Symptom Clustering
in Older Taiwanese Children With Cancer

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Purpose/Objectives: To derive symptom clusters occurring in a large group of older pediatric patients with cancer in Taiwan and to examine whether each cluster differed based on gender, type of cancer and disease, pain, and functional status.

Design: Descriptive, correlational study.

Setting: Pediatric oncology inpatient unit and outpatient clinics in Taiwan.

Sample: 144 pediatric patients with cancer, aged 10–18 years.

Methods: Subjects completed the Memorial Symptom Assessment Scale 10–18, the Play Performance Scale for Children, and a demographic questionnaire. Medical records provided disease and treatment data. Cluster analysis techniques were used to identify the symptoms that clustered together by demographic characteristics, as well as disease, pain, and functional status.

Main Research Variables: Symptom cluster, pain status, and functional status.

Findings: Five clusters were identified from the statistical analysis. The symptoms that clustered together were somewhat surprising, and some can be explained by cultural differences. Patients with pain reported statistically significant higher distress in all five clusters.

Conclusions: Five symptom clusters are identified in older Taiwanese children with cancer. The way and possible rationale of how these symptoms clustered together is discussed.

Implications for Nursing: This is the first study that used a statistical procedure to derive symptom clusters experienced by pediatric oncology patients. Knowledge from this study can provide a starting point to investigate the stability of symptom clusters with different states of disease, different populations, and over various periods of time.

The prevalence of symptoms experienced by pediatric patients with cancer has been increasingly documented since the late 1990s (Goldman, Hewitt, Collins, Childs, & Hain, 2006; Hockenberry & Hooke, 2007). The ultimate goal of cancer treatment for pediatric patients with cancer is cure; thus, researchers and clinicians may have been more willing to overlook the symptoms that this population has experienced. Researchers have shown that children with cancer, like adults, also suffer from an array of symptoms during cancer treatment (Collins et al., 2000; Hockenberry & Hooke; Yeh, 2001) or during their terminal phase (Jalmsell, Kreicbergs, Onelov, Steineck, & Henter, 2006). Severe symptom distress may delay scheduled treatments, the effectiveness of treatment protocols, and the rehabilitation process.

When discussing symptom distress in children with cancer, studies have focused primarily on individual symptoms. For example, a comprehensive literature review that examined symptom management using traditional and complementary medicine in children with cancer (Ladas, Post-White, Hawks, & Taromina, 2006) showed that most studies focused only on a single symptom that was associated with a specific research question, such as procedure-related pain (Zeltzer et al., 2002), nausea or vomiting (Reindl et al., 2006), fatigue (Iwasaki, 2005), mucositis (Aquino et al., 2005), and anxiety or insomnia (Francis & Dempster, 2002). In clinical practice, patients undergoing cancer treatment seldom present with a single symptom but usually suffer from multiple symptoms simultaneously. Studies related to symptom management in adults has focused on symptom clusters, a construct in oncology nursing theory (Dodd, Miaskowski, & Lee, 2004) that is still in its infancy because of a lack of consensus about a definitive definition or a shared biologic mechanism (Miaskowski & Aouizerat, 2007). To date, only one study has discussed the symptom cluster of fatigue, sleep, and pain in pediatric patients with cancer (Hockenberry & Hooke, 2007). In addition, no empirical studies have provided evidence or foundational knowledge of the symptom clusters experienced by children with cancer; therefore, this new area should be explored and knowledge developed for management.

The purpose of this study was to develop knowledge on which to build a theoretical framework of symptom clusters among children who have cancer. The specific aim of this study was to use an analytic procedure to derive symptom clusters occurring in pediatric patients with cancer. The research questions were as follows.