Perceived Health Status According to the Presence of Lower Urinary Tract Symptoms in Korean Middle-aged Men

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Abstract. The objective of this study was to detect factors influencing perceived health status in the presence of lower urinary tract symptoms (LUTS) in Korean middle-aged men. Stepwise regression analysis indicated that a combination of factors influenced perceived health status in the LUTS group: grip strength, depressive symptoms, and LUTS level explained 26.1% of the variance. The results of this study could contribute to nursing intervention strategies for improving the health status and quality of life among people with LUTS.

Keywords: Health status, Lower urinary tract symptoms, Male

1   Introduction

Perceived health status is an important health-related indicator of an individual's general health status. It is computed by self-evaluating one's own physical, psychological, and social health comprehensively [1], and is crucial for a person's life satisfaction. It is not limited to psychological perception but can indicate the presence of substantial health problems to be reflected in health management [2], and has been reported to positively correlate with health status [3]. Until such symptoms become severe enough to require medical interventions, those with LUTS tend to think that such symptoms are a result of aging, or that they can endure such urinary symptoms. This study aimed to provide a basis for health management systems for LUTS, which has been medically neglected and regarded as a natural consequence of aging. It also aimed to improve their quality of life by identifying potential factors for enhancing the health status of people with LUTS's.

2   Methods

2.1   Data collection and participants

This study was conducted using the data of the 2010 Korean Longitudinal Study of Aging (KLoSA). The KLoSA stratified the population into 15 special and metropolitan cities and provinces. Each of these was divided into *dongs*, *eups*, and *myeons*, and further into house and apartment districts for each area. The stratified population enumeration districts were sorted in order of their administrative code, and households were sampled systematically, up to the number allotted to each area. After households were selected through simple random sampling, interviewers visited the households in person and collected data through computer-assisted personal interviewing. The population of the KLoSA was people aged 45 or older living throughout the country. Among the panel of 10,067 individuals, 7,920 completed the survey. Among them, 2,130 middle-aged men in their 50–60s were the final subjects of this study. Those who had been diagnosed with prostatic diseases (prostatic hypertrophy, prostatitis, or prostatic cancer) within the previous 2 years and answered positively to the question 'Do you currently have a lower urinary tract symptom?' were classified into the group with LUTS.

2.2   Measurements

Grip strength. With the arm, forearm, and wrist in a neutral position, 2 consecutive attempts were made to measure grip strength in kilograms using the 6103 hand dynamometer (effective range, 0–75 kg; interval, 0.5 kg; size, 205 mm × 146 mm × 43 mm; TANITA, Tokyo, Japan). The mean value of the measurements for the dominant hand was used.

Instrumental Activities of Daily Living (IADL). IADL were assessed using the tool developed by Lawton and Brody [4]. This study applied the tool translated by Won et al. [5], which is widely used and accepted in Korea due to its validity and reliability. It includes personal grooming, going out for short distances, using transportation, making/receiving phone calls, managing money, doing household chores, preparing meals, shopping, taking medications, and doing the laundry. Total scores ranged from 10 to 30. Higher scores indicated greater impairment in IADL. Cronbach's alpha was 0.94 at the time of the scale development and 0.96 in this study.

Depressive symptoms. Depression was measured with the short-form of the Center for Epidemiological Studies Depression Scale (CES-D), which simplified Radloff's [6] CES-D into 10 questions for the KLoSA. The tool involved questions on the subjects' feelings for the last week and the total score ranged from 0–10, and a score of ≥ 4 was considered an indication of "depression" (Irwin et al. [7]). The internal consistency (Cronbach's α) was 0.92 in the study of Irwin et al. [7] and 0.85 in this study.

Cognitive function. To measure cognitive function, we used the Mini-Mental State Examination (MMSE) developed by Folstein et al. [8] and translated and modified by Kang et al. [9]. The tool assigned 1 point when the instructions of each item were followed correctly and 0 otherwise. The score ranged from 0 (lowest) to 30 (highest).

A high score indicated high cognitive capability. A total score of 24–30 indicated "no cognitive impairment," and a score of 18–23 indicated "mild cognitive impairment." The internal consistency (Cronbach's α) was 0.85 in the study of Kang et al. [9] and 0.78 in this study.

Perceived health status. The subjects described the level of their general health status using a 5-point scale ranging from 1 ('Very poor') to 5 ('Very good').

2.3   Data analysis

Data were analyzed using SPSS for Windows version 18.0 (SPSS, Chicago, IL, USA). We used cross-sectional weight in order to calculate parameter estimates without bias from the data of this panel survey. Correlations between these variables were calculated using Pearson's correlation coefficient. Each variable that significantly correlated with perceived health status was regarded as an independent variable in a stepwise regression analysis. The significance threshold was 0.05.

3   Results

3.1   Correlation between other variables and perceived health status

Correlations between other variables and perceived health status are presented in Table 1. Grip strength positively correlated with perceived health status in both the LUTS group (r = 0.397, $P < 0.001$) and the non-LUTS group (r = 0.189, $P < 0.001$). IADL was negatively correlated with perceived health status in both the LUTS group (r = -0.240, $P = 0.011$) and the non-LUTS group (r = -0.241, $P < 0.001$). Depressive symptoms were also negatively correlated with perceived health status in both the LUTS group (r = -0.287, $P = 0.002$) and the non-LUTS group (r = -0.271, $P < 0.001$). On the other hand, LUTS level was negatively correlated with perceived health status in the LUTS group (r = -0.280, $P = 0.003$). Cognitive function positively correlated with perceived health status only in the non-LUTS group (r = 0.185, $P < 0.001$).

3.2   Factors influencing perceived health status

For the combination of factors influencing perceived health status in the LUTS group, grip strength (β = 0.356, t = 4.084, $P < 0.001$), depressive symptoms (β = -0.249, t = -2.889, $P = 0.005$), LUTS level (β = -0.191, t = -2.204, $P = 0.030$) were statistically significant contributors (Table 2). These variables together accounted for 26.1% of the variance in the perceived health status level (F = 11.755, $P < 0.001$). In the non-LUTS group, depressive symptoms (β = -0.182, t = -7.989, $P < 0.001$), grip strength (β = 0.130, t = 5.721, $P < 0.001$), IADL (β = -0.079, t = -3.505, $P < 0.001$), and cognitive function (β = 0.076, t = 3.351, $P = 0.001$) were statistically significant

predictors of perceived health status (Table 2), explaining 8.6% of the variance in the perceived health status level (F = 44.610, $P < 0.001$).

4   Conclusions

Considering the high prevalence of LUTS among men in their 50s or more, nurses in charge of community healthcare need to not only promote awareness and health education for preventing such symptoms, but also conduct regular surveys for related risk factors. This will aid in producing individualized approaches for eliminating risk factors such as prostatic hypertrophy, and enhance their personal capability in health management. The treatment of lower urinary tract symptoms resulting from aging and prostatic disease will be one of the major issues in an aged society. The results of this study have important implications for treatment, and highlight the need for further research in order define the specific mechanisms underlying this association.

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