Lifestyle and Life Expectancy Questionnaire: validation and assessment in an Italian sample

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Abstract

Background. The objective of this study was to evaluate the reliability and validity of the lifestyle (Miller-Smith) and life expectancy (Schneider) questionnaires in the Italian setting in order to make this instrument available for the determination of lifestyle and hope level in the different domains of everyday life.

Method. Before testing their psychometric properties, the original versions of the two questionnaires, lifestyle (Miller-Smith) and life expectancy (Schneider), were translated into the Italian language. We tested the instrument's psychometric properties on a sample of 18 patients over 60 years old with Alzheimer's disease in the Sapienza University of Rome teaching hospital, policlinico Umberto 1. Internal consistency was considered to assess the reliability of the results across items within the adopted scale by using Cronbach's α coefficient. Using Kolmogorov-Smirnov's test, the normality distribution was evaluated to guarantee the applicability of a parametric or non-parametric test. The software used to analyze data was SPSS version 26 for Windows.

Results. According to the outcome of our statistical analysis, the lifestyle scale showed high overall internal consistency, and the Cronbach's α coefficient for the total 20-item scale was 0.80 in the Italian population. On the other hand, using the 12-item questionnaire about life expectancy resulted in a high overall internal consistency of 0.93, according to the Cronbach's alpha test.

Conclusions. The outcome of our study shows that the Italian versions of the lifestyle (Miller-Smith) and life expectancy (Schneider) questionnaires demonstrated good psychometric properties and good characteristics of factorial validity for future epidemiological studies aimed at evaluating lifestyle and lifestyle expectancy in the Italian population and can as well be used in clinical practice and research. *Clin Ter 2022; 173 (2):128-134 doi: 10.7417/CT.2022.2406*

Key words: Health-Related Behaviors, Alzheimer's Disease, Lifestyle, Life Expectancy, Hope, Questionnaires

Introduction

Cognitive impairment is very common among the elderly. Dementia, the most severe form of cognitive impairment, is among the leading cause of disability among the elderly, affecting about 50 million people worldwide(1). Alzheimer's disease (AD), the main cause of dementia, is one of the most common neurodegenerative diseases in the elderly and one of most the geriatric health challenges of the 21st century(1) Long-term disability not only has a significant impact on patients, but it also has a social and human cost for caregivers and society as a whole (2). The early reviews by Armstrong concluded that the major risk factors for AD are age, family history and genetics, diet, and lifestyle, traumatic brain injury, and associated co-morbidities such as vascular disease, infection, obesity, and diabetes(3)familial inheritance, exposure to aluminium, traumatic brain injury (TBI. Since the number of patients with AD is likely to rise, identifying ways to prevent and reduce the risk of developing the disease is essential. Individual activities and lifestyle choices have the potential to influence health and improve quality of life as well as increase or decrease an individual's risk of developing AD (1). Lifestyle is proposed as one of the important determining elements in people's general health, globally(4). According to the public health perspective, promoting healthy lifestyle behaviors is a practical strategy that is anticipated to have a strong influence on dementia and cardiovascular disease prevention(5).

A variety of protective variables have been found, including lifestyle behaviors and cardiovascular diseases, that each contribute to a lower risk of cognitive decline and Alzheimer's disease(5). The result of a study by Dhana and colleagues in 2020 demonstrated that a healthy lifestyle is associated with a substantially lower risk of AD and dementia(5). Hope is defined as the perception of one's ability to identify ways to achieve desired outcomes. The hope theory is compared to theories of learned optimism, optimism, self-efficacy, and self-esteem. Higher hope

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is consistently related to better outcomes in academics, athletics, physical health, psychological adjustment, and psychotherapy(6). To improve survival and extend the longevity of life for all populations, healthcare professionals should have a comprehensive knowledge of how to utilize one of the most essential variables in determining a society's cultural, social, economic, and health condition which is life expectancy scale (7). According to one study, at 65 years old, happy life expectancy is nearly 25% longer than cognitively intact life expectancy, and at 85 years old, happy life expectancy is approximately twice cognitively intact life expectancy. Happiness does not need the absence of cognitive disability, in other words, even if a person's cognitive abilities are diminished, they can enjoy a great quality of life (8). As total life expectancy is increasing globally, due to poor diets and bad lifestyles, the prevalence of age-related disorders such as diabetes and Alzheimer's disease is on the rise (9). The aim of this study was to evaluate the reliability and validity of the lifestyle and life expectancy questionnaires in the Italian setting in order to make this instrument available for the determination of lifestyle and hope level in the different domains of everyday life.

