Korean J Community Nutr. 2025 Apr;30(2):103-113
https://doi.org/10.5720/kjcn.2024.00255
eISSN 2951-3146

KJCN
Korean Journal of Community Nutrition

Research Article

Relationship between self-care and health-related behaviors among Korean adults: a cross-sectional study

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Received: November 5, 2024
Revised: December 31, 2024
Accepted: January 2, 2025

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Objectives: This study investigated the relationship between self-care and health-related behaviors such as medication use, dietary supplementation, dietary habits, and physical activity among Koreans aged 20–60 years.
Methods: Data from a total of 300 participants (150 men and 150 women) living in Seoul and Gyeonggi provinces in Korea were analyzed to assess the relationship between health behaviors and dietary supplements (DSs) related to self-care. Based on self-care levels, the participants were classified into three groups: low (n = 124), medium (n = 78), and high (n = 98).
Results: DSs ($P < 0.001$), physical activity ($P < 0.001$), recognizing the perceived health benefits of self-care ($P < 0.001$), self-care when sick ($P = 0.039$), and the reasons for self-care ($P = 0.028$) differed among the self-care groups. Daily diet frequency ($P = 0.001$), breakfast frequency ($P = 0.026$), regular exercise ($P < 0.001$), DSs use rate ($P < 0.001$), DSs use frequency ($P = 0.013$), and total dietary behavior score ($P < 0.001$) also differed significantly depending on the degree of self-care. The degree of self-care was significantly and positively correlated with DSs intake ($r = 0.377$, $P < 0.001$), physical activity ($r = 0.433$, $P < 0.001$), and total dietary behavior score ($r = 0.185$, $P < 0.01$).
Conclusion: The results demonstrated that the degree of self-care was related to DSs, physical activity, and total dietary behavior scores in Korean adults. Additionally, self-care capacity should be increased through health-related behaviors based on health education programs.

Keywords: self care; health behavior; dietary supplements; eating behavior; exercise

INTRODUCTION

Self-care is a consumer-practiced means of health improvement based on their preferences, without guidance from healthcare professionals [1]. Self-care activities range from broad activities, such as dietary habits and exercise, that the public performs as part of health management [2] to specific self-care actions carried out without a physician's intervention to manage mild chronic conditions

[3, 4]. The World Health Organization emphasizes that self-care is important for sustainable disease prevention, health promotion, and a major form of healthcare accessible to all individuals [5]. Many governments, including those in the United States, Europe, and Australia, are increasingly interested in supporting self-care, as it benefits long-term healthcare and can reduce medical costs for minor illnesses [6-8].

Self-directed physical activity and dietary choices are significantly associated with better health outcomes, particularly in weight management and reducing the risk of chronic diseases [9]. Medication adherence, smoking cessation, diabetes self-care, and weight loss are examples of successful health behavior interventions based on changes in daily life [10]. In contrast, behaviors such as frequent medication nonadherence, overeating, and substance abuse (e.g., alcohol, tobacco, and illegal drugs) play roles in poor health and increased mortality [11]. However, a lack of professional guidance on self-care behaviors can lead to inconsistencies in health outcomes owing to the misuse or misunderstanding of related products and practices. For instance, the unsupervised consumption of dietary supplements (DSs) and medications can have both benefits and side effects, depending on individual perceptions and the appropriateness of the products used [12]. The use of DSs along with prescription medications is often believed to improve health. An estimated 12%–20% of patients taking both DSs and prescription medications may have potential drug-supplement interactions [13]. Therefore, the indiscriminate use of DSs and some DSs may be dangerous when taken with prescription drugs.

However, despite many recent studies on self-care, research on health behaviors related to self-care is lacking, and few studies have examined the relationships among general medicine use, DSs use, and self-care. Therefore, this study aimed to understand the practice of self-care among Korean adults and identify the relationship between self-care and health-related behaviors.

METHODS

Ethics statement

The written informed consent was obtained from all participants for the survey. The study protocol was approved by the Institutional Review Board of Shinhan University (approval number: SHIRB-202305-HR-184-02).

1. Study design

This was a cross-sectional study. It was described according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement (https://www.strobe-statement.org/).

