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Latent class/profile analysis on symptom clusters in pediatric studies

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While many researches on symptoms in child patients are directed toward studying individual symptoms, interest in symptom clusters in patients has been increasingly expanded in recent years. The terminology of "symptom cluster" in literature has different meanings. First, symptom cluster refers to a group of symptoms that are associated with simultaneous occurrence and second it is defined as a group of individual patients sharing similar symptoms. These are conceptually different types of clusters. The former is about "variable-centered" symptom clusters that have to do with measurement dimensions and the latter is about "person-centered" symptom clusters that represent distinct subpopulations/groups in the target patient population under study. Latent class analysis (LCA) is one of the person-centered analytical approaches that can be applied to identify potential latent classes/groups (sub-populations) that are a priori unknown in the target population under study. Patients are similar within class, but differ across classes with respect to a set of symptom measures. When symptom measures are continuous (e.g., scale scores of depression), LCA becomes latent profile analysis (LPA). LCA and LPA can be readily extended to latent transition analysis (LTA) to study latent transitions of the symptom cluster/profile status over time using longitudinal data. This study applied LPA to identify distinct latent profiles/groups in children with cancer in regard to the four PROMIS symptoms measures (depression, anxiety, pain, and fatigue). LTA was applied to examine the transitions of latent profile status over time and identify factors that influence such transitions.

Biography

Jichuan Wang has completed his PhD from Cornell University and Post-doctoral studies from the Population Studies Center, University of Michigan. He is a senior biostatistician at Children's Research Institute, CNHS. He has published three statistical books and authored/co-authored more than 100 peer-reviewed journal articles with more than 30 first-authored. He has been serving as an Editorial Board Member of five academic journals.

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