Method

Data and Sample

This study was conducted using data from Alzheimer's patients in the Sapienza university of Rome teaching hospital, policlinico Umberto 1, under the supervision of Professor Evaristo Ettorre in Rome, Italy from July to September 2021. Inclusion criteria in the present study include eighteen patients over 60 years old, non-smoking, and non-use of certain medications (depression, anxiety, and hypnotics). lifestyle and life expectancy questionnaires were completed by patients. Among them, 6 (33.30%) are men and 12 (66.70%) women. The respondents' age ranged from 62 to 91, with a mean age of around 79 (SD = 8.91) (see Table 1).

Questionnaires

The original versions of the two questionnaires, lifestyle (*Miller-Smith*) and life expectancy (*Schneider*), were translated into the Italian language (Appendix A, B) (10,11), by an expert translator, and two psychologists who are proficient in both languages reviewed the items to agree on the final version used in the present study.

The lifestyle questionnaire is proposed as one of the important determining elements in people's general health, globally. Miller-Smith Lifestyle Assessment Inventory consists of 20 items with a 5-point Likert-type scale that asks respondents how often the related items are apply to them. It was used to assess the lifestyle of Alzheimer patients, including exercise, sleeping, spirituality, social relations, overall health status, weight, nutrition, smoking and affection. Response choices range from 1 (always) to 5 (never). Total scores range from 20 to 100 (10). Scores of the statement of each component were summed up, converted into percent scores, and the total was divided by the number of the items, giving a mean score for each component. The respondent's lifestyle was considered excellent/healthy if the total score was less than 50%, very good/moderate 50% - 70 %, good/Mild 70% - 95%, and unhealthy/poor if the score was > 95%. Miller and Smith (1988) reported the reliability as α=0.85. The AMOS (version 22.0, Chicago: IBM SPSS) was applied to analyze research data by structural equation models (P<0.001).

Schneider's Life Expectancy Questionnaire consists of 12 items and aims to assess the level of life expectancy in individuals. The statements of the questionnaire include 4 statements for measuring agency thinking, 4 for strategic thinking and 4 as deviant statements. So, it consists of two sub-scales: agency and strategy. This questionnaire assesses the two dimensions of life expectancy: (1) the energy for achieving goals in life; and (2) the personal plan for achieving goals in life. The scoring is based on a 5-point Likert scale, from 1 (totally disagree) to 5 (totally agree). Sum of strategy and factor subscale scores determines the

socio- demographic	al variables	N	valid percent	(Mean ± SD)
Gender	Men	6	33.30	-
	Female	12	66.70	
Age(Year)		18(62-91)	-	(79.16±8.91)
Educational level	Elementary	8	44.40	-
	High school	3	16.70	
	Diploma	6	33.30	
	Degree	1	5.60	
Marital status	Married	11	61.10	-
	Divorce	1	5.60	
	Single	0	0	
	Widow	6	33.30	

Table 1. Descriptive statistics for survey participants

total score of hope. Preliminary evidence about the validity of the test is provided by Schneider et al. (11). Cronbach's alpha is between 74% and 84% and reliability is calculated 80% over a period of 10weeks (12). Many researchers have supported the validity and reliability of the questionnaire as a measuring scale. The internal consistency range of the test has been reported 0.74-0.84 and the validity of test-retest 0.80, while for the time period beyond 8-10 weeks, those figures would be higher (7).