2. Participants and data collection

This study was conducted in June 2023, using an online survey targeting people in the age group of 20–60 years living in Seoul and Gyeonggi-do, South Korea. Data from a total of 300 respondents were analyzed. The questionnaire used in this study consisted of questions regarding general characteristics, self-care, health-related behaviors, DSs, and dietary habits.

3. General characteristics

General information on gender, age, marital status, household type, occupation, education level, average household income, frequency of breakfast and meal intake, stress, drinking, smoking, and regular exercise were recorded.

4. Self-care behavior

Participants were questioned about their self-care experiences within the last 6 months, self-care methods when sick, source of self-care information, the reasons for self-care, and the side effects to determine their self-care status. Additionally, the degree of self-care, self-administration of medicine without a doctor's prescription, DSs use when sick, physical activity when ill, and perception of the health benefits of self-care were investigated using a five-point Likert scale (1 = not at all, 5 = very much). The participants were classified into three groups according to the degree of self-care: Low, those who reported "not at all" and "a little" self-care (LS, n = 124); medium, those who answered "usually" (MS, n = 78); and high, those who answered, "a lot" and "very much" (HS, n = 98).

https://doi.org/10.5720/kjcn.2024.00255

5. Health-related behaviors and dietary supplements

The frequencies of daily diet consumption, breakfast consumption, alcohol consumption, regular exercise, and smoking status were investigated, along with current DS intake and frequency of DSs intake. The investigation included 13 types of DSs: multivitamins and minerals, vitamin B complex, vitamin A & lutein, vitamin C, vitamin D, calcium, probiotics, omega-3 fatty acids, red ginseng and ginseng products, iron supplements, folic acid, protein supplements, and others.

6. Dietary behaviors

The questionnaire on dietary behaviors included 20 items and used a five-point Likert scale (1 = not at all, 5 = very much) [14]. Regarding questions on dietary behaviors, higher scores (average individual scores for each item and the total diet scores on a 100-point scale) indicated better dietary behaviors.

7. Statistical analysis

SAS version 9.4 (SAS Institute Inc.) was used to perform all statistical analyses. The analyzed results were presented as means ± standard error or number (%). Chi-square or Fisher's exact tests were used to analyze the demographic information, DSs intake, and self-care of each group to identify their characteristics. The differences in dietary behavior scores among the groups were determined through analysis of variance using Duncan's multiple range test. The correlations between major variables related to self-care were analyzed and expressed as partial Spearman's rank order correlation coefficient after adjusting for age. Statistical significance was set at $P < 0.05$.

RESULTS

1. General characteristics

Table 1 presents general information on the survey participants. Age differed significantly among the groups according to self-medication. The LS, MS, and HS groups had the highest proportions of people in their 40s, 30s, and 60s, respectively ($P = 0.035$). However, no significant differences were observed across groups in terms of gender, marital status, household type, occupation status, educational level, or average monthly income.

2. Self-care behaviors

The participants' self-care behaviors are presented in Table 2. Self-care experience within the past six months differed significantly among the groups, with 39.52%, 55.13%, and 93.88% of participants in the LS, MS, and HS groups, respectively, reporting self-care experience ($P < 0.001$). There was a significant difference in the degree of self-care by DSs intake when sick among the LS (2.60 ± 1.17), MS (3.03 ± 1.02), and HS (3.56 ± 1.08) groups ($P < 0.001$). There was a significant difference in the degree of self-care through physical activity when sick among the LS (2.70 ± 0.99), MS (2.97 ± 0.58), and HS (3.56 ± 0.72) groups ($P < 0.001$). The perceived health benefits of self-care were significantly higher in the HS group (3.83 ± 0.67) than in the LS (3.32 ± 0.61) and MS (3.29 ± 0.56) groups ($P < 0.001$). Regarding the use medicines or DSs when sick, while the LS group was most likely to report taking "prescription medicines only" (39.52%), both the MS (41.03%) and HS (42.86%) group were most likely to say "both prescription medicines and DSs," with a significant difference among the groups ($P = 0.039$). The most common reason for self-care was "convenience of easily obtaining drugs/health supplements" in all groups (33.67% of the total), followed by "not taking the disease seriously" (25.00%) in the LS group and "easy access to information" in the MS (23.08%) and HS (26.53%) groups, with a significant difference among the groups ($P = 0.028$).

