# Mediators and Moderators of Health-Related Quality of Life in People Living with HIV

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We examined whether social support moderated communication and self-management, and tested whether self-management mediated communication, instrumental and emotional social support (ISS, ESS), and health-related quality of life (HRQOL) in Korean people living with HIV (PLWH). A crosssectional research design using a self-reported survey questionnaire was conducted. Data for 205 PLWH were collected at the outpatient divisions of seven hospitals. HRQOL was positively associated with communication, ISS, ESS, and self-management. ESS moderated the relationship between communication and self-management through a significant interaction with communication. Johnson-Neyman analysis indicated that the interaction effect of ESS was significant at the range from 4 to 14.4. However, the ISS did not moderate the relationship between communication and self-management. Self-management mediated the relationship between communication, ESS, and HRQOL. The findings suggest that nursing interventions should be focused on providing interactive communication and ESS to improve self-management and HRQOL of PLWH.

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Recently, HIV infection has been considered as a chronic disease because the effective dissemination of antiretroviral therapy has lengthened life expectancy for people living with HIV (PLWH; Mitchell & Linsk, 2004; Webel et al., 2012). In 2016, about 36.7 million people were living with HIV around the world (World Health Organization, 2018). In Korea in 2016, 11,439 patients were living with HIV; 92.8% were male (Korean Centers for Disease Control and Prevention, 2017). Thus, consistent health care services are needed for PLWH to manage their chronic condition.

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Health-related quality of life (HRQOL) is one of the optimal goals of health care in patients with chronic diseases, including HIV. HRQOL has been defined as the impact of illness on an individual's function and well-being, and is considered as a parameter to decide whether a patient is doing well or is responding to the treatment (Revicki et al., 2000; Trask et al., 2009). Because PLWH are vulnerable to HIV-related symptoms, and their overall daily activities are influenced by their symptoms, their quality of life (QoL) is threatened (Sukati et al., 2005). Nursing interventions are aimed at helping patients attain the highest possible HRQOL. Therefore, it is of utmost importance that nurses understand the variables that affect HRQOL. In addition, moderator and mediator effects (variables) can help care providers plan more specific interventions and select priority targets. Moderator effects help to identify "when" or "for whom," predicting or causing a dependent variable strongly (or weakly), and mediator effects help to explain "how" or "why," predicting or causing a dependent variable such as HRQOL (Frazier et al., 2004).

Self-management is an important antecedent of HRQOL. Chronic disease patient self-management has been considered a primary behavior to achieve health outcomes such as QoL, HRQOL, and physiological/functional disease-related status (Kawi, 2014; Whittemore et al., 2013). Selfmanagement by patients with chronic diseases was defined as performing a combination of lifelong work such as taking medication, eating well, performing the patient role, and managing emotional discomfort (Lorig & Holman, 2003). Researchers have explored the role of self-management in mediating certain health outcomes, including QoL. For example, Whittemore and colleagues (2013) found that self-management mediated the effects of family function and depressive symptoms on hemoglobin A1C and QoL in U.S. youth with diabetes.

Communication between patients and physicians/ nurses has been found to be another important antecedent of self-management, with good communication related to high levels of self-management (Allen et al., 2008; Kruse et al., 2013). One characteristic of patient self-management is active participation in the care process. Active participation is realized through communications with providers. Kruse and colleagues (2013) reported that the median encounter time with patients with diabetes in primary care clinics was 22.3 minutes, and 23.5% of this time (5.2 minutes) was spent discussing self-care. Researchers and clinicians should seek ways to promote communication between patients and providers to improve self-management.

Researchers have also examined the role of social support as a moderator in the context of health behavior and health outcomes (Baek et al., 2014; Oetzel et al., 2014). Although social support is known to be a multidimensional construct, it has been measured by single-dimensional and multidimensional instruments (Breet et al., 2014; Lee et al., 2013; Moser et al., 2012). When multidimensional social support is measured, the moderating effects should be tested not only for the total level of social support, but also for each dimension of social support separately, in order to plan specific and effective strategies.

Studies that have examined associations between communication, social support, and self-management in patients with chronic diseases can guide effective intervention strategies. However, few studies have examined how these variables are associated with PLWH; studies identifying moderator or mediator effects to get in-depth information about HRQOL in PLWH are scarce.

The aim of our study was to verify factors associated with HRQOL in PLWH. We hypothesized that: (a) communication, social support, and self-management would have direct associations with HRQOL; (b) social support would moderate relationships between communication and self-management; and (c) self-management would mediate relationships between communication, social support, and HROOL.

#### Methods

#### **Study Design and Participants**

Our study was cross-sectional, descriptive correlational research. Data were taken from a previous study in which the self-management instrument was validated and a number of other variables examined (Kim et al., 2015). The participants were recruited

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