Statistical analysis

Two separate types of analyses were performed to validate the Italian version of the questionnaires: one for Lifestyle and the other one for the Life Expectancy. The lifestyle and life expectancy Scale was evaluated for its validity. Internal consistency was considered to assess the reliability of the results across items within the adopted scale by using Cronbach's α coefficient. A reliability analysis was performed to check whether any item was inconsistent with the rest of the scale and could thus be discarded. The item-total correlation and the variability of the alpha between items were tested by adding and eliminating items one at a time. To describe the sample, frequency tables were compared, using percentage for categorical variables and mean and standard deviation (SD) for quantitative ones. Using Kolmogorov-Smirnov's test, the normality distribution was evaluated to guarantee the applicability of a parametric or non-parametric test. The software used to analyze data was SPSS 26 for Windows.

Result

Eighteen of the lifestyle and life expectancy questionnaires were completed and submitted on time by each participant. Table 1 shows the descriptive statistics and selfreported questionnaire in which the only requested sociodemographic characteristics were age, gender, educational level, and marital status. Among them, 6 (33.30%) were men, and 12 (66.70%) women. The respondents have an age range from 62 to 91, with a mean age of around 79.16 (SD = 8.91) (Table 1). The target population of the study was Alzheimer's patients in the Sapienza University of Rome teaching hospital, Policlinico Umberto 1 in Rome, Italy. They were mainly female with an elementary educational level (44.40%) and were married (61.10%) (Table 1). The mean of the total lifestyle scale was 51.66 ± 12.02 , and the mean life expectancy was 35.88 ± 10.80 (Table 2,3).

Table 2. Lifestyle questionnaire version. Statistical description and univariate analysis. Item-total correlation and validity of Cronbach's alpha, if one item was deleted

Questionnaire	N	Mean (SD)		corrected Item-Total correlation	Cronbach's Alpha if Item Deleted
I smoke less than half a pack of cigarettes a day(non – smokers score 1)	18	2.11	(±1.87)	0.140	0.816
I am in good health (including eyesight ; hearing; teeth).	18	3.11	(±1.27)	0.24	0.80
I am the appropriate weight for my height.	18	2.44	(±1.09)	0.58	0.78
I exercise to the point of perspiration at least twice a week	18	4.27	(±1.63)	0.44	0.79
I eat at least one hot; balanced meal a day.	18	2.61	(±1.33)	0.36	0.79
I drink fewer than three cups of coffee (or tea or coke) a day.	18	2.05	(±1.30)	0.26	0.80
I get seven to eight hours sleep at least four nights a week.	18	2.83	(±1.29)	0.22	0.80
I regularly attend club or social activities.	18	3.33	(±1.57)	0.74	0.76
I do something for fun at least once a week.	18	3.33	(±1.49)	0.72	0.77
I give and receive affection regularly.	18	1.61	(±1.14)	0.09	0.80
I have a network of friends and acquaintances.	18	2.83	(±1.20)	0.66	0.78
I have at least one relative within 50 km on whom I can rely.	18	1.50	(±0.98)	-0.02	0.81
I have one or more friends to confide in about personal issues.	18	3.11	(±1.56)	0.73	0.77
I have regular conversations with the people I live with about domestic problems e.g., chores; money and daily living issues.	18	2.72	(±1.44)	0.60	0.78
I am able to speak openly about my feelings when angry or concerned	18	2.50	(±1.42)	0.48	0.78
I get strength from my religious beliefs; or I feel comfortable with my view of the universe and my place in it.	18	2.16	(±0.85)	0.11	0.80
I take quiet time for myself during the day.	18	2.61	(±1.14)	-0.27	0.82
I am able to organize my time effectively.	18	3.33	(±1.08)	0.65	0.78
I have an income adequate to meet my basic expenses.	18	1.66	(±1.02)	0.27	0.80
I take fewer than five alcoholic drinks a week (non- drinkers score 1).	18	1.50	(±0.85)	0.23	0.80
Total item(20)		51.66	(±12.02)	0.80	