3. Health behaviors and dietary supplements

The health behaviors of the participants are presented in Table 3. The frequencies of daily diet, breakfast, alcohol, smoking, regular exercise, and DSs intake differed significantly according to the degree of self-care. There was a significant difference in the daily diet frequency, with the LS and MS groups having the highest frequency of consuming two times per day, and the HS group having the highest frequency of consuming three times per day ($P = 0.001$). Regarding the frequency of breakfast consumption, the LS and HS groups had a high rate of consuming breakfast 5–7 times a week, while the MS group revealed of almost never eating breakfast, with a significant difference among the groups ($P = 0.026$). The frequency of regular exercise differed significantly among the groups ($P < 0.001$). In the LS group, the

Table 1. Sociodemographic characteristics of the participants according to the degree of self-care

Variable	Total (n = 300)	Low (n = 124)	Medium (n = 78)	High (n = 98)	*P*-value[1)]
Gender					0.086
Men	150 (50.00)	55 (44.35)	47 (60.26)	48 (48.98)	
Women	150 (50.00)	69 (55.65)	31 (39.74)	50 (51.02)	
Age (year)					0.035
20–29	60 (20.00)	27 (21.77)	19 (24.36)	14 (14.29)	
30–39	60 (20.00)	27 (21.77)	20 (25.64)	13 (13.27)	
40–49	60 (20.00)	29 (23.39)	13 (16.67)	18 (18.37)	
50–59	60 (20.00)	23 (18.55)	14 (17.95)	23 (23.47)	
60–69	60 (20.00)	18 (14.52)	12 (15.38)	30 (30.61)	
Marital status					0.488
Married	172 (57.33)	68 (54.84)	43 (55.13)	61 (62.24)	
Single	128 (42.67)	56 (45.16)	35 (44.87)	37 (37.76)	
Household type					0.178
Single-person household	45 (15.00)	24 (19.35)	8 (10.26)	13 (13.27)	
Multi-person household	255 (85.00)	100 (80.65)	70 (89.74)	85 (86.73)	
Occupation					0.429
Yes	217 (72.33)	92 (74.19)	52 (66.67)	73 (74.49)	
None	83 (27.67)	32 (25.81)	26 (33.33)	25 (25.51)	
Education					0.477
High school	43 (14.33)	14 (11.29)	12 (15.38)	17 (17.35)	
In college	14 (4.67)	5 (4.03)	5 (6.41)	4 (4.08)	
Completed college	205 (68.33)	89 (71.77)	55 (70.51)	61 (62.24)	
Graduate school	38 (12.67)	16 (12.90)	6 (7.69)	16 (16.33)	
Average monthly income					0.691
< 2 million won	24 (8.00)	13 (10.48)	4 (5.13)	7 (7.14)	
2–3 million won	44 (14.67)	19 (15.32)	12 (15.38)	13 (13.27)	
3–4 million won	43 (14.33)	18 (14.52)	14 (17.95)	11 (11.22)	
4–5 million won	47 (15.67)	17 (13.71)	13 (16.67)	17 (17.35)	
5–6 million won	50 (16.67)	23 (18.55)	14 (17.95)	13 (13.27)	
≥ 6 million won	92 (30.67)	34 (27.42)	21 (26.92)	37 (37.76)	

n (%).
[1)]*P*-value estimated using the χ^2 test.

most common response was "rarely" (38.71%). In the MS group, the highest response rates were for "1–3 times a month" (25.64%), "1–2 times a week" (24.36%), and "rarely" (23.08%), in that order. In the HS group, the most frequent response was "3–4 times a week" (29.59%), and the proportion of participants who reported exercising "everyday" (16.33%) was substantially higher than in the other groups.

The frequency of DSs intake differed significantly among the groups. The proportions of participants reporting "everyday" intake were 38.04% in the LS group, 55.38% in the MS group, and 64.52% in the HS group, with the HS group showing a significantly higher frequency ($P = 0.013$).

