Understanding Symptom Burden in Patients With Advanced Cancer Living in Rural Areas

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OBJECTIVES: To evaluate the feasibility of using a biobehavioral approach to examine symptom burden in rural residents with advanced cancer.

SAMPLE & SETTING: 21 patients with advanced lung, colorectal, or pancreatic cancer were enrolled at the University of Iowa in Iowa City.

METHODS & VARIABLES: Using Cleeland's cytokine-immunologic model of symptom expression, symptom burden (i.e., severity, count, and interference) and inflammatory cytokines were measured for 24 weeks. Potential predictors included demographics, clinical characteristics, optimism, social support, and cancer-related stress. Descriptive statistics, Wilcoxon rank-sum, and Fisher's exact test were used for analysis.

RESULTS: Recruitment and retention rates were similar for rural and nonrural patients. Demographics, optimism, and social support were no different between groups. The cancer-related stress total score for rural patients was nearly half of the score of nonrural patients, with rural patients reporting significantly less avoidance. Symptom severity for the five worst symptoms remained moderate during the 24 weeks, whereas nonrural residents reported steady declines in severity of their five worst symptoms. Significant differences in inflammatory cytokines between groups were only found at one time point.

IMPLICATIONS FOR NURSING: Rural residents who seek care at a cancer center may be clinically and demographically more similar to their nonrural counterparts than to rural residents seeking local care.

KEYWORDS symptom burden; rural; advanced cancer; isolation; symptom management
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Approximately 59 million people live in rural areas in the United States (Blake, Moss, Gaysynsky, Srinivasan, & Croyle, 2017). Rural-dwelling individuals have an increased frequency of late-stage cancer at the time of diagnosis (Singh, Williams, Siahpush, & Mulhollen, 2011) and an increased incidence of cancer mortality compared to individuals living in nonrural areas (Blake et al., 2017). These disparities are thought to be related to restricted access to health care, lower median household income, and fewer years of formal education (Weaver, Geiger, Lu, & Case, 2013). In addition, rural residents experience isolation, report lack of information, and have limited accessibility to services (Duggleby et al., 2010). The challenge of including rural residents who live geographically far from academic centers in research contributes to gaps in understanding the symptom management needs of rural residents with advanced cancer (Gilbertson-White, Saeidzadeh, Yeung, Tykol, & Vikas, 2017).

People with advanced cancer face multiple distressing physical and psychosocial symptoms, such as pain, fatigue, sleep disturbance, and depressed mood (Rhondali et al., 2013) across various cancer diagnoses. Symptoms can affect a person's function and interfere with cancer treatment outcomes (Wang et al., 2010). Symptom severity is a known predictor of physical function in people with advanced cancer (Salanitro et al., 2012). Symptom distress has been associated with lower quality of life (Kirkova et al., 2010). In addition, rural residents report increased rates of depression (Andrykowski, Steffens, Bush, & Tucker, 2014; Burris & Andrykowski, 2010) and stress related to accessing healthcare services during major illnesses (Hendren et al., 2011). This suggests that symptom occurrence, severity, and interference may be higher in people with advanced cancer living in rural areas.

A growing body of research has evaluated various predictors of cancer symptoms to determine who will