Questionnaire	N	Mean (SD)		corrected Item-Total corre- lation	Cronbach's Alpha if Item Deleted
I can think of many ways to get out of a jam.	18	3.11	(±1.23)	0.81	0.92
I energetically pursue my goals.	18	3.27	(±1.48)	0.92	0.92
I feel tired most of the time.	18	3.00	(±1.18)	0.77	0.92
There are lots of ways around any problem.	18	3.16	(±1.15)	0.85	0.92
I am easily downed in an argument.	18	3.16	(±1.33)	0.67	0.93
I can think of many ways to get the things in life that are impor- tant to me.	18	3.05	(±1.16)	0.58	0.93
I worry about my health.	18	2.66	(±1.18)	0.75	0.92
Even when others get discouraged, I know I can find a way to solve the problem.	18	3.38	(±1.09)	0.30	0.94
My past experiences have prepared me well for my future	18	3.16	(±1.15)	0.90	0.92
l've been successful in life	18	3.05	(±1.21)	0.64	0.93
I usually find myself worrying about something.	18	1.77	(±0.54)	0.79	0.93
I meet the goals that I set for myself	18	3.05	(±1.16)	0.69	0.93
Total item (12)		35.88	(±10.80)	0.93	

Table 3. Life expectancy questionnaire version. Statistical description and univariate analysis. Item-total correlation and validity of Cronbach's alpha, if one item was deleted

Internal consistency was assessed for the entire instrument as well as for each subscale. The lifestyle scale showed high overall internal consistency. The Cronbach's

coefficient for the total 20-item scale was 0.80 (see Table 2), which is near the original value of 0.85 for the English language version reported by Miller and Smith (1988)(10). The result of Cronbach's alpha in the lifestyle questionnaire proved that the elimination of each question had no positive effect on improving the alpha form.

The Cronbach's alpha demonstrated that using the questionnaires on all 12 items concerning life expectancy demonstrated high overall internal consistency that was 0.93, and removing each item had no influence on the alpha form. The reliability analysis is shown in Table 3.

Discussion

There is a need to regularly assess the current lifestyle of patients with AD to see if there are factors in it that may be increasing their vulnerability to stress and may reduce their life expectancy, and which could be suitable targets of change. The purpose of this research was to measure the reliability and validity of the lifestyle (Miller-Smith) and life expectancy (Schneider) questionnaires in an Italian setting, with the goal of making these instruments available for determining lifestyle and hope levels in various domains of daily life in the Italian population. So far, Iranian researchers have primarily used the Miller-Smith lifestyle assessment inventory to investigate the relationship between stress and lifestyle, and it has demonstrated good psychometric properties in Iranian studies (13,14). On the other hand, the Schneider life expectancy scale, has been validated for the Iranian population, with Cronbach's alpha coefficients of 0.73 and 0.75 for the pathways and agency domain, respectively (15). According to the outcome of our statistical analysis, the lifestyle scale showed high overall internal consistency, and the Cronbach's α coefficient for the total 20-item scale was 0.80 in the Italian population, which is slightly more reliable than similar validation in an Egyptian population. A team of researchers from the medical surgical nursing department at the faculty of nursing at Ain-Shams University, Cairo, Egypt tested the reliability of the lifestyle questionnaire among 50 patients with chronic obstructive pulmonary disease, and the Cronbach's coefficient for the total 20-item scale was 0.698 for the Egyptian population (16). According to the outcome of our statistical analysis, using the 12-item questionnaire about life expectancy resulted in a high overall internal consistency of 0.93, according to the Cronbach's alpha test, and deleting each item had no effect on the alpha form. Similarly, the test for the validity of the lifestyle expectancy/hope scale among Iranian high school students demonstrated that the scale has appropriate psychometric qualities to be used in Iran, the Cronbach's Alpha test showed 0.66 for agency and 0.80 for pathways (17). Exercising, eating a Mediterranean diet, avoiding stress, quitting smoking, reducing the intake of saturated fats and trans fats, increased intake of vegetables, legumes (beans, peas, and lentils), fruits, and whole grains and treating illnesses like diabetes, hypertension, and atherosclerosis can all assist to reduce the risk of AD and extend life (18). Moreover, free radicals are thought to play a role in the etiology of AD, according to several studies. Many Alzheimer's patients had mitochondrial and nuclear DNA damage and oxidation (19). Furthermore, antioxidants and free radical scavengers have been demonstrated to lower amyloid toxicity in AD patients, raising therapeutic expectations for their usage. Vitamin E (tocopherol), Selegiline (monoamine oxidase inhibitor), and Ginkgo biloba extract (EGb 761) are free radical scavenging supplements that have shown promise in the management of AD (19). According to one study, patients with dementia of any kind have a greater death rate than individuals who do not have dementia. Individuals with AD had a median survival time of 5-8 years after diagnosis (20). A diagnosis of any non-disease Alzheimer's dementia was associated with a higher risk of all-cause mortality, a shorter survival time from diagnosis, and a younger age of death when compared to individuals with Alzheimer's disease. Individuals with non-dementia Alzheimer's had lower survival times across all types of dementia than people with AD, but the subgroup analysis revealed that this difference was only significant for vascular dementia and dementia with Lewy bodies (20). In order to develop health promotion strategies towards improving the quality of life among Italian patients with AD, their lifestyle behaviours and life expectancy should be periodically checked and analyzed using the appropriate validated questionnaires.

