

# Demographic and Disease Characteristics Associated With Non-Hodgkin Lymphoma Survivors' Quality of Life: Does Age Matter?

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Understanding quality-of-life (QOL) domains among non-Hodgkin lymphoma (NHL) survivors is a growing area of interest. NHL is the sixth most common cancer in the United States (National Cancer Institute [NCI], 2012), and treatments such as chemotherapy, biologic therapy, and stem cell transplantation have improved survival of patients with NHL to a five-year rate of 68% (Horner et al., 2009). However, NHL remains an illness that elicits concerns related to late and long-term effects of QOL.

QOL is an accepted outcome measure in cancer research, but little is known about the moderating effect of age on QOL in NHL survivors. Moderators are independent variables that affect the strength and direction of the association between another independent variable and the outcome variable and help to determine when the relationship occurs (Bennett, 2000). Age may moderate the relationships between other demographic and disease characteristics and QOL. Therefore, interface of age on overall QOL and its determinants must be understood.

Studies have evaluated the impact of sociodemographic and disease characteristics on QOL; however, limited published reports exist in NHL literature to provide insight for clinicians and researchers on the moderated effect of age and its association with QOL. Leak, Mayer, and Smith (2011) reviewed QOL domains of older NHL survivors and the impact cancer had on survivors' health and found that most studies lacked conceptual or theoretical frameworks and representation of sociodemographic diversity, particularly age. NHL research has focused primarily on examining the impact of NHL and its treatment on survivors' QOL. Oerlemans, Mols, Nijziel, Lybeert, and van de Poll-Franse (2011) systematically reviewed lymphoma studies and found that having higher education, being married or living with a partner, and being male were

**Purpose/Objectives:** To examine demographic and disease characteristics by age and the moderating effect of age on quality of life (QOL) among non-Hodgkin lymphoma (NHL) survivors.

**Design:** A cross-sectional, secondary analysis study of NHL survivors.

**Setting:** Two North Carolina cancer registries.

**Sample:** 741 NHL survivors with a mean age of 62 years and a mean time since diagnosis of 10 years.

**Methods:** Mailed surveys were sent to individuals treated for NHL. All analyses were conducted using SPSS®, version 18.0. Multiple regression was used to analyze relationships among demographic and disease characteristics, age, and QOL.

**Main Research Variables:** Demographic, disease, and clinical characteristics on QOL.

**Findings:** In relation to QOL, income and gender were moderated by age; for example, younger survivors who earned less than \$30,000 annually had a poorer QOL. Women reported a higher QOL than men.

**Conclusions:** Age was a moderator for income and an indicator for how income could affect care of younger survivors. Men reported a lower QOL than women and gender-specific resources may be helpful to them.

**Implications for Nursing:** Nursing research should focus on age-sensitive resources targeted for younger NHL survivors.

**Knowledge Translation:** Age is an important characteristic that impacts overall health-related QOL. Oncology nurses are instrumental in identifying patients at all ages who could benefit from age-specific resources.

associated with higher QOL in various cancer populations, including NHL.

Addressing the association between age and personal characteristics could assist clinicians in identifying patients for whom age-appropriate cancer care is recommended. The purpose of the current study