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Development of an Instrument to Measure Lifelong Learning Among Physicians

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Development of an Instrument to Measure Lifelong Learning Among Physicians

Lifelong learning is an important aspect of professionalism in medicine. Medical education is a lifelong process that begins in medical school and continues throughout physicians' professional lives. The importance of preparing medical students to become lifelong learners has been emphasized by the Association of American Medical Colleges (AAMC) reports on the Medical School Objectives Project (MSOP) (www.aamc.org/meded/msop).

Despite the emphasis placed on physicians' lifelong learning, no universally accepted definition of the term has been proposed, and no psychometrically sound tool has been developed to provide an operational measure of the concept and its empirically derived components among physicians.

Jefferson Project on Physicians' Lifelong Learning

Because of the importance of lifelong learning in the medical profession, we designed a study aimed at developing an operational measure of physicians' lifelong learning.¹ Such a tool is needed for any empirical study of physicians. Lifelong learning and for empirical assessment of unverified assumptions such as the notion that specific educational programs (e.g., problem-based learning) enhance lifelong learning. The project, approved by the Institutional Review Board, is supported in part by a grant from the National Board of Medical Examiners (NBME) Stemmler Medical Education Research Fund.

For the purpose of our study, and based on a review of relevant literature, we defined lifelong learning as a concept involving a set of self-initiated activities (behavioral aspect) and information-seeking skills (capabilities) that are activated in individuals with a sustained motivation (predisposition) to learn and the ability to recognize their own learning needs (cognitive aspect).

In the preliminary phases of our project, we developed an early version of a questionnaire for measuring lifelong learning among physicians based on a review of the literature and two pilot studies. The questionnaire consisted of 37 items answered on a four-point Likert-type scale. The questionnaire was mailed to 373 physicians who were randomly selected from all physicians affiliated with the Jefferson Health System; 160 responded (43% response rate with no follow-up reminder). Based on the results of psychometric analyses, 19 items on the questionnaire were retained, constituting the new Jefferson Scale of Physician Lifelong Learning (JSPLL). These items included "Lifelong learning is a professional responsibility for all physicians," "I always make time for self-directed learning, even when I have a busy practice schedule and other professional and family obligations," and "I believe that I would fall behind if I stopped learning about new developments in my profession."

Data for these items were subjected to factor analysis to examine the underlying construct of the scale. Five meaningful factors emerged: "need recognition," "research endeavor," "self-initiated or self-directed learning activities," "technical or computer skills," and "motivation." These factors are conceptually relevant to the

notion of lifelong learning and its unique features described in the literature, therefore providing support for the construct validity of the JSPLL.

Comparison of men and women on the scores of the JSPLL showed no significant difference, except for "research endeavor" where men outscored women. This is consistent with previous findings that showed male physicians reporting more involvement with research activities than female physicians² and can be considered as evidence in support of the validity of the "research endeavor" component of the lifelong learning scale.

Further analyses indicated that physicians who published papers, presented research findings at professional meetings, or collaborated in the conduct of research obtained significantly higher mean scores on each of the five factors compared to those who were not involved in these types of activities. These results are consistent with our expectations about lifelong learning activities and provide evidence for the validity of the scale's underlying components.

The coefficient alpha for the entire scale (19 items) was 0.93. A coefficient of this magnitude is in the acceptable range for educational and psychological scales and, therefore, provides support for the internal consistency reliability of the JSPLL. The results of this study suggest that it is feasible to develop an operational tool to measure lifelong learning among physicians. This study supports some important psychometric aspects of the Jefferson Scale of Physician Lifelong Learning (e.g., construct validity, criterion-related validity, internal consistency reliability). Currently, we are conducting further research with a larger and more representative sample of physicians to confirm the factorial structure of the scale and to examine the validity of each extracted factor by using appropriate external criterion measures. We will also examine the scale's test-retest reliability and construct a norm table (e.g., percentile score distribution) for comparative purposes. The results will be reported in due course.

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