4. Dietary behaviors

The dietary behaviors of the participants are presented in Table 4. The total dietary behavior score for the HS group was 65.26 ± 8.97 points, which was significantly higher than those in the LS (59.74 ± 10.06 points) and MS (59.24 ± 10.04 points) groups ($P < 0.001$). The groups revealed significant differences in the following 12 dietary behavior items: "I have three meals a day" ($P = 0.043$), "I eat a good breakfast" ($P = 0.023$), "I eat regularly" ($P = 0.040$), "I don't overeat" ($P < 0.001$), "I eat food with oil at every meal" ($P = 0.042$), "I rarely eat

https://doi.org/10.5720/kjcn.2024.00255

Table 2. Self-care behaviors of the participants according to the degree of self-care

Variable	Total (n = 300)	Low (n = 124)	Medium (n = 78)	High (n = 98)	*P*-value[1]
Self-care within the last 6 months					< 0.001
Yes	184 (61.33)	49 (39.52)	43 (55.13)	92 (93.88)	
No	116 (38.67)	75 (60.48)	35 (44.87)	6 (6.12)	
Take medicines without a doctor's prescription when sick[2]	2.83 ± 1.12	2.80 ± 1.07	2.76 ± 1.15	2.92 ± 1.16	0.595
Take DSs when sick[2]	3.03 ± 1.18	2.60 ± 1.17[c]	3.03 ± 1.02[b]	3.56 ± 1.08[a]	< 0.001
Physical activity when sick[2]	3.05 ± 0.89	2.70 ± 0.99[c]	2.97 ± 0.58[b]	3.56 ± 0.72[a]	< 0.001
Perceived health benefits of self-care[2]	3.48 ± 0.66	3.32 ± 0.61[b]	3.29 ± 0.56[b]	3.83 ± 0.67[a]	< 0.001
Self-care when are sick					0.415
Go to the hospital	174 (58.00)	69 (55.65)	51 (65.38)	54 (55.10)	
Take leftover prescription medicine instead of going to the hospital	46 (15.33)	24 (19.35)	8 (10.26)	14 (14.29)	
Take general medicines instead of going to the hospital	51 (17.00)	20 (16.13)	9 (11.54)	22 (22.45)	
Take DSs	9 (3.00)	4 (3.23)	3 (3.85)	2 (2.04)	
Eat healthy foods	20 (6.67)	7 (5.65)	7 (8.97)	6 (6.12)	
How medicines/DSs are taken when sick					0.039
Take only prescription medicines	95 (31.67)	49 (39.52)	23 (29.49)	23 (23.47)	
Take only general medicines/prescription medications	39 (13.00)	20 (16.13)	10 (12.82)	9 (9.18)	
Take only DSs	13 (4.33)	5 (4.03)	3 (3.85)	5 (5.10)	
Take both prescription medicines and DSs	102 (34.00)	28 (22.58)	32 (41.03)	42 (42.86)	
Take both general medicines and DSs	31 (10.33)	13 (10.48)	5 (6.41)	13 (13.27)	
Stop taking supplements/DSs	4 (1.33)	1 (0.81)	0 (0.00)	3 (3.06)	
Simple stretches or exercises	10 (3.33)	5 (4.03)	2 (2.56)	3 (3.06)	
Not applicable	6 (2.00)	3 (2.42)	3 (3.85)	0 (0.00)	
Reasons for self-care					0.028
High medical expenses	25 (8.33)	11 (8.87)	6 (7.69)	8 (8.16)	
Medicines easily obtained and DSs (because it is convenient)	101 (33.67)	40 (32.26)	29 (37.18)	32 (32.65)	
Not taking the disease seriously	53 (17.67)	31 (25.00)	10 (12.82)	12 (12.24)	
Left-over previously prescribed medications	16 (5.33)	4 (3.23)	8 (10.26)	4 (4.08)	
Ease of access to useful information (recommendations from acquaintances, YouTube, etc.)	64 (21.33)	20 (16.13)	18 (23.08)	26 (26.53)	
Preference for alternative medicine (natural healing therapies, herbal medicines, etc.)	17 (5.67)	4 (3.23)	3 (3.85)	10 (10.20)	
No time, etc.	24 (8.00)	14 (11.29)	4 (5.13)	6 (6.12)	

n (%) or Mean ± SE.
DSs, dietary supplements.
[1]*P*-value was estimated using χ^2 or Fisher's exact tests and analysis of variance (ANOVA).
[2]Five-point Likert scale: not at all = 1; slightly = 2; moderately = 3; very = 4; extremely = 5.
[a–c]Means with different letters within the same row differ significantly according to Duncan's multiple range test.

processed foods" ($P = 0.003$), "I rarely eat sweet foods" ($P = 0.022$), "I avoid spicy and strong-tasting food" ($P < 0.001$), "I rarely eat animal fat" ($P < 0.001$), "I avoid heavy smoking" ($P = 0.003$), "I exercise > 30 min every day" ($P < 0.001$), and "I apply nutritional knowledge to daily life" ($P < 0.001$). In all items showing significant differences, the HS group scored significantly higher than the other groups.

Table 3. Health-related behaviors of the participants according to the degree of self-care

Variable	Total (n = 300)	Low (n = 124)	Medium (n = 78)	High (n = 98)	*P*-value[1]
Daily diet frequency					0.001
1 time	4 (1.33)	3 (2.42)	0 (0.00)	1 (1.02)	
2 times	162 (54.00)	63 (50.81)	56 (71.79)	43 (43.88)	
≥ 3 times	134 (44.67)	58 (46.77)	22 (28.21)	54 (55.10)	
Breakfast frequency					0.026
Rarely	109 (36.33)	39 (31.45)	37 (47.44)	33 (33.67)	
1–2 times/week	37 (12.33)	20 (16.13)	10 (12.82)	7 (7.14)	
3–4 times/week	33 (11.00)	12 (9.68)	11 (14.10)	10 (10.20)	
5–7 times/week	121 (40.33)	53 (42.74)	20 (25.64)	48 (48.98)	
Alcohol frequency					0.748
Rarely	127 (42.33)	51 (41.13)	33 (42.31)	43 (43.88)	
1–3 times/month	75 (25.00)	33 (26.61)	21 (26.92)	21 (21.43)	
1–2 times/week	64 (21.33)	25 (20.16)	15 (19.23)	24 (24.49)	
3–4 times/week	22 (7.33)	12 (9.68)	4 (5.13)	6 (6.12)	
≥ 5–6 times/week	12 (4.00)	3 (2.42)	5 (6.41)	4 (4.08)	
Regular exercise					< 0.001
Rarely	80 (26.67)	48 (38.71)	18 (23.08)	14 (14.29)	
1–3 times/month	43 (14.33)	14 (11.29)	20 (25.64)	9 (9.18)	
1–2 times/week	71 (23.67)	32 (25.81)	19 (24.36)	20 (20.41)	
3–4 times/week	55 (18.33)	14 (11.29)	12 (15.38)	29 (29.59)	
5–6 times/week	28 (9.33)	11 (8.87)	7 (8.97)	10 (10.20)	
Every day	23 (7.67)	5 (4.03)	2 (2.56)	16 (16.33)	
Smoking					0.432
Present smoker	60 (20.00)	27 (21.77)	19 (24.36)	14 (14.29)	
Past smoker	66 (22.00)	24 (19.35)	17 (21.79)	25 (25.51)	
Never	174 (58.00)	73 (58.87)	42 (53.85)	59 (60.20)	
Current DSs intake					< 0.001
Yes	250 (83.33)	92 (74.19)	65 (83.33)	93 (94.90)	
No	50 (16.67)	32 (25.81)	13 (16.67)	5 (5.10)	
Frequency of DSs intake[2]					0.013
< 1 time/month	1 (0.40)	0 (0.00)	0 (0.00)	1 (1.08)	
1–3 times/month	2 (0.80)	2 (2.17)	0 (0.00)	0 (0.00)	
1–2 times/week	15 (6.00)	10 (10.87)	3 (4.62)	2 (2.15)	
3–4 times/week	48 (19.20)	22 (23.91)	13 (20.00)	13 (13.98)	
5–6 times/week	53 (21.20)	23 (25.00)	13 (20.00)	17 (18.28)	
Every day	131 (52.40)	35 (38.04)	36 (55.38)	60 (64.52)	

n (%).
DSs, dietary supplements.
[1]*P*-value was estimated using χ^2 or Fisher's exact tests.
[2]Includes only respondents currently taking DSs.

