



## ORIGINAL ARTICLE

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# The Relationship between Health Behavior and General Health Status: Based on 2011 Korea National Health and Nutrition Examination Survey

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general health status, health behavior, Korea National Health and Nutrition Examination Survey, quality of life

#### **Abstract**

**Objectives:** The aim of the present study is to investigate the relationship between health behavior and general health status.

**Methods:** We used data from the 2011 Korea National Health and Nutrition Examination Survey. Mental health was measured by stress recognition and depression. Dietary habit was measured by mixed grain diet. Life pattern was measured by sleeping time and working pattern. Physical activity was measured by walking and exercise. We defined general health status as Euro Quality of Life-5 Dimension (EQ-5D<sub>index</sub>), Euro Quality of Life Visual Analogue Scale (EQ-5D<sub>vas</sub>), number of people experienced lying in a sickbed for the last one month, number of days lying in a sickbed for the last one month, and activity limitations.

**Results:** Mental health, dietary habit, life pattern, and physical activity have seven factors. Most of the factors have a significant correlation with EQ-5D<sub>index</sub>, EQ-5D<sub>vas</sub>, number of people experienced lying in a sickbed for the last one month, number of days lying in a sickbed for the last one month, and activity limitations.

**Conclusion:** Health behavior and general health status have a positive correlation.

#### 1. Introduction

Improvement of medicine and public health reduced mortality drastically and prolonged average life expectancy. Thus, people have become concerned not only about life expectancy but also about quality of life (QOL). As a result, the concept of health life expectancy, namely the disability-adjusted life expectancy (DALE), has

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emerged. In 2007, the average life span of the Koreans is 79.56 years and DALE is 71.00 years [1]. Korean's DALE is shorter than the healthy life expectancy of people in Japan (76 years), Switzerland (75 years), and Germany (73 years), which are major Organization of Economic Cooperation and Development countries [1].

Entering the 21<sup>st</sup> century, people have become more interested in the concept of wellbeing, for example, in lifestyle and value for improving the QOL.

In Korea, since 2000, the concept of wellbeing has spread rapidly by socioeconomic situation after being introduced via mass media. However, unlike Western culture where the phenomenon appears throughout the living, the well-being trend in Korea is characterized by purchasing product for wellbeing [2]. It is recommended to switch the social atmosphere of Korea from focusing on buying wellbeing products to pursuing the concept of wellbeing throughout general life. These days, many people have become interested in a healthy lifestyle as an important value for achieving high QOL and longevity. Furthermore, some studies have reported that lifestyle has a relation with health status. There is evidence that the lifestyle of the elderly and industrial employees has a significant relationship with health status [3,4].

Due to the recent increasing trend of interest in QOL, the present study investigated health related habits: health behavior and general health status. To be specific, we identified health behaviors that are known to be associated with QOL, and among them we analyzed and discussed indices that were surveyed in the fifth Korea National Health and Nutrition Examination Survey (KNHANES) [5].

#### 2. Materials and methods

#### 2.1. KNHANES

KNHANES is the national statistic about health and nutrition for evaluating the aim of a health plan and calculating the health index to provide it to international organizations such as the Organization of Economic Cooperation and Development and the World Health Organization (WHO) since 1998. In calculating the indices the following factors are assessed: smoking, alcohol consumption, health behavior such as physical activity, disease such as obesity, hypertension and diabetes, and food intake.

The present study is based on the fifth KNHANES V-2 performed in 2011 by the Korea Centers for Disease Control and Prevention. A total of 8518 individuals participated in this survey out of a total of 10,589 individuals who were sampled for the KNHANES V-2, with a response rate of 80.4% [6].

#### 2.2. Health behavior

(1) Mental health. Stress is considered to induce illness and worsen QOL: there is a saying that "stress is an

- origin of all illnesses" [7]. Anyone can experience depressed mood sometimes, but someone feeling depression continually will eventually receive some bad effects on health.
- (2) Dietary habit. Healthy eating habit is a very important factor to maintain health. In the present study we researched whether mixed grain diet affects QOL.
- (3) Life pattern. It is known that sleep is directly related to health: "deep sleep is better than restorative medicine"[8]. Sleep has two aspects of quantity and quality. In the present study we analyzed quantity of sleep by sleeping hours and quality of sleep by working patterns.
- (4) Physical activity. Due to the increasing incidence of chronic disease, regular physical activity has been emphasized as an essential element for health care. In the present study we used two variables to evaluate physical activity. First, the prevalence of moderate physical activity which was defined as at least 30 minutes of moderate-intensity activity, 5 days/week. Second, the prevalence of walking for at least 30 minutes, 5 days/week.

#### 2.3. Health status

Many assessment tools for QOL have been developed and currently 765 tools are used all around the world [9]. From these, 95 tools have an official Korean version, and 17 tools are overall health-related QOL assessment tools [10].

The Euro QOL-5 Dimension (EQ-5D) is the most commonly used standardized instrument to measure health-related QOL by using five dimensions in the world [11]. KNHANES measures QOL using EQ-5D which was validated in the general Korean population through a two-step process. First, EQ-5D score was compared according to classification by demographic variables. Second, EQ-5D score was compared with a score of Short Form-36 version 2 (SF-36v2). Both studies showed statistically significant results (p < 0.01) [12].

In the present study we selected Euro Quality of Life—5 Dimension (EQ-5D<sub>index</sub>), Euro Quality of Life Visual Analogue Scale (EQ-5D<sub>vas</sub>), number of people experienced lying in a sickbed for the last one month, number of days lying in a sickbed for the last one month, and rate of activity limitations as an index for evaluating the general health status. EQ-5D<sub>index</sub> evaluates QOL by questioning about mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. EQ-5D<sub>vas</sub> records the respondent's self-rated health on a visual analogue scale. Respondents specify their level between 0 meaning "worst imaginable health state" and 100 meaning "best imaginable health state".

#### 2.4. Statistical analysis

A p value  $\leq 0.05$  was considered statistically significant. All analyses were performed using SPSS statistical software (version 20.0; IBM Corp, Armonk, NY, USA).

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