

Although all subscales and total NHP were worse for women, the difference was statistically significant only for mobility. To the best of our knowledge, no studies in the literature have found that older men have worse NHP results than older women (26,28,29).

As expected, pain, mobility, and energy were worse in advanced age. This study also showed that the presence of NCDs worsened pain and impaired mobility. Similarly, studies conducted in older adults have shown that the general health profile worsens with age, particularly in the mobility and pain subscales, and that NCDs in old age are detrimental to the health profile (26–28). Interestingly, pain, mobility, and energy were found to be worse among non-smokers. Smoking is also used as a socializing tool, and nicotine has a pain-relieving effect (30,31).

It has been observed that those who have not spent most of their lives in İstanbul are more socially isolated than those who have. Given that people, especially older adults, are happier and more self-confident in familiar environments, leaving both their homes and their hometowns may have made it difficult for those unfamiliar with İstanbul to adapt to the city and its environment (2,32,33).

In exploratory analyses, several HPLP-II subscales showed moderate associations with NHP domains, particularly those reflecting psychosocial aspects of lifestyle. SG, IR, and SM were related to better emotional responses, lower SI, and more favorable overall health profiles. These patterns are consistent with previous research showing that psychosocial well-being and social connectedness are associated with improved quality of life and self-rated health among older adults (34,35). These findings are in line with previous evidence showing that psychosocial lifestyle factors are closely linked to how older adults perceive their health.

Study Limitations

This study has several limitations. First, because it employs a cross-sectional design, it is not possible to determine causal relationships between sociodemographic characteristics, lifestyle behaviors, and health profiles. Second, the study was conducted in public nursing homes in İstanbul, and convenience sampling was used; therefore, the findings cannot be generalized to other institutions or to the full resident population of the participating nursing homes. Third, both HPLP-II and NHP are self-reported scales; during data collection, some participants had difficulty distinguishing past experiences from their current health status, which may have influenced the accuracy of responses. In addition, healthy lifestyle behaviors develop over a lifetime, yet information about participants' earlier habits was not collected; therefore, the extent to which past behaviors contributed to current health profiles remains unknown. Finally, institutional factors were not evaluated and may have contributed to variations in lifestyle behaviors.

Conclusion

Scores for Habits related to HR, PA, and sleep were notably lower than scores for subscales reflecting emotional and psychosocial domains, such as SG, SM, IR, energy, and ER. In addition, 30% of older adults in the sample continued to smoke.

These findings are consistent with Türkiye's Healthy Ageing Action Plans. Both the 2015–2020 and 2021–2026 programs identify low PA, limited HR, and challenges in chronic disease self-management as priority areas for institutional action. Based on these priorities, simple daily exercise routines, guided walking sessions, or chair-based activity groups could be incorporated into weekly schedules. Education on basic sleep hygiene, regular screening for sleep problems, and follow-up of residents with poor sleep

scores may also support better outcomes. Short and practical sessions that increase awareness of medication use, chronic disease monitoring, and healthy N may help strengthen HR.

Spiritual well-being and social relationships were relatively strong in this sample; therefore, existing activities in these areas can be maintained rather than expanded. Implementing such culturally appropriate and feasible programs may contribute to healthier daily behaviors among nursing home residents.

Ethics

Ethics Committee Approval: Ethics approval was obtained from the Bezmialem Vakıf University Non-Invasive Research Ethics Committee (approval number: 15/286, dated: 30.07.2019).

Informed Consent: Informed consent was obtained from all participants prior to data collection.

Footnotes

Authorship Contributions

Concept: A.N.B.Y., B.Ö., Design: A.N.B.Y., B.Ö., Data Collection or Processing: A.N.B.Y., Analysis or Interpretation: A.N.B.Y., Literature Search: A.N.B.Y., Writing: A.N.B.Y., B.Ö.

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