5. Correlation analysis between self-care degree and health-related variables

Table 5 presents the correlations between the degree of self-care and related variables adjusted for age. The degree of self-care was positively correlated with DSs intake (r = 0.377, $P < 0.001$), physical activity (r = 0.433, $P < 0.001$), and total dietary behavior score (r = 0.185, $P < 0.01$). The degree of medication use without a doctor's prescription was positively correlated with the degree of DSs intake (r = 0.170, $P < 0.01$) and negatively correlated

https://doi.org/10.5720/kjcn.2024.00255

Table 4. Dietary behavior scores of the participants according to the degree of self-care

Items	Total (n = 300)	Low (n = 124)	Medium (n = 78)	High (n = 98)	*P*-value[1)]
I have three meals a day.	2.91 ± 1.35	2.90 ± 1.35[ab]	2.64 ± 1.18b	3.15 ± 1.45[a]	0.043
I eat a good breakfast.	2.76 ± 1.33	2.80 ± 1.28[a]	2.42 ± 1.22[ab]	2.97 ± 1.44[a]	0.023
I eat regularly.	3.32 ± 1.04	3.24 ± 1.08[ab]	3.17 ± 0.95[b]	3.53 ± 1.03[a]	0.040
I eat slowly.	3.12 ± 0.97	3.02 ± 1.00	3.06 ± 0.93	3.29 ± 0.94	0.101
I don't overeat.	2.94 ± 0.99	2.69 ± 0.99[b]	3.04 ± 0.96[a]	3.18 ± 0.95[a]	< 0.001
I eat grains every meal (rice, bread, pasta, and potato).	3.45 ± 1.00	3.51 ± 1.00	3.29 ± 0.99	3.49 ± 1.01	0.297
I eat protein every meal (meat, fish, egg, legumes, and tofu).	3.26 ± 0.85	3.27 ± 0.83	3.21 ± 0.86	3.29 ± 0.86	0.798
I eat vegetables more than twice a day except Kimchi.	2.97 ± 0.92	2.93 ± 0.92	2.87 ± 0.86	3.10 ± 0.96	0.205
I eat food with oil every meal.	2.74 ± 0.86	2.86 ± 0.88[a]	2.76 ± 0.82[ab]	2.57 ± 0.85[b]	0.042
I drink milk (cheese, yogurt) every day.	2.78 ± 1.11	2.75 ± 1.15	2.73 ± 1.10	2.86 ± 1.08	0.702
I eat fruits more than twice a day.	2.40 ± 0.97	2.37 ± 1.00	2.41 ± 0.93	2.44 ± 0.99	0.874
I rarely eat processed food.	2.68 ± 1.00	2.49 ± 1.02[b]	2.63 ± 0.88[b]	2.95 ± 1.03[a]	0.003
I rarely eat sweet food.	2.97 ± 1.09	2.82 ± 1.10[b]	2.90 ± 0.92[b]	3.21 ± 1.15[a]	0.022
I eat non-salty food.	2.95 ± 0.95	2.88 ± 0.98[ab]	2.85 ± 0.95[b]	3.13 ± 0.90[a]	0.073
I avoid spicy and strong-tasting food.	2.95 ± 1.03	2.80 ± 1.01[b]	2.74 ± 0.95[b]	3.30 ± 1.03[a]	< 0.001
I rarely eat animal fat.	2.90 ± 0.98	2.77 ± 0.97[b]	2.74 ± 0.95[b]	3.20 ± 0.95[a]	< 0.001
I avoid heavy, frequent drinking.	3.90 ± 1.18	3.86 ± 1.21	3.78 ± 1.19	4.04 ± 1.13	0.319
I avoid heavy smoking.	4.32 ± 1.32	4.23 ± 1.18[b]	4.08 ± 1.31[b]	4.63 ± 0.82[a]	0.003
I exercise > 30 minutes every day.	2.99 ± 1.21	2.66 ± 1.17[b]	2.92 ± 1.09[b]	3.46 ± 1.21[a]	< 0.001
I apply nutritional knowledge to daily life.	3.10 ± 0.92	2.89 ± 0.95[b]	3.00 ± 0.79[b]	3.46 ± 0.88[a]	< 0.001
Total	61.41 ± 10.04	59.74 ± 10.06[b]	59.24 ± 10.04[b]	65.26 ± 8.97[a]	< 0.001

Mean ± SD.
[1)]*P*-value estimated by analysis of variance (ANOVA).
[a–c]Means with different letters (a–c) within the same row differ significantly according to Duncan's multiple range test.

Table 5. Correlation analysis between self-care and related variables (n = 300)

Variables	Degree of self-care	Taking medication without a prescription	DS intake	Physical activity	Total dietary behavior score
Degree of self-care	1[1)]				
Taking medication without a prescription[2)]	0.055	1			
DSs intake[2)]	0.377[***3)]	0.170[**]	1		
Physical activity[2)]	0.433[***]	0.056	0.438[***]	1	
Total dietary behavior score	0.185[**]	−0.119[*]	0.073	0.264[***]	1

DSs, dietary supplements.
[1)]Partial Sperman's rank order correlation coefficient adjusted for age.
[2)]Five-point Likert scale: not at all = 1; slightly = 2; moderately = 3; very = 4; extremely = 5.
[3)]$^{*}P < 0.05$, $^{**}P < 0.01$, $^{***}P < 0.001$.

with total dietary behavior score (r = −0.119, $P < 0.05$). The degree of DSs intake was positively correlated with the degree of physical activity (r = 0.438, $P < 0.001$). Finally, the degree of physical activity was positively correlated with the total dietary behavior score (r = 0.264, $P < 0.001$).

DISCUSSION

This study aimed to understand the practice of self-care among Korean adults and to identify health-related behaviors that influence the degree of self-care. Degree of self-care in adults was associated with DSs intake, physical activity, and total diet scores, but not with general medicine use. The importance of self-care is increasingly emphasized in modern society, particularly with the high prevalence of chronic diseases [15, 16]. Self-care is defined as health activities performed by individuals to promote health, prevent disease, and recover from illnesses [17]. These activities may include managing one's health through regular diet management, DSs intake, exercise [18] and seeking medical care or taking general medicines when feeling unwell [19]. Regarding self-care activities, the daily use of DSs, such as vitamins, was high, while the use of general medicine was relatively less common, and information-seeking for self-care activities are conducted daily, primarily using the Internet [20].

Prescription medications are used to treat specific diseases and there is a trend toward increasing self-medication using over-the-counter drugs [21]. In contrast, DSs are mainly used to promote general health [22, 23]. A previous study reported a high self-medication rate (88.2 %) in Thai adults, with the common use of over-the-counter medications such as non-steroidal anti-inflammatory drugs and antibiotics. While self-medication was common owing to mild symptoms and easy access to pharmacies, the authors emphasized that complete treatment of diseases often requires additional care [24]. Our results showed no correlation between the degree of self-care and the use of general medicine. Thus, general medicine use may be an independent factor in personal health management behaviors. As general medicine is primarily aimed at temporary symptom relief, it may not be a suitable indicator of self-care abilities.

The results of the present study showed that when feeling unwell, the participants actively engaged in self-care by increasing their DSs intake or physical activity. Additionally, they tended to take DSs along with prescription medications when they felt unwell. DSs or their compounds can directly affect prescription drugs, potentially inhibiting their clinical effects or exacerbating symptoms, making the combination of certain DSs and prescription drugs potentially dangerous [25]. Although previous studies have reported that women, the elderly, and those with formal education often believe that using DSs along with prescription medications can further improve their health [26, 27], the present study did not observe significant differences in DSs intake or self-care behaviors by gender or education level. These discrepancies may be due to differences in the study population or sample size. Further research is needed to explore these associations in more diverse populations.

A study examining the relationship between age and self-care found that older adults are highly dependent on self-care [28], and a report from the United States showed that the time spent on self-care increases with age among adults aged > 25 years [29]. Similarly, the results of the present study confirmed that the participants who actively engaged in self-care were older adults. This may be owing to increased disease risk and health awareness with increasing age, leading to the recognition of the importance of health management. These results highlight the importance of nutrition education and physical activity programs for improving self-care behaviors, especially among older adults. Appropriate management of DSs intake is likely to enhance self-care abilities effectively. Future research should explore these associations further to develop practical interventions for diverse populations. Previous research has reported that many adults engage in health-related behaviors without professional supervision and are often influenced by a strong will to maintain personal health [30]. These results suggest that an environment in which DSs are easily accessible and useful information is readily available provides conditions conducive to self-care. DSs intake supports overall health by providing additional nutrition, especially for individuals with nutritional imbalances [31]. In this study, groups with high DS intake also showed high self-care abilities, suggesting that DSs may be an effective tool to promote self-care behaviors.

Additionally, the degree of self-care was related to total diet scores and physical activity. The degree of self-care improved as DSs intake increased, physical activity increased, and the total dietary behavior scores improved. Specifically, three regular meals per

https://doi.org/10.5720/kjcn.2024.00255

day, breakfast consumption, and overall better dietary habits along with regular exercise were observed. Self-care encompasses regular physical activity, adhering to medication regimens, monitoring symptom, following prescribed diuretics, and seeking medical advice from health-care professionals [32]. Similar to the results of previous studies [33, 34] that the higher the self-efficacy, the better the health promotion behavior, the better the self-care was in this study as well as the better the eating habits and the more exercise. A previous study also reported improvements in nutritional assessment scores and nutrient intake status in the elderly following a meal intervention after hospital discharge [34]. Another study observed that among individuals aged > 50 years, better adherence to dietary guidelines was associated with better self-rated health, thus confirming a significant relationship between perceived health status and healthy eating habits [35].

In this study, the more physical activity one did, the higher the degree of self-care. Clearly, obesity is the result of modern lifestyles, such as irregular physical activity and being sedentary. Physical Activity Guidelines in the US also suggest that obesity is the result of modern lifestyles, such as irregular physical activity and being sedentary [36]. According to Chung *et al.* [37], it was found that the group that exercised was more concerned about their health concern and had better diet habits and DSs intake compared to the group that did not exercise. Regular physical activity helps maintain overall physical function, including mood improvement, self-awareness, and the prevention of mental health issues [38]. These results indicated that good dietary habits, nutritional status, and physical activity contribute to improved self-care abilities. Thus, specific dietary improvement programs for adult are required, and it is necessary to consider the practice of nutrition education and physical activity.

Limitations

This study has several limitations. First, the study included a relatively small sample of 300 participants, limited to the Seoul and Gyeonggi regions of Korea, which reduced the generalizability of the findings. Second, the data collection relied on self-report surveys; thus, response bias was possible. Third, the degree of self-care was based on subjective self-reported data, limiting the accuracy of group classification.

Conclusion

The findings of this study provide valuable insights into the relationship between self-care behaviors and health-related factors, such as DSs intake, physical activity, and dietary habits, among Korean adults. The results highlight the importance of promoting healthy dietary behaviors and regular physical activity as integral components of self-care. Furthermore, these results suggest that DSs intake, when appropriately managed, could play a supportive role in enhancing self-care abilities. Future research should incorporate diverse populations, examine causal relationships between self-care and health behaviors, and integrate objective measures to enhance understanding of health outcomes. These efforts will help develop health strategies and effective programs to enhance self-care across diverse groups.

CONFLICT OF INTEREST

The corresponding author, Ji-Myung Kim, serves as the Editor-in-Chief of the Korean Journal of Community Nutrition. To mitigate any potential conflicts of interest, Ji-Myung Kim abstained from the peer review and editorial decision-making process for this manuscript, which was managed by an independent responsible editor. No other authors have any conflicts of interest to declare.

FUNDING

None.

DATA AVAILABILITY

Research data is available upon request to the corresponding author.

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