Conclusion

The lifestyle scale showed high overall internal consistency in the Italian population. The Cronbach's coefficient for the total 20-item scale was 0.80, which is near the original value of 0.85 for the English language version reported by Miller and Smith. On the other hand, the outcome of the Cronbach's alpha test showed high overall internal consistency at a value of 0.93 regarding the 12-item life expectancy scale among Italian patients with AD. These outcomes have shown that both scales demonstrated good psychometric properties and good characteristics of factorial validity for future epidemiological studies aimed at evaluating lifestyle and lifestyle expectancy in the Italian population and can as well be used in clinical practice and research.

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APPENDIX A

STILE DI VITA

	Domanda	sempre	di solito	a volte	raramente	mai
1	Fuma meno di mezzo pacco di sigarette al giorno (non fumatori punteggio 1)					
2	Gode di buona salute (compresi vista, udito, denti)					
3	Ha il peso appropriato per la mia altezza					
4	Pratica esercizio fisico fino alla sudorazione almeno due volte a settimana					
5	Mangia almeno una porzione di carne cotta ed equilibrata al giorno					
6	Beve meno di tre tazze di caffè (o tè o Coca-Cola) al giorno					
7	Dorme dalle sette alle otto ore almeno quattro notti a settimana					
8	Partecipa regolarmente ad attività sociali					
9	Pratica attività che lo divertono almeno una volta a settimana					
10	Da e riceve affetto regolarmente					
11	Ha di amici e conoscenti che frequenta					
12	Ha un parente che gli abita vicino (entro i 50 km) su cui poter contare					
13	Ha uno o più amici a cui confidare problemi personali					
14	Ha regolari conversazioni con le persone con cui abita su argo- menti a carattere domestico (per esempio, faccende domestiche, soldi, problemi di vita quotidiana, fare la spesa, ecc.)					
15	È in grado di parlare apertamente dei sentimenti quando è arrab- biato o interessato					
16	È una persona religiosa e trae forza da questa, o si sente comun- que a proprio agio con la visione dell'universo					
17	Ha momenti in cui sta in silenzio durante il giorno					
18	È in grado di organizzare il tempo in modo efficace					
19	Ha un reddito adeguato a far fronte alle spese di base					
20	Beve alcol meno di cinque volte a settimana					

APPENDIX B

ASPETTATIVA DI VITA

	Domanda	in completo disaccordo	in disaccordo	incerto	d'accordo	completamente d'accordo
1	Riesco a pensare a molti modi per tirarmi fuori dai guai.					
2	Perseguito energicamente i miei obiettivi.					
3	Mi sento stanco la maggior parte del tempo					
4	Ci sono molti modi per aggirare qualsiasi proble- ma.					
5	Sono facilmente abbattuto in una discussione.					
6	Posso pensare a molti modi per ottenere le cose nella vita che sono importanti per me					
7	Sono preoccupato per la mia salute.					
8	Anche quando gli altri sono scoraggiati, so che posso trovare un modo per risolvere il problema.					
9	Le mie esperienze passate mi hanno preparato bene per il mio futuro.					
10	Ho avuto abbastanza successo nella vita.					
11	Di solito mi trovo a preoccuparmi di qualcosa.					
12	Ho incontrato gli obiettivi che mi sono